CONSUMER DEMAND FOR COMMUNITY SUPPORTED AGRICULTURE:

A COMPARATIVE STUDY OF THE KANSAS CITY (USA) AND MIDI-PYRENEES (FRANCE) REGIONS

by

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Abstract

Farmer-to-consumer direct marketing institutions have expanded significantly in the last decades. In particular, Community Supported Agriculture (CSA) has developed exponentially in the US and in Europe. CSAs consist of a contract in which the consumer buys a share of the farm production at the beginning of the season and receive in exchange a bundle of products regularly. CSAs still account for a marginal share of food sales today and many questions remain unanswered, such as the level of knowledge of the general public about CSA, the potential size of the market, its consumer characteristics, and the main motivations and barriers that lead consumers to either join or not join CSAs. This study focused on addressing these questions for the Kansas City area and the central region in France. Another objective was to give recommendations to farmers on how to develop CSAs.

Two versions of the surveys were designed and conducted in the US and in France to address the objectives. Particularly, two types of questions were used in order to elicit willingness to pay (WTP): an open-ended question and a choice experiment. A Tobit model and discrete choice models were run to analyze results from the open-ended question and the choice experiment, respectively.

Results show that around 80 percent of the population knew little about CSAs. The understanding of the demand for CSAs shows that a potential market, accounting for around 25 percent of the population, exists, but consumers are very exigent and farmers need to provide well-considered contracts to attract consumers. Recommendations to farmers are presented following the 4P method. For the Product, the variety offered seems to be the most important point. For Price, it has been estimated from the demand at $300 in the US and €400 in France for a basic share. Promotion would need to focus on education. Having various delivery locations would be the best option concerning Place; home delivery was found to be unnecessary. Tendencies found in the US and in France were similar except for educational activities: the French are looking more for these opportunities than Americans who care more about convenience.

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CHAPTER 1 - Introduction and context

1.1 Introduction

In the context of a globalized economy, with rising concerns about environmental and health problems, a seeming increase in demand for locally made products has been observed. This is particularly the case for food, and even more notable for fresh and perishable food products (fruits, vegetables, meat and eggs) which is mostly supplied directly from agriculture. Thus, farmers need to adapt to this new consumer trend. In response to this increasing demand for locally grown produce, various structures to market farm products directly from producers to consumers have emerged.

The purpose of this thesis is to evaluate the feasibility of expansion of a particular direct, producer-to-consumer marketing institution: Community Supported Agriculture (CSA). The potential for expansion is evaluated through the understanding of the consumer demand. Several elements are also developed on other direct, farmer-to-consumer marketing systems. This work focuses on a particular geographical location: the Kansas City urban area. A comparative study is conducted in France, in the Midi-Pyrenees region, in order to achieve a deeper examination on this issue. Finally, recommendations for producers are drawn from the results obtained. The thesis starts by explaining in more details the context and the goals of this work in the following subsections.

1.2 The existence of the project

The Farmers Market Promotion Program (FMPP) is a competitive grants program administered by the United States Department of Agriculture (USDA), and targets to help in the development of farmers markets, community supported agriculture (CSA) and other direct producer-to-consumer marketing opportunities (USDA, 2010). To be more precise, around $3 million (Federal Register, 2010) were allocated to the FMPP for 2008 (and $5 million for 2010), with the maximum grant awarded to a project not exceeding $100,000. Institutions eligible to apply include nonprofit corporations such as universities, producer associations or networks, and agricultural cooperatives. In 2008, researchers from Kansas State University (KSU), in

collaboration with the Kansas City Food Circle (KCFC), applied for and received funds from the FMPP for a project entitled "CSAs and Organic Farmers Markets: Strengthening Producer Capacity and Consumer Linkages around Kansas City" (Carey, 2008). Kansas City (KC) is located in the state of Missouri, on the border with the state of Kansas (map 1). This thesis is a component of this KSU/KCFC project.

Map 1: Kansas City location in the USA

The KCFC is an organization which promotes the development of the local food system. It is an all-volunteer membership organization (Kansas City Food Circle, 2010). The main goal of the organization is to create a community where farmers, consumers and grocers work together and trust each other. The idea of sustainable development is essential for the organization. But what is sustainable development?

The general definition of sustainable development made by the United Nations in 1987 says it is a "development which meets the needs of the present without compromising the ability of future generations to meet their own needs". In the US, it has been addressed by the Congress in the 1990 Farm Bill. According to that law, "the term sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- satisfy human food and fiber needs

- enhance environmental quality and the natural resource base upon which the agricultural economy depends
- make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls
- sustain the economic viability of farm operations
- enhance the quality of life for farmers and society as a whole." (USDA-NAL, 2009).

These definitions remain broad and require identifying applications. The KCFC created the KC CSA coalition, devoted first, to educating the public about agriculture and food production and second, to expanding the CSA system. The additional activities proposed in the FMPP project could be seen as ways to strive for sustainable agriculture.

The KSU/KCFC project is an 18 months project that received $56,700 in funding. There are three main points to this project:

(a) Increase the number of CSA farms around Kansas City by farmer training
(b) Encourage the development of community groups by consumer education and organization to support farmers markets and CSAs
(c) Evaluate size and characteristics of the consumer demand for CSAs around Kansas City

This thesis contributes to the KSU/KCFC project by addressing its last point. Indeed, the study evaluates size and characteristics of the consumer demand for CSAs around Kansas City, among other things.

The KSU/KCFC project can be explained in a little bit more details for a better understanding of the context in which the thesis is conducted. The goal of the first point (a) is to organize educational activities for farmers about CSAs. It includes new farmers training and existing farmers' skills and knowledge improvement. It will consist of, for example, mini-schools, apprenticeship and mentorship of the new CSA farmers by experienced growers. The second point (b) objective is to educate consumers about CSAs and develop groups to support CSAs by local food buying clubs, using direct instruction and web tools. The KCFC has begun this work with its creation of the KC CSA coalition mentioned above. A website has been developed (www.kc-csac.org) which references all the CSA farms around Kansas City and gives the characteristics and location for each farm. The website also presents all the events concerning

local or fresh food around Kansas City and gives clear definitions and explanations for each type of direct producer-to-consumer marketing channel. In addition to the website, coupons and flyers are distributed at meetings and other events. Finally, the last point (c) is the most pertinent to this thesis; it consists of conducting a consumer survey to help quantify size and characteristics of demand for CSAs around KC. This goal is achieved in this thesis and its conclusions will help KSU and the KCFC to achieve the two other objectives, (a) and (b).

Note that in sum, the main goal of the KSU/KCFC project is to raise the number of CSAs around Kansas City and to increase the number of consumers buying through farmers' markets and CSAs. The thesis extends this a little bit by drawing on theories of consumer demand for CSAs (and other direct farmer-to-consumer marketing channels) and by providing facts and recommendations to improve their development that are applicable to areas beyond the Kansas City urban area.

The application of the thesis results for the KSU/KCFC project is that the understanding of the consumer demand is essential in designing farmer training and consumer education and organization. Indeed, the knowledge about the potential size of the population and its characteristics will help to act efficiently on the two tasks. The estimation of the size of the population ready to become CSA members is essential to recruit an adequate number of new CSA farms. Then, the characteristics of the consumer demand will allow the KCFC to design the farmer training program and promotional materials directed to consumers.

1.3 History about local food

It was seen in the introduction that the demand for locally grown produce has increased. It is not easy to understand why people are asking for locally produced food. It seems that after the Second World War, particularly in Europe, the most important notion was to be able to eat sufficiently. The development of agriculture helped by various policies, such as the introduction of the Common Agricultural Policy (CAP) in Europe, led most wealthy nations to become self-sufficient on food. Then, the behavior about food changed (Bougherara, Grolleau, and Mzoughi, 2009). The priority for consumers was not anymore to eat for sustenance but to eat food of quality. That is why many regulations on food production and marketing started to appear. The definition of quality is difficult to explain. Fundamentally, quality could refer to the guarantee

that the food is uncontaminated, so it can be consumed safely. In richer countries, this notion of uncontaminated food is now outdated in most consumers' mind, as it has become the norm for food to be uncontaminated. The term of quality takes another sense in this case, implying a product with particular characteristics. Consumers could ask for healthy food or tasty food for example.

The notion of sourcing locally probably appeared partly with the emergence of environmental concerns. The idea was, if local food is consumed, one knows where it comes from, who produced it and how it was grown. In addition, with globalization, food started to travel longer distances around the world. Noticing this trend, different groups of consumers started to support local farmers. The first groups linking farmers and consumers directly started in the mid 1960's in Japan, as explained by Van Hen (1995). These groups took the name of "teikei", which could be translated as "food with the farmer's face on it". It was developed by a group of Japanese women who were concerned about pesticide use, increase in the portion of processed and imported food and decrease in the number of farms. They initiated a direct and cooperative relationship where farmers were supported by the community on an annual basis (Robyn Van Hen Center, 2010). Currently, the Japan Organic Agricultural Association (JOAA) defines teikei as a co-partnership between producers and consumers where the agriculture is ecological and self-sufficient to the group, meaning the farm provides various items on appropriate amounts. Consumers help farmers on the farm work as an educational opportunity where the community could share the labor. Packaging and selection are simplified; products could be big, small or with some mud on them. The distribution is made by the participating consumers and/or producers. The diet is adapted; consumers accept all the produce provided and choose recipes to consume them. Finally, prices are set in a spirit of mutual benefits (JOAA, 1993).

A similar concept started in the US in the mid 1980's. Robyn Van Hen is considered as the founder of the Community Supported Agriculture (CSA) system in the US. She created the first CSA concept with Jan Van Tuin, who already worked on the organization of a Swiss version of the "teikei". Van Hen then became the director of CSA North America. The CSAs and other kinds of system that allow for consumers to buy directly from farmers have expanded since the 1980's. In Europe, the same phenomenon has occurred; in France, for example, a structure

comparable to CSA called AMAP which could be translated as “Association for the Support of Peasantry Agriculture” appeared in 2001 and has expanded since this time. A detailed presentation of different ways to purchase food directly from farmers and their development will be explained in chapter 2.

1.4 The study objectives

Beyond the narrow focus of the KCFC’s need to know the consumers demand in the KC area, a more general question appears. What about consumers in the rest of the world? The previous section discussed efforts in Japan, Europe and the US to link farmers and consumers directly. Indeed, in these countries, consumers are not concerned anymore about quantity and contamination – for a majority of the population– so new needs appear and the demand is more specific. Good quality food could take on a large range of properties. Local, healthy, organic, and easy to prepare are just random examples.

In this context, it is very difficult to know what the real demand from consumers about food is. The notion of local seems very important to them; that is why teikei appeared in Japan, CSA in the US, and similar structures in Europe (AMAP in France). A part of the population is now buying food through these marketing institutions. But how are they meeting the needs of consumers? Are there other people who want to become CSA members? Are there other structures more suited to meet consumer needs than CSAs? These questions are critical in determining the future of direct market institutions. The notion of direct marketing will be defined more precisely in the literature review section, but it could be summarized as the act by producers to sell their production directly to consumers.

Several studies and surveys have been done on CSA members or on people who are using direct marketing institutions. In fact, it is relatively easy to identify direct market users and to question them about their levels of satisfaction. However, it is much more difficult to question the non-users about their thoughts and their needs about food because they are not easily identified. That is probably why there are not many studies that estimate the non-users demand. Nonetheless, studies that examine both current direct market members and non members jointly seem essential to determine the effectiveness of each direct market concept and to improve them efficiently.

For all these reasons, the foremost goal of this thesis research is to estimate demand of the general population about food directly marketed from local farmers. Second, the idea is to determine the segment of the population who would be ready to become CSA members and the conditions people would take into consideration to determine whether they become CSA members or not. Finally, a broader objective of this thesis work is to give recommendations and propositions to farmers to help them to develop their businesses in direct marketing.

To further the understanding of demand, the study aims to determine consumer willingness to become CSA member and its willingness to pay (WTP) to join a CSA. This includes the evaluation of the consumer perceptions and knowledge about local food and direct marketing systems as well as the motivations and barriers that would lead consumers to become CSA members or not. The second objective of the study is to give concrete suggestions to farmers to adapt to the demand. Assuming that the future viability of farms depends on them to adapt to consumer needs, as consumers will not adapt to supply, recommendations will be derived from results obtained to address the second objective.

These two objectives will be achieved if the following four questions are answered:

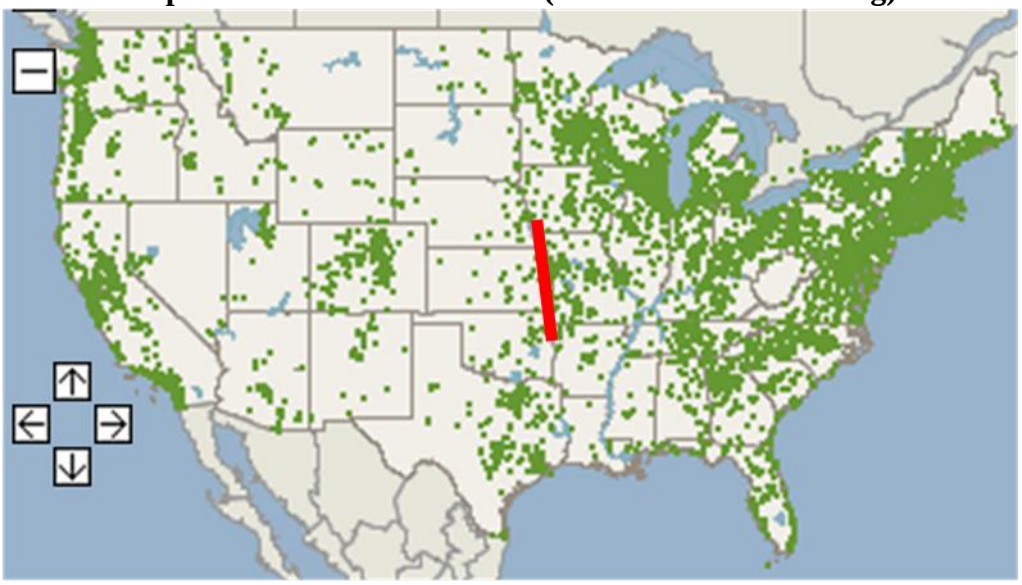
- What is the size of the population who are familiar with CSAs?
- What is the size of the population that would be ready to become CSA members?
- What are the main motivations and barriers that lead consumers to become CSA members or not?
- What could help farmers to improve CSA farms efficiency?

The three first questions refer to the first objective and question four to the second.

As stated before, for the needs of the KSU/KCFC project and taking into consideration the limited budget, the thesis study focuses on a part of the US: the Kansas City area. It is the heart of the study. In addition, a comparative study is conducted in Europe, in the south of France, in the Midi-Pyrénées Region. Indeed, the Missouri-Kansas border, as shown in the map below (map 2), appears to be the frontier on the CSA development in the US (red line on the map). CSAs are well developed on the east-side of this border but not as well on the west-side before reaching the coast. Thus, the comparative study in France would help to see what the differences are between the central US area, where interests in local food appear to be relatively

low, and France, where local and quality food concerns are expected to be high. The choice about the particular Midi-Pyrénées Region to conduct a comparative study will be explained in the Methodology chapter.

Map 2: CSA farms in the USA (Source: localharvest.org)



Surveys have been conducted in order to collect appropriate data, including a choice experiment. Then, statistical analysis and econometric models (including discrete choice models) have been used in order to obtain and interpret the results and draw conclusions to answer the stated questions and meet the objectives. The methodological process will be explained in full details in the Methodology chapter.

The second chapter presents previous literature that has addressed similar or complementary subjects and background from several experts. The third chapter details the methodology used to conduct the study, such as the survey creation, its administration and the theory about econometric models that are used in estimation. Then, chapter 4 gives the results obtained from the surveys and their analysis, drawing conclusions on consumer demand. Finally, the last chapter summarizes what should be inferred from the results and gives recommendations to help improving and developing CSAs (and other direct marketing channels).

CHAPTER 2 - Previous literature and background

2.1 Local food market in a globalized economy

In the context of a globalized, large-scale, industrialized, and impersonal nature of the food system, as explained by Stagl and O'Hara (2002), it seems that a considerable number of consumers are looking for alternative food systems. In addition to this globalized system, the search for alternatives has been promoted by BSE (Bovine Spongiform Encephalopathy), GMO (Genetically Modified Organism) and medication of animals to enhance productivity. These food-related developments raise consumers' anxiety and lead them to consider the possible alternatives (Stagl, 2002). Accordingly, the demand for organic and/or locally grown produce has increased. Consumers are looking for produce with the farmer's face on it (Van Hen, 1995).

Let's have an overview of the food system during the last century. According to Farnsworth et al. (1996), urban areas were dependent on nearby farms for perishable products such as fruits and vegetables at the beginning of the 20th century. Then, with the development of technology, such as rapid transportation, iced vehicles and shipping networks, perishable food came to travel all over the United States and be imported from foreign countries such as Mexico (Farnsworth et al., 1996). In the 70's, local food initiatives reemerged with the environmental movement: roadside stands, U-pick farms and farmers markets appeared. In the 80's, movements in sustainable agriculture and organic farming merged with these local food initiatives. Today, more complex and innovative production and distribution systems are used for local foods; subscription farming and CSAs are two of these new generation systems. These concepts will be developed later. But first, the definition of local food is necessary.

2.2 What is local food?

The definition of "local" food seems to be a simple concept on a first approach. However, this concept is in fact very subjective and there is no standardization to define it (Zepeda and Li, 2006). This is true among consumers but also among producers and retailers (Peterson and Janke, 2009).

Most people define local as a specific distance (mileage) or driving time (hours) away. A survey of 796 individuals by the Hartman Group in 2008 and cited by Brown and Miller found that 50% of the them consider the food to be local if it is made or produced less than 100 miles (160 kilometers) from their living place (Brown and Miller, 2008) or within 2 hours of driving. Another definition takes into account the political boundaries; it could be the county, the state or even the entire United States of America. Zepeda and Li (2006) argue that consumers generally define "local" in terms smaller than their state. However, according to Brown and Miller using the Hartman Group survey data (2008), one third of the consumers consider food as local if it is made or produced in their state. Finally, a portion of the population considers the food to be local with country-of-origin label (e.g., "Product of the US") (Peterson and Janke, 2009). For this thesis, local will be considered for food that is produced less than 100 miles from the consumption place.

2.3 Different ways to get local food

Before focusing on local food, it is important to understand where consumers purchase their food in general. Bond et al. conducted a survey on 1,549 representative US households in 2006 (Bond, Thilmany, and Bond, 2006). They found that 76% of their sample preferred supermarkets as their general food primary purchase location, 19% preferred supercenters, 2% health food stores, 3% preferred to buy direct from producers or in specialty stores. When asking for the primary purchase location for fresh produce, 56% of the households said they preferred to purchase their fresh food in supermarkets, 10% in supercenters, 2% in health food stores and 32% direct from producers or in specialty stores, including 25% that specifically mentioned farmers' markets. Finally, regarding the secondary purchase location for fresh produce, 29% of the population choose supermarkets, 23% supercenters, 8% health food stores, 18% direct from producers or in specialty stores (12% from farmers markets) and 22% did not identify a secondary purchase location for fresh produce (Bond, Thilmany, and Bond, 2006). Their findings tell that the direct marketing accounts for a small share when talking about general food but represents an important outlet for about one third of the consumers when talking about fresh produce.

Direct marketing in a large sense consists of supplying goods directly from producer to consumer (Bowler, 1982). Thus it basically refers to a market with no middlemen. Moreover, according to Bowler (1982), direct marketing involves contacting consumers through a mass media. On the agricultural case, the simplest level would be to put a sign at the farm advertising products supplied and their prices. Direct marketing can take a large variety of forms. The following table (table 1) presents them. Each channel will be defined and their development along the last decades will be reviewed on the following sections.

Table 1: Summary of ways to get fresh local food in terms of engagement with the farmer and where to get it

	No engagement	**Some engagement**	**High engagement**
Local food purchase (no direct relation with the farmer)	- Grocery store with local food offerings - PVC		
Purchase from farmer, not at the farm	- Farmers market - Roadside stand - PVC	- Subscription farming	- CSA/AMAP
Purchase from farmer at the farm	- Farm stand	- Pick-your-own - Agritourism - Subscription farming	- CSA/AMAP
Self-production	- Home Garden	- Community Garden	

Sources from the papers that are going to be presented in the following subsections

2.3.1 Farmers market

The most common way for consumers to buy food directly from farmers is to shop at a farmers' market. Similarly, for farmers, the easier way to engage in direct marketing is to participate in farmers' markets. According to Tippins, Rassuli and Hollander (2002), farmers' markets are specific locations, which can be open lots or sheltering buildings, where farmers sell their products directly to shoppers. Farmers either rent stalls or set up displays depending on the market.

There are two kinds of markets. The first is called "certified" farmers market, regulated by law and where sellers of products are also the growers (Tippins, Rassuli, and Hollander, 2002). The second type does not have any "certified" label and some reselling by non-growers can occur. The number of farmers' markets has increased steadily since 1994. According to statistics

from the Agricultural Marketing Service of the USDA (USDA-AMS, 2010) there were 1,755 farmers' markets in the US in 1994, 3,706 10 years later, in 2004, and 6,132 in August 2010. This makes an increase of 350% in 16 years. In 1996, when 2,410 farmers' markets existed in the US, there were more than one million customers every week (O'Hara and Stagl, 2001). Furthermore, the estimation of the total nationwide sales was $1 billion for the 2005 season (Brown and Miller, 2008).

The main products that can be found in farmers' markets are fresh fruits and vegetables, but some markets offer a large diversity, including eggs, chicken, meat, dairy products, baked goods and handicrafts (Tippins, Rassuli, and Hollander, 2002). When the market is open to non-farmer resellers, the variety offered is even larger. Farmers markets take place on a regular basis, which is in most cases either once a week, several times a week or every day. Moreover, markets can be open seasonally or all around the year, depending on the region and supply (USDA-AMS, 2010).

In France, farmers' markets exist as in the US, with similar offers from the producers or other resellers depending on the market. They also take place on regular basis with some of them which are open seasonally and others year round. A particular type of farmers' markets has been created, named "Marchés des Producteurs de Pays" (2010), where farmers respect a charter which specifies the main goals of these markets are to link producers and consumers and offer "authentic" and local products to shoppers. There are currently 349 markets associated with this particular brand in France. There are many more farmers' markets in France, but they are not identified as well as those, so it is very difficult to know how many of them really exist.

2.3.2 Roadside and Farm stands

Roadside stands are another way for farmers to sell directly to consumers. As their name suggests, they are stands installed close to roads. They became popular with the increase of the highway network (Tippins, Rassuli, and Hollander, 2002). The most common products sold through this channel are fruits and vegetables, but it can also be used for farm produced handicrafts. They can take various forms, from a simple folding table to a closed and permanent building with refrigerated facilities. When they are permanent buildings, it allows for selling all kinds of products including meats and dairy products.

Farm stands are similar structures except that they are directly installed at the farm, thus it is easier to set up refrigerated facilities and there are less time constraints. Indeed, farmers can work on the farm on the same time. However, it is less convenient for consumers, and might be hard to find sometimes. Roadside and farm stands are quite common in France for regional gastronomical specialties in touristic areas. For example farmers sell regional cheese near famous hiking trails in mountain areas.

It should be noted that not many studies have been conducted on roadside and farm stands. In fact, it is hard to evaluate their number, the volume of products concerned and the number of consumers buying through these channels.

2.3.3 Agritourism

Agritourism is defined as the practice of touring agricultural areas to see farms and often to participate in farm activities by Webster.com (2010). AgriMissouri, an organization which promotes direct farmer-to-consumer marketing channels in Missouri summarizes agritourism as any agribusiness or farm that provides an agricultural experience. Thus, agritourism can take various forms. Note that their website references 343 farms in Missouri State (AgriMissouri, 2010).

The simplest type of agritourism consists of “Pick-your-own” (PYO) or “U-pick” (Adam 2004). Tippins, Rassuli, and Hollander (2002) define PYO as farms which open their fields to consumers and let them harvest personally the products they want to purchase. The advantages for consumers are lower prices and a supposed high quality because they pick the products they want. As same, the farmer benefits from lower costs because harvesting costs are mainly shifted to shoppers. Nineteen U-pick farms are referenced on the AgriMissouri website in the state of Missouri, including three farms around KC, Missouri among Platte, Clay and Jackson counties, respectively on the North, East and South side of KC.

According to Adam (2004), PYO were at their height of popularity in the 1970s in the US. Then, many families were canning green beans or freezing strawberries. But today, canning and freezing activities are almost eliminated from the household activities. The housewives would typically gain opportunity to become fully employed rather than preparing food for winter. Thus, successful PYO are now more likely to be part of the agritourism and entertainment farming.

In France, PYO is known as “cueillette à la ferme”. This could be translated as “gathering” or “picking at the farm”. The network “cueillette à la ferme” (2010) references 13 PYO in France, while the “chapeau de paille” website references 24 of them (Chapeau de Paille, 2010). Crossing information from 2 websites (Légumes et fruits and Bienvenue à la ferme, 2010) identifies 12 PYO farms in the Midi-Pyrenees region. When using “cueillette” key word in Bienvenue à la ferme website for the Midi-Pyrenees region (Bienvenue à la ferme – MP, 2010), 22 farms appear in Midi-Pyrenees.

When agritourism involves activities besides labor work, such as education or entertainment, another type of “agritourism” or entertainment farming emerges. The goal then becomes to provide consumers with a taste of country living by bringing them to farm, as explained by Tippins, Rassuli, and Hollander (2002). This is mostly promoted to people who live in urban areas. Thematic approaches are used such as walking trails, cooking skills, and petting animals. There is usually a fixed rate admission fee in addition to the possibility for consumers to purchase products at the farm. From AgriMissouri website, 7 farms are referred as agritourism farms on the large sense (providing agricultural experience) around Kansas City in Platte, Clay and Jackson counties. Four of them provide educational activities such as tours and activities for children.

In France, an organization similar to AgriMissouri exists named “Bienvenue à la ferme”, which can be translated as “Welcome to the farm”. This network totals 5,772 farms in France according to their website (Bienvenue à la ferme, 2010) and 695 farms in the Midi-Pyrenees region (Bienvenue à la ferme – MP, 2010). It could include a lot of various services divided in four categories: gastronomy (e.g., wine tasting, catering, bundle of products), lodging facilities (e.g., campgrounds at the farm, self-catering cottages, farm bed and breakfasts), leisure/discovery (e.g., activities for children, pedagogical farm, hunting at the farm), and services (e.g., recreational vehicle area). Each farm can offer one or more of these activities.

2.3.4 PVC

The French “Point de Vente Collectif” (PVC) can be translated as “Collective Point of Sale” in English. Pouzenc et al. (2008) define PVC as a sale place managed by producers who decided to jointly sell their products. Producers are selling the products by themselves, taking turns during the open hours, or hiring employees. In this sense, PVC can be at the limit of direct

market channels, consumers do not necessarily buy from the person who made the product. But there are still no middlemen, just a more complex sale structure.

PVCs have existed in the Midi-Pyrenees region since 1970. Pouzenc et al. (2008) referenced 23 of them in the study they conducted in 2008. These 23 structures involve between 300 and 400 associated producers and a similar number of non-associated producers (those who provide products but do not have decision or managerial power on the structure). The smaller number of associates is 2 and the larger 75 for one PVC. Moreover, the number of products offered varies from 50 to more than 1000 depending on the PVC.

2.3.5 Subscription farming

Subscription farming is a direct marketing approach in which consumers contract with a producer and pay in advance for a bundle of produce they will receive each week. Consumers could renew, suspend or cancel at any time (Farnsworth et al., 1996).

In practice, subscription farming usually asks consumers to pay a subscription fee ($25 to $50) for the right to purchase products from the farm. Consumers then pay for the products they actually purchase depending on their quantity and quality (Tippins, Rassuli, and Hollander, 2002). Farnsworth et al. (1996) specify that subscription farming can be compared to pick-your-own farms but where only subscribers can purchase products.

Subscription farming, sometimes called subscription CSA are associated to CSA farms by several authors in the literature. For example, Adam (2006) explains that two types of CSA exist: the subscription CSA and the shareholder CSA. In the first type the farmer makes most of the managerial decisions, subscribers are not required to work. In the second, the CSA usually emerge from a “core group” that manage the community and hire a farmer; most of the decisions are made by the core group leaders. This is very different from what was seen in the previous paragraph. These variations in definitions are a source of ambiguity.

Considering the first definition to be the most used, keep in mind for the next sections of this thesis that subscription farming only asks for a subscription from the consumers and they will pay for products depending on their purchases. As it will be seen in more details in the next section, CSA requires its members to buy a share of the farm for the entire season each year, thus consumers share all the risks of the farm for the year with the farmer and the other members.

2.3.6 CSA or AMAP

CSA are marketing structures that allow consumers to purchase a share of a farm's production output (Tippins, Rassuli, and Hollander, 2002). Consumers who become members of such a farm are called shareholders. Indeed, they share the risk of crop damage and failure with the farmer. The principle is that shareholders pay at the beginning of the growing season for a share of the harvest and farmers then regularly provide bundles of produce during the growing season (Farnsworth et al., 1996). The interests are multiple; first, financial and production risks are shared among the shareholders and the farmer; the middlemen are eliminated; finally, it substitutes the profit maximization system with a community-based sustainable system. These points lead to an alternative system in a true sense.

As seen in chapter 1, the CSA philosophy appeared in Japan and in Switzerland in the 1960's. It first appears in the USA in 1986 (Farnsworth et al., 1996) simultaneously and independently in Massachusetts and New Hampshire states (McFadden, 2003). In 1990, there were about 50 CSA farms in the USA (Brown and Miller, 2008); in 1996 there were about 600 CSA projects; in 2007, the estimation was 1,700 CSA farms with about 100,000 members (Henderson and Van En, 2007); and 1,900 CSA farms were active in 2008 from Local Harvest data (Brown and Miller, 2008). According to the Local Harvest website (2010), there are 3,795 CSA farms referenced in the US in October 2010. There are 83 in Missouri State and 28 near Kansas City (indifferently in Missouri and Kansas).

Tegtmeier and Duffy (2006) conducted a study on the CSA in the Midwest US. They mailed a survey to 144 CSA farms located in Iowa, Illinois, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska and Wisconsin. They used 55 completed surveys to draw the results for their study. The typical farmer was 45 years old and had a college degree. It appears that half of the farms were managed by women. On average, farms had been in operation for more than five years and served 33 members. Membership had increased by 350% since start-up. 97% of the respondents were completely satisfied or satisfied most of the time with their CSA operations. However, 57% stated that their share price does not provide them a fair wage.

To understand as well as possible what CSAs are and how they work in the Kansas City area, two persons were interviewed. The interviews were both conducted on October 29th, 2009. The first person is the manager of Fair Share Farm, a CSA farm located close to Kansas City. The

manager's name is Rebecca Graff and she manages Fair Share Farm with Tom Ruggieri since 2004. Their CSA is one of the biggest (105 members in 2009, 120 in 2010) and oldest CSA farm in the Kansas City area. The second person is the director of the Kansas City CSA coalition, Season Burnett. Both interview reports can be found in appendix 1 and 2, respectively for the Fair Share Farm manager and the KC CSA coalition manager.

Rebecca Graff, the Fair Share Farm manager, is recognized as a role model in managing CSAs. Her farm generates salaries for two full time farmers: her and Tom Ruggieri. The involvement required to join Fair Share Farm is quite high because members are asked to work at least two half days a season. Moreover, a core group organizes the distribution and any particular event. An innovation they started in 2009 is a scholarship for people who have financial difficulties but would like to join the community. The main advantage for farmers to run a CSA is to get money at the beginning of the growing season. This allows for purchasing everything which is needed to run the farm before the growing season and needing only to farm during the season. However, the main disadvantage is the time spent on the computer to answer members' questions and keep the blog updated as frequently as possible. They do not spend time to prepare and go to the farmers market but spend time on the computer.

Season Burnett, the director of the Kansas City CSA coalition, started the coalition activity in 2007, after requests from several farmers. The goal was to create a hub to allow people to find CSAs. The first thing done was the creation of a website, referencing all the CSA farms, their location and descriptions. The website is nearly complete now. The oldest and most well-known farms usually have waiting lists for people wanting to join. The coalition then tries to move people who are on waiting lists to other CSAs. The next step would be to draw the distribution area for each farm and where the members come from. She specified that a new CSA type was emerging called group CSA. It consists of a group of people from the same workplace, or church group, or any kind of association that would all become members of the same CSA farm. The delivery would then take place every week at the workplace, church, or the group's location and would be done by the farmer or a member. This is convenient for both consumers and producer. About the products provided, a large majority of the CSAs around Kansas City provide vegetables, with most of them also providing eggs. One provides bread, and two are meat CSA. The main disadvantage of being a CSA farmer is the limited market outreach. It is very

difficult to advertise and communicate efficiently in comparison with farmers who participate in the farmers markets.

Note that the Fair Share Farm manager said that their farm has core group members who participate significantly in the life of the CSA. Sanneh, Moffitt, and Lass (2001) compared the stochastic efficiency of CSA farms with various core options. They found that farmer and consumers should share objectives to be able to run a CSA farm, so the interaction between producer and members are recommended to be close. In this sense a core group can help motivate this interaction. Note that costs may differ between core and non-core management options. Very involved core group members can incur transaction costs for the farmer by meeting to discuss the share price, review the previous season, and such before the season. Little involvement is usually bringing to advisory core groups which do not differ much from non-core management. In this case, transaction costs do not vary much for the farmer. Moreover, Wells and Gradwell (2001) argue that CSAs are women-friendly. Indeed, relationship with members, education, environmental-friendly practices, and small-scale farms are CSA farms characteristics which are more often associated with female managers' priorities.

CSAs are also in development in other parts of the world. In 2004, there were between 500 and 1,000 CSA farms in Japan, 90 in England, 60 in Quebec and 50 in France (Bougherara, Grolleau, and Mzoughi, 2009). The first French equivalence for the US CSA called AMAP for "Association pour le Maintien d'une Agriculture Paysanne" (association for the support of peasantry agriculture) was created in the south-east of France in 2001 (Reseau AMAP, 2010). There are around 1,200 AMAP in France in 2010, involving about 50,000 families or 200,000 consumers. The estimated gross sales are 36 million Euros (Alliance Rhône-Alpes, 2010). According to Pouzenc et al. (2008), there are more than 100 AMAP in the particular region of Midi-Pyrenees.

The author interviewed Drs. Pouzenc, Pilleboue and Olivier, researchers from University of Toulouse le Mirail and ENSAT School. These researchers conducted a study called "Les relations de proximité agriculteurs-consommateurs: Points de Vente collectifs et AMAP en Midi-Pyénées" (community relationships farmers-consumers: collective point of sale and CSA in Midi-Pyrenees) in 2008. The goal of their study was to evaluate the evolution of the link between producers and consumers and its implication on the territorial development. Among the direct

farmer-to-consumer marketing channels, the study focused on PVC and AMAP, which were supposed to be particularly helpful in the understanding of community relationships. The main goal of the meeting was to make sure their study and this one were not similar. Based on our conversation, it appears that the studies were complementary. Their study targeted the PVC and AMAP members (both farmers and consumers), using mainly qualitative methods, where this one target the general population to evaluate the potential size of the market and the needs of the public about directly marketed, farmer-to-consumer food. The comparison of both studies would likely be very helpful in the development of direct marketing channels in Midi-Pyrenees but also in the Kansas City area and generally wherever in western countries. Indeed, the consumers might not differ too much between the Missouri population and the rest of the US consumers as well as the Midi-Pyrenees consumers would likely have similar needs to most of the other western European consumers.

Note that CSAs exist in almost every Western European countries such as the UK, Germany, Norway, Italy, and Portugal but not many scientific studies have been published, or at least not in English.

2.3.7 Non-marketed food production and consumption

Finally, Bougherara, Grolleau, and Mzoughi (2009) took another factor in consideration: home production of agricultural products. This production generally occurs in small and familial gardens but community gardens also exist and usually consist for individuals or a group of people on paying a rent for a plot allocation to grow their own food (Macias, 2008). Macias (2008) referred, for example, that a 25 by 30 foot plot was $52 in a community garden, in Burlington, Vermont. This conducts to the production of fresh produce without involving any marketing channel. In France, this phenomenon was estimated in the 1990's at about 10% as a share of total food expenditures, but it was declining (Cavaillet and Nichelle, 1998). For the same period, in 1991, 37.4% of households were found to have a home garden. Note that family gardens not only provide agricultural food but also allow for gardeners to practice hobbies or to be in the trend (Severson, 2008). Macias (2008) adds that in the case of a community garden; community relationship, education and mutual aid are expanded.

2.4 Demand for locally grown produce

Bougherara, Grolleau, and Mzoughi (2009) point out an interesting approach to understanding the demand for local food. First, as presented in the first chapter, they explain that the food quality becomes relevant only when the quantity of food is secured in a household. Indeed, in high-income countries, most households have usually secured more quantity of food than what they need. Then, they shift their focus to food safety, health concerns, environmental conditions, geographic and social aspects of food consumption (locally grown products, support of producers, fair trade considerations) and animal welfare.

The authors referenced three groups of attributes that consumers use "to assess the promised quality". First, search attributes take the visual aspect into consideration such as the color of the food product. Then, experience attributes such as taste are not visual, but consumers could still assess them easily after consumption. Finally, credence attributes cannot be assessed by consumers, even after consumption; this is the case of an organic product, for example. Information on the product is very important for this last type of attribute and has an influence on the household's judgment about food quality (Grolleau and Caswell, 2005).

The Natural Marketing Institute (NMI, 2009) conducted a study on consumer segmentation in 2008. The study has identified five U.S. consumer segments. They are based on consumer attitudes toward three notions: health, wellness, and sustainability. Each segment is detailed below:

The first segment is called LOHAS on the study and represents 19% of the US population or 43 million people. The LOHAS consumers are defined to be the most concerned with their own and the planetary health. They purchase products said to be environmental friendly, they act by buying green products, support advocacy programs and are stewards of the environment. "LOHAS leaders" and "LOHAS followers" are the subgroups of the LOHAS segment. LOHAS leaders are the early adopters when an environmentally or healthy initiative appears. They cannot be ignored as a target for innovative sustainable products. The followers are a little bit more moderated.

The second segment is naturalites (15% of the population: 34 million). These consumers focus on buying natural/organic products and have a high concern when it comes to food and

beverages. They are not involved in political environmental movement and do not look for durable environmental friendly goods.

Drifters constitute the third segment (25% of the population, 57 million people). Their behavior is concerned by the topics presented here but other factors are often more important so they usually do not buy or act following their health and environmental behaviors. The price plays a relative role for their choice but they could find a lot of other reasons to explain why usually they do not make healthy or environmental friendly choices.

The fourth segment is conventionals. It concerns 25% of the US population, 53 million people. They usually do not have environmental friendly attitudes but could have some punctual environmental behaviors such as recycling or energy conservation for example.

Finally, the unconcerned constitute the fifth segment (17% of the population: 39 million people). Their priorities are neither environment nor society. As the segment name indicates, they are not concerned and do not have environmental or healthy behaviors.

A segmentation of the consumer population is helpful. But how could we be sure that people who say they buy (or want to buy) food from a particular marketing channel, really do so? This is the issue discussed in the next section.

2.5 Difference between rational ideal and decision behaviors

It appears that people usually do not act according to their ideal theoretical beliefs. For the purpose of this thesis and generally when conducting studies on human subjects such as surveys, it is important to keep in mind that people might likely answer in terms of what they would ideally do instead of how they will actually act. This is explained by Weinstein (1988) in an article about human preventive behavior (for health purpose). In his paper, he criticizes different models of individual self-protective behavior. Actually, preventive behavior are usually modeled by including a cost-benefit, decision-making perspective. These theories assume that people adopt a precaution only if its expected benefits appear greater than its costs. He concentrates on individual behaviors and separates the decision process into stages. The first stage is about belief on personal susceptibility. Susceptibility can be rated from very unlikely to very likely. Note that a “do not know” option should be included as an individual could have no opinion about the

research subject, such as the existence of direct marketing channels as in this thesis. There is a difference between the person who does not know about a topic and the one who thought about the issue and denied it. When persons are aware about a topic, their belief then vary with new information on this particular topic. The second stage consists on a deeper analysis of the topic, considering potential benefits and costs. When the perceived benefits and costs, such as time and effort required, expense, and gains or losses of pleasure are factored into some consciousness, then the decision to act appears. The decision to act is the third stage; it combines the beliefs, the expected benefits and costs; it draws on the behavior efficiency and leads to the decision to act or not. Of course, and according to Weinstein (1988), the decision to act is different than acting. It is just an intention which can be modified by any change in the beliefs or expected benefits or costs. Situational obstacles are mostly mentioned by people who decided to act but eventually did not act.

There are motivations and barriers between each stage of the decision process and when the decision to act is taken, the behavior act could also face various obstacles. The next sections review the motivations and barriers (and obstacles) that could either lead people to buy local food and more specifically become CSA members or not. The following table (table 2) presents the main motivations and barriers that will be reviewed. Motivations have been classified from the most important (red) to the less important (blue) based on the literature reviewed and experts interviewed. Similarly, the barriers have been classified from the strongest (red) to the less important ones (blue).

Table 2: Summary of main motivations and barriers to buy local (join a CSA)

Motivations to buy local and particularly to join a CSA	Barriers to buy local and particularly to join a CSA
Eat fresh	Lack of information
High quality products	Distance (including transportation issues)
Safety	Schedule (extra-trip, opening hours)
Practical aspects (proximity, schedule)	Quantity provided (too much or not enough)
Support local farmers	Limited choice and variety
Environment concerns	Inconvenience (need to cook from scratch, no packaging…)
Pesticide free	Price (too high)
Reduce packaging	Do not know in advance what will be in the share
Health concerns	Uncertainty (good or bad season)
Knowing where the food comes from	Aesthetics often mediocre
Eat products in season	
Price	
Eat organic	
Taste	
Know how food is grown	
Nutrition	
Be surprised by the share	
Community sense/social interaction	
Relation with farmer	
Share the risks with farmer	
Learning how food is grown	
Bringing children to farm	
Working on the farm	

2.6 Motivations for people to buy local food (via CSA)

Let's first have a look on the motivations for people who are already CSA members, meaning people who have transformed their "buying local" beliefs into acts. O'Hara and Stagl (2001) analyzed a survey with 74 (73% response) members of a CSA. The members were asked to rank their motivations to join the CSA. Three motivation areas were studied: physical/spatial, social, and ethical. The eight motivations, ranked as very important or important included (from the most important to less): "eating fresh vegetables", "getting organic vegetables", "supporting local farms", "having concern for environment", "eating vegetables in season", "reducing packaging", "knowing where food comes from", and "doing something for health". Then, the factors: "knowing how vegetables grown", "knowing about bio-dynamic farm", "having a

stronger sense of community", "price of vegetables", and "sharing risk with farmers", were ranked as important or indifferent factors. Finally, "knowing how to grow vegetable", "taking children to farm", and "working at farm" were ranked as indifferent or unimportant factors. Five of the first eight factors corresponded to physical/temporal concern; two indicated social concerns ("supporting local farms" and "knowing where food comes from"); and one reflected an ethical concern ("having concern for environment"). O'Hara and Stagl concluded that the space/time context was the most important for the CSA members.

Bond, Thilmany, and Bond (2006) organize their sample of 1,549 households in three groups to analyze consumer motivations to buy via direct marketing and product attributes. Unfortunately, the CSA members category was not differentiated from other direct marketing categories. The first group was constituted by consumers who used direct channels (farmers' markets or directly from producers) as their primary source to buy fresh produce, representing about 30% of the sample. The second group used direct channels as their secondary or seasonal source to purchase fresh food, representing 50% of the sample. Finally, the third group of consumers did not use direct channels to purchase their fresh produce, accounting for approximately 20% of the sample.

Using this segmentation, the authors first found that all group's top concerns were "superior products", "safety" and "prices", similar to Cooley and Lass (1998). Conversely, "recommendations of friends and family" and "social interaction" were ranked as the least important motivational factors for each group. Then, group one gave more importance on the "variety available" and "support for local producers". Groups 2 and 3 gave higher importance to the factors of "convenience" and "aesthetics", which are related relatively more to conventional retail outlets such as supermarkets. Bond et al. also found that groups 2 and 3 are closer from each other than groups 1 and 2. Thus, they conclude that farmers marketing strategy that emphasized product quality and safety, in addition to lowering transaction costs to improve convenience, would increase the direct marketing channel share of the market.

Then, Bond, Thilmany, and Bond (2006) analyzed the importance of the production practice attributes and the intrinsic produce attributes. All three groups rank the "pesticide-free" production and the "firmness and texture" of the product as the most important attributes. "Locally-grown" produce attribute, the "freshness", as well as the "relation with the producer"

were considered as very important factors for group 1. Group 2 regarded the "country of origin" more important than the "locally grown" attribute. The authors hypothesized that group 2 probably uses "country of origin" as a guarantee about safety concerns. It is important to note that the "organic" attribute was not ranked on the top, even for the first group, being ranked sixth out of seven across all groups. Note that in direct marketing systems, the relationship between farmer and consumer is generally more important than a label (Kremen, Greene, and Hanson, 2004). The consumer needs to make sure the farmer is reliable before trusting him. Instrinsic attributes of "color" and "visual appeal" were similarly ranked among the three groups, where "vitamins", "other nutrients", "taste" and "carbohydrate", which are invisible attributes, were higher importance for group 1. The authors conclude that groups 2 and 3 give more importance to the visual aspect where group one is looking for health and cooking related attributes.

Bougherara, Grolleau, and Mzoughi (2009) tested the following hypothesis that the more people are concerned with credence properties of agrofood products, the more likely they are to supply by long-term contracting. They conducted a survey in the Dijon and Dole area in France. The sample (useable responses) consisted of 48 CSA member households and 121 randomly selected households. The participation in a CSA, meaning purchase of agrofood products by long-term contracting was regressed on households characteristics (e.g., age, income, involvement in association (such as charity or community group), search and experience attributes (freshness and taste of vegetables, cosmetic aspects, price, practical aspects [proximity, opening hours, number of products proposed]), and credence attributes (environmental and social considerations).

They found that the respondents who were younger than age 35 and were involved in associations had higher the probability to become a CSA member, *ceteris paribus*. Inversely, the households who cared for cosmetic aspects and the mix of products had a lower probability to participate in a CSA. Then households with environmental and social concerns were more likely to join a CSA, these credence attributes were statistically significant, so the main hypothesis of the authors was not rejected. Finally, the other variables did not play a significant role in the decision to join a CSA (income, freshness, cosmetic, price, proximity and opening hours). The authors conclude that households' environmental concerns have a major role to explain participation in a CSA.

Stagl and O'Hara (2002) also conducted a survey to investigate the willingness to adapt buying habits and the barriers to the participation in the CSAs. When they directly asked 150 households if they wanted to become CSA members, 37 (24.7%) were interested, 110 (73.3%) were not and 3 (0.02%) did not answer the question. They predicted that a large difference could exist between people saying they are interested and those who would effectively become members. This is the idea developed previously between the "ideal" and realized act. Going deeper on the analysis of the results, they found a probability of 11% for a surveyed non-member to become a CSA member using the means of the data. The strongest impacts influencing their decisions were "shopping habits", "volunteer work" and "preference for buying locally". They did not find a significant impact of income; it seems that low-income people were equally willing to join a CSA than the high-income population. However, the number of children had a significant impact; the more children were living in the household, the lower the probability of the household to become a CSA member.

The interviewed experts had this to say regarding people's motivations to join CSAs. Rebecca Graff listed knowing and learning how food is grown as the advantages for consumers to become CSA members. She specified that members can learn at different levels, from the new gardener to people who were gardening by themselves but cannot do it anymore because of their schedule, age, or some other reason. She adds that price is probably better when buying through a CSA. Dividing the total share price by the number of weeks (24 in her farm) equals about $25 per week. Another point she mentioned is that some "adventurous" members like to be surprised by the content of bundles. Rebecca surveyed her farm members for their satisfaction in 2008. The main results she extracted about why people are CSA members are:

- For the food: good, fresh vegetables (and organic)
- For environmental prospective: for their children or for the environment more generally (no pesticides)
- For health concerns
- To support local farmers by buying local (which join environmental concern: local)

Rebecca Graff also noticed that CSA members are more likely to be Caucasian, highly educated people.

According to Season Burnett, people join CSAs because they like to know where their food comes from. Thus, if they have questions about the food, it is easy for them to reach the producer. Some people join for the sense of community, it is especially true when members work in the farm, there is a socialization process, a mutual aid activity, and often friendship. Moreover, there is the education reason; people like to learn how food is grown. Finally, environmental concerns are important for many members: buy local.

2.7 Barriers for those who do not buy local food

Stagl and O'Hara (2002) found that the most important barrier for people who are not CSA member was a lack of information. Of 147 respondents of their survey, only 29 (19.7%) knew what a CSA was before the interview; 7 (0.05% of total, 24.1% of the 29) were interested in joining a CSAt. Of the 118 respondents who did not know what a CSA was, 30 (25.4%) were interested in joining a CSA. In addition to the lack of information, reasons given by the respondents as barriers to become a CSA member were: they "cannot make an extra trip" when shopping; "too many vegetables" are provided by CSA; it is "inconvenient or too troublesome"; they "need to know in advance" what they will get (mainly evocated by households with children); "pick-up is too far away from home or work place"; the "share price is too high", (mainly mentioned by low-income households); "scheduling problems"; "transportation problems"; and finally "one pick-up day is not enough".

According to Cooley and Lass (1998), disadvantages the most cited by CSA members are the limited choice of products (including lack of variety and lack of choice) and the seasonality of the production. The quantity of products offer is also a matter, sometimes resulting in shortage, or inversely, in waste of products. Moreover, pick-up times and travel to the pick-up location (either the farm or another location) may be inconvenient. Finally, the uncertainty about the monetary value members will get from their share as same as the possibility of a bad season are other limits in the decision process that might lead a person to become CSA member.

Finally, from her experience, Rebecca Graff thinks that the main disadvantage for consumers when participating in a CSA is that they do not choose what they get. According to Season Burnett, some CSA farmers had issues with the difference between the content of bundles

they provide and what members expect. This is why, for her, a good communication is critical in avoiding this kind of issue.

CHAPTER 3 - Methodology

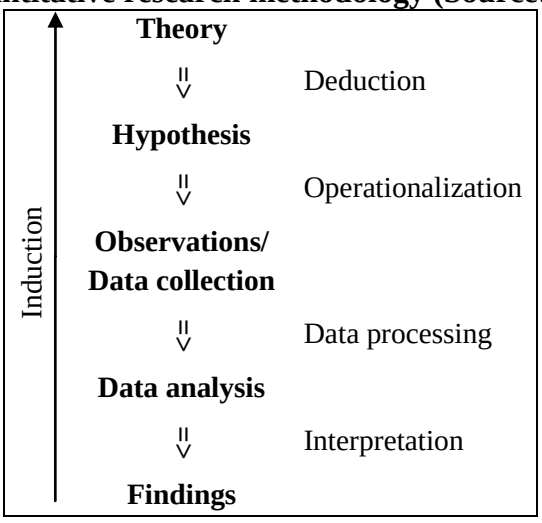
3.1 The choice of a survey

The main objective of this study is to understand demand for directly marketed farm produce, and more precisely, to evaluate the potential size of the market for CSAs and to identify the main motivations and barriers that lead consumers to join a CSA or not. To address this goal, a quantitative study is conducted. But what is quantitative research?

Quantitative research could be explained as a systematic approach in which data are collected and analyzed to answer a previously formulated problem (Bryman, 1989). When data are collected by the investigator conducting the research himself, they are called primary data. The questions are designed for the purpose of a particular topic, so the data obtained will be tailored to address the research question. Otherwise, data are called secondary data; they are obtained from someone other than the user, using existing sources such as the census, government agencies, previously conducted studies, and also qualitative data (Moore, 2006).

The methodology used for quantitative research is usually structured as follows (figure 1). The theory dictates the research framework, which can be founded on previous studies (literature review), reflections, or qualitative research (interviews of experts or subjects). It leads to the formulation of hypotheses to be tested. Hypotheses may contain concepts which need to be measured. The translation of concepts into measures or variables is called operationalization by Bryman (1989). These variables are defined in order to measure the variability of various attributes among the studied population. Note that the representation of the concepts by variables cannot be perfect and contains some limitations (Bryman, 1989). Then, the analysis of the data collected allows for interpretation of the results and for conclusions to be drawn.

Figure 1: Quantitative research methodology (Source: Bryman, 1989, p. 7)



In this thesis, the theory comes from studies conducted by other researchers on related topics and from expert interviews. This was presented in chapter 2. The goal of qualitative research is to elicit what is important to individuals and what their interpretations on a topic are (Bryman, 1989). In fact, for each expert, the interview was conducted in somewhat an unstructured way in order to constrain the respondent as little as possible. Then the maximum information could be collected with minimum limitation on the ideas shared.

As seen in chapter 1, the main questions that need to be answered from this study are:

- What is the size of the population who are familiar with CSAs?
- What is the size of the population that would be ready to become CSA members?
- What are the main motivations and barriers that lead consumers to become CSA members or not?
- What could help farmers to improve CSA farms efficiency?

Pertaining to these questions, the literature review and expert interviews suggest the following hypotheses. The main hypotheses are that only a small part of the population, the most rural sensitive consumers know what CSAs are and use direct marketing institutions regularly. The main motivations to become CSA members would be to eat fresh, healthier, and tastier food, and secondly to support local farmers. The most important barriers would first concern the lack of information. Then, concerns regarding logistics are probably important because extra-time and extra-distance are needed to purchase food directly from farmers.

The review of the literature and interviews with experts suggest the optimal tool to address the research questions at hand is to create a survey to collect primary data to test these hypotheses. There is no similar study that has been done and experts do not have precise ideas about the size of the population willing to buy local or to become CSA members. Experts just had a hunch that there was a growing part of the population looking for local food, and that there might be a potential development for farmer-to-consumer direct marketing channels, but it remained to be quantified. Indeed, a survey appears to be essential to understand the demand side as well as possible in the specified, Kansas City urban area and Midi-Pyrenees region. The best results and conclusions could only be drawn if relevant data were available. The only way to obtain relevant and precise data about the particular concerns of this study is to collect it directly from the targeted population.

3.2 Tools used to create the survey

3.2.1 General tools

According to Dillman (2007), responding to a questionnaire is a sort of social exchange. The tailored design method refers to the development of survey procedures which lead to establish trust, increase rewards, and reduce costs in the respondent perception. This method was used to create the surveys for this thesis; the US and the French surveys can be viewed in appendixes 3 and 4 respectively. Indeed, people answer the questionnaire because they trust that in the long run, it will be beneficial for them (or for the society); in other words the expected rewards will outweigh the anticipated costs. The goal of a tailored design survey is to reduce survey errors and nonresponse. To establish trust, Dillman (2007) advices notably to make the task appear important and put in light a legitimate authority sponsorship, as an official institution (the USDA and KSU in the case of this thesis). To increase rewards, it is advisable to say thank you, to ask for advice, and to make the questionnaire interesting. Finally, to reduce social costs, it is important to avoid inconvenience and to make questionnaire short and easy.

When writing questions, the goal is to develop questions that every potential respondent will understand in the same way, be able to respond, and be willing to answer (Dillman, 2007). There are fundamentally three question structures that can be used. One is open-ended questions, where no answer choices are provided. The two others are closed-ended questions, which can

either have ordered or unordered response categories. It appears that varying the structures across questions is the best way to reach the study objective.

The main disadvantage of using open-ended question is the inability to get meaningful answers. The results analysis could also be much more complex. However, it could be used when the list of possible answers is long. Then, the question needs to be worded precisely, to avoid inconsistent answers, as in the example below (question 19 of the US survey).

How much would you be willing to pay for a share of this CSA [defined before]? Please give your answer in US$ (enter "0" if you are not willing to pay anything for the share).

The advantage of the open-ended question is that respondents are not influenced at all by the listed options that would appear in a closed-ended question. They are free to answer what they think; no importance is given to several possible answers (Revat, 2005).

The first type of closed-ended question has ordered responses. For example (question 6.1):

How important to you [is the variety attribute] when you purchase perishable groceries (fresh fruits and vegetables, eggs, dairy and meat products):

- *Extremely important*
- *Very important*
- *Moderately important*
- *Slightly important*
- *Not at all important*

In this question, a response scale is provided; the task of respondents is to determine which one best fits their situations.

Closed-ended questions with unordered responses have not been used in the surveys for this thesis but an example could be as follow:

Which one of the following do you think should be our community priority?

- *Build a new swimming pool*
- *Create a found for disabled children education*

- *Reinforce farmers support*

The effort needed to answer the second type of closed-ended question is greater because respondents need to examine and compare all possible responses listed.

General principles exist when writing questions (Dillman, 2007). Notably, use simple words, be precise, keep it short, be specific (but not too specific), and avoid objectionable or hypothetical questions. In fact, it is a matter of balance, because being precise and keeping it short are likely to contradict, for example. Also, it is always good to ask question in a "polite" way. For example, ask the question in full sentences (question 28): "How old are you?" Instead of: "Your age".

In parallel with the question writing, the questionnaire has to be constructed. The most important task appears to be the ordering of the questions. In fact, if no logic is used in the ordering of the questions, and they are asked randomly or in the order they were written, the respondent might get confused or frustrated when answering the survey. Switching topics randomly will lead the respondent to feel that his answers do not matter. Thus, the questionnaire should more likely be constructed as a conversation (Dillman, 2007). Moreover, the questionnaire should be progressive, starting with easy to answer questions, and going progressively deeper into the subject, with more complicated questions where opinions are asked and comparisons have to be made. Potentially embarrassing questions should be asked at the end of the questionnaire, as well as those on personal information (e.g., education, age, and income). These guidelines have been applied to create the surveys.

Finally, the design must be chosen carefully when constructing the questionnaire. The consistent use of symbols, various font size, bold prints, italics or shaded backgrounds helps to increase the level of understanding and responses to a questionnaire. However, they should be use with care because variations in those can make the questionnaire very difficult to answer and lead to the omission of important words (Dillman, 2007). They were used with care in the survey constructed for this thesis. An example of the screen view can be seen in appendix 5. It should be noted that appendices 3 and 4, which present the survey questions in entirety, do not fully reflect the online format presentation, even if the order of the questions is respected and page sections are indicated.

Pretesting is considered as the final step before conducting a survey. It consists of testing out the survey on a small number of people, usually 20 or 30, including several knowledgeable persons (other researchers or analysts). They will answer the questionnaire and give their thoughts about it. The main goals are to identify misunderstanding in the questions, check for the time needed to complete the questionnaire, and evaluate the survey ergonomics, i.e., whether the questions are presented in a logical order and it is pleasant to answer the survey (Dillman, 2007).

3.2.2 Choice experiment

A choice experiment is a particular way to elicit stated preference data in a survey. The principle of choice experiments is to elaborate on a situation where the respondent is asked to choose between various products. Different criteria are given for each product and allow the consumer to make a choice. As same as in a real purchase situation where consumer can choose among various products, he can also choose to not buy anything. An example is given in the figure below (figure 2). This is called a choice set.

Figure 2: Choice experiment set example

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg+eggs	Veg+eggs+meat(at additional cost)	
Choice in the mix	Yes	No	
Delivery location	Pick-up	Farm	
Availability	May-Oct	Apr-Nov	
Work commitment	Yes	No	

The choice experiment presents a choice scenario which may not exist in reality. There is no monetary commitment. The goal is to put in light which factor is the most important when the choice to buy something is made. To reach this goal, there is a need to have significant variability among the possibilities for a particular factor. Moreover, to obtain reliable results, the number of choices should be sufficient. That is why several choice sets are given to each respondent and the combinations of factors are changed for each choice set.

Johnson et al. (2007) discuss attributes. When attributes are chosen, it is important to determine the number of levels (or possibilities) for each of them. Taking the example of CSAs, share prices can be defined as an attribute with three levels: $280, $350 or $420. The delivery location attribute may be varied with levels (farm, pick-up, home), as well as the opportunity to

have a choice in the mix (yes, no). They are mentioned as examples for now, but attribute choices made will be explained in full details later. The greater numbers of attributes and levels per attribute, the greater number of choice sets are needed to ensure statistically reliable results.

The Optex procedure in SAS computes the efficiency measures for a given model. The procedure actually chooses points so that the terms in the model can be estimated as efficiently as possible (SAS, 2010). The optimality of the model is measured by various optimality criteria, which are numbers that summarize how good a design is. The most common is the D-optimality, or D-efficiency measure. The closer it is to 100%, the more efficient the model is (SAS, 2010).

Knowing the number of choice sets needed to have statistically significant results and how they are designed from the Optex procedure, it is also important to know the adequate numbers of respondents needed for the experiment to yield statistically significant results. In other words, what is the adequate size sample needed? According to Johnson et al. (2007), the following rule has to be applied to determine the adequate sample size:

$$N=500\cdot NLEV/(NALT\cdot NREP)$$

where N is the respondent sample size, NREP is the number of choice question per respondent, NALT is the number of alternatives per choice set, and NLEV is the largest number of levels in any attribute.

3.3 The development of the survey

3.3.1 Creation of the US survey

The survey (appendices 3 and 4) consisted of 35 questions, requiring around 20 minutes to be completed. It is divided into four main parts. The first part focuses on current food purchase habits and possible evolutions (questions 4 to 13). The second part asks for preferences and perceptions (questions 14 to 19). The third part is a choice experiment (questions 20 to 25). Finally, the last part is about household characteristics (questions 26 to 35). The survey is organized logically with the first part of the questionnaire containing easy questions and personal questions are asked at the end.

First, two screening questions (questions 2 and 3) are included (question 1 asks for the ID number provided by the company as it will be explained in the Data subsection) to eliminate non target respondents. In question 2 of the survey, the respondent is asked if he is the main person responsible for the household's grocery purchase. It allows for making sure the respondent is a seasoned grocery consumer and can relate to the topic of the study's interest. The third question verifies the geographical area where the respondent lives. To avoid any influence, a list of geographical areas is given and the respondent chooses the one he lives in, including an option of indicating none in the list. If the respondent does not do at least half of the household grocery shopping or if he does not come from the Kansas City metropolitan area, he is directed out of the survey and does not answer the rest of it.

3.3.1.1 First part: Current food purchasing behavior

The goal in this part of the survey is to get an overview of the respondents' habits in terms of food purchase and particularly if they are concerned about local food, both in terms of familiarity and actual consumption. Moreover, several questions try to determine the efforts they would be willing to make to purchase directly from farmers.

The fourth question asks the respondent how often he shops for different food products. The list of products provided (e.g., fruits, vegetables, and meats) could be purchased in their "local" version or/and via direct marketing channels. Note that the scale levels are defined as the number of times per period (e.g., once a week, once a month), and not with general adverbs (e.g., often, rarely) which could lead to various interpretations. Indeed, "often" can be once a week or once a month, depending on respondents. The fifth question follows the fourth one and asks the respondent to specify which products cited before are more likely bought in their "local" version.

Question 6 is to identify the attributes which have the most importance to people when they buy perishable food products. The attributes which are more relevant to conventional purchase channels are examined (appearance, convenience from the way products are packaged or where they are sold, and brand). The other attributes in the list included attributes relative to health concerns (nutrition, certified organic, pesticide use, third-party verified, risk of food-borne illnesses), attributes relative to cooking concern such as variety and taste, attributes relative to environmental concerns (certified organic, where it was produced, environmental impact), attributes relative to community concerns (where it was produced), and attributes relative to the

economy (price). This very important question is relatively long, but it could have included many more attributes. A special care was used to make the question as relevant and short as possible.

Question 7 lists various retail outlets. The frequency of purchases is asked of respondents for each outlet. The list contains supermarkets and supercenters, but also various other kind of stores, farmers markets and other types of direct marketing channels. The frequency of purchases at farmers' markets is separated from other direct purchases. The reason is that farmers' markets are supposed to be well known and have had certain success, as explained in the literature review. Moreover, question 8 allows for the possibility for respondents to add other kinds of store they may use. This allows for some freedom to respondents; it is similar to including an open-ended question in a closed-ended question.

The knowledge of the respondents about the different types of direct marketing institutions is tested in question 9. Respondents are asked to state how familiar they are with the main direct marketing channels presented in the literature review. Then, question 10 asks the respondents if they know where and when they can purchase food in the market channels listed in the previous question. It will allow for computing the proportions of the population who know what the different direct marketing systems are and who know how to access them near their residence.

In questions 11, 12 and 13, respondents are asked to specify the time they would be ready to spend every week to purchase food directly from farmers via various means of transportation. Question 11 asks for walking, 12 for using public transportation, and 13 for driving. The goal of these questions is to determine the effort in terms of time and distance that respondents are willing to make to buy directly from farmers. The unit is clearly defined as minutes, to avoid any deviance in the answers. Moreover, "in total" is added to ensure respondents account for the way and the way back or the total detour they would make.

3.3.1.2 Second part: Preferences and perception

This part's objective is to determine what people like and what they are looking for when buying food. Motivations and barriers to buy via direct marketing channels would be identified in this part. Question 14 asks for the leisure activities respondents enjoy, in relation with food,

agriculture, community or more generally, nature. The goal of this question is to determine the respondents' levels of interest towards food.

Then, a definition is given for each type of direct marketing channel, from the grocery store with local food offering to the CSA, through farmers' markets, roadside stands, pick-your-own, subscription farming, and group CSA. These definitions summarize what each direct marketing channel is. It has been written from the information collected in the literature review and experts interviews. A particular care was used to make sure these definitions were clear, precise, short, and without any ambiguity. A special attention was given to keep the definitions objective to avoid biases and misunderstandings as much as possible. Obviously, these definitions could be more complete and detailed, but the purpose here is to allow the respondent to compare them, so only the main principles and characteristics of each marketing channel are given in the definitions. It did not make sense to lose the respondents in many particular details. Then, in question 15, respondents are asked to evaluate how appealing they perceive each kind of direct market defined. Question 16 asks for the frequency respondents use the different marketing channels. These two questions will allow for determining the consumer current habits and perceptions about direct marketing channels.

Question 17 asks for the conditions people would consider in deciding to join various kinds of membership solutions, including subscription farming, CSA and group CSA. The conditions put in light are price, distance, schedule, type of products, quantity, and involvement on the farm. Each option comes from the literature review or an interview with an expert.

The willingness to become a community member is asked in question 18, for subscription farming, CSA and group CSA. A difference is made between CSA where it is asked to work for the farm and CSA without work commitment. This difference will help determine the importance of the work commitment.

Before the choice experiment section, question 19 defines a CSA and asks for the willingness to pay for this particular CSA. This question is to obtain one estimate of consumers' willingness to pay for a typical CSA service.

3.3.1.3 Third part: Choice experiment

Before presenting the choice tasks to the respondents, a definition has been given for each attribute in the survey. The exact wording of the definitions can be seen in appendices 3 and 4, respectively for the US and the French surveys. The criteria, as same as for question 17, come from the literature review and the discussions with experts. There are six attributes included in this study: the share price, the variety of items in the bundles, choice in the mix, delivery location, seasonal availability, and work commitment. There are 3 levels for prices ($280; $350; $420), 3 levels for variety (vegetables; vegetables and eggs; vegetables, eggs and meat), 2 levels for choice in the mix (Yes; No), 3 levels for delivery location (farm; pick-up location; home), 2 levels for seasonal availability (May to October; April to November), and 2 levels for work commitment (Yes; No). This is summarized in table 3 below.

Table 3: Choice experiment attributes and levels summary

Attributes	**Levels, from the (supposed) less favorable (red on the left) to the (supposed) more favorable (blue on the right)**		
Share price	$420	$350	$280
Variety	Vegetables	Vegetables and eggs	Vegetables, eggs and meat (at additional cost)
Choice in the mix	No		Yes
Delivery location	Farm	Pick-up	Home
Availability	May-October		April-November
Work commitment	Yes		No

The attributes are examining the factors which appear most often in the literature or which came out as an intriguing factor in the discussion with experts (e.g., work commitment). The levels for a particular attribute are chosen to differentiate the choices within the ranges of interest while avoiding extreme differences among them. For example, realistic levels have been chosen for the share price, but all three levels are more likely in the lower range of the currently offered prices. Indeed, the highest share prices in KC area CSAs are around $600 and the highest price level used in the choice experiment is $420. This is to avoid the price to be the dominating criterion. A $70 difference was chosen between each price level.

Moreover, most CSAs around KC offer only vegetables. The variety attribute, which includes levels “vegetables”, “vegetables and eggs”, and “vegetables, eggs and meat (at additional cost)” in the choice experiment tests for the importance of this criterion for people. If it appears that people are looking for variety for improved convenience, farmers would need to

enhance the variety of their farm products or to make collaborative arrangements among them to offer the desirable amount of variety. Nevertheless, when meat is included, it is specified that an additional cost will be charged. Otherwise, the prices among CSA arrangements in the choice set become not comparable.

The choice in the mix attribute tests how people care about their decision power when joining a community. Respondents' possibilities when answering are either "Yes": participating in the decision with the farmer to determine which products will be produced; or "No": taking products the farmer will offer. The delivery location is also examined, in order to determine if people are ready to travel to be part of a CSA community or if they are firmly bound by their time constraint. Thus, delivery can either be at the farm, directly to home, or in between, at a pick-up location. The length of the period during which people will receive products is determined by the seasonal availability attribute, from May to October (6 months/24 weeks) or from April to November (8 months/32 weeks). The first possibility is realistic. The second, the longest period, requires farmers to invest in season extension methods such as high tunnels, because snow usually appears in October in Missouri. But this attribute allows for the analysis to test if people are looking for longer seasonal availability or not and whether they value such seasonal extension sufficiently to justify farmers' investment. Finally, the work commitment, which can either be "Yes" or "No" will help to determine the degree to which the respondents are ready to become involved in a CSA community.

After determining the attributes and levels, the Optex procedure was used in the SAS program to determine how many choice sets were needed to get statistically sound results (example in appendix 6). Knowing attributes and levels for each of them, some restrictions were used to avoid several combinations. The combination of all the supposed, least favorable attribute levels ($420; Vegetables; No choice in the mix; Farm delivery; May-Oct; Work commitment) was eliminated as well as the combination of all the supposed, most favorable attribute levels ($280; Vegetables, eggs and meat; Choice in the mix; Home delivery; April-Nov; No work commitment). It is a way to eliminate extreme and clearly superior or inferior propositions, which will not help in determining the importance of each attribute, as too many respondents will make the exact same choices.

Then various numbers of choice sets were created to identify combinations with D-efficiency measures greater than 90%. Each choice set included two CSA possibilities (CSA1 or CSA2) plus a "None" answer. This result was obtained with 18 choice sets with the D-efficiency of 93.617%. That means 18 choice sets are needed to obtain significant results. But it seems unreasonable to ask a respondent to answer 18 choice sets; it is too long and he will lose his concentration. So the choice sets were divided into 3 versions, each with 6 choice sets. Each attribute level was allocated proportionally in each version to keep the logic of the purpose. It means that for attributes with 3 levels, each level appears 4 times in each version (3 levels*4 = 12 = 2 CSA possibilities*6 choice sets). For attributes with 2 levels, the two levels appear in each choice set, so each level appears six times in each version. Below is an example of a choice set (figure 3):

Figure 3: Choice experiment set example

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg	Veg+eggs+meat(at additional cost)	
Choice in the mix	No	Yes	
Delivery location	Home	Farm	
Availability	May-Oct	Apr-Nov	
Work commitment	Yes	No	

The following formula, presented in the tools section, was used to determine how many responses were needed for each version:

$$N=500 \cdot NLEV/(NALT \cdot NREP)$$

In this case, NLEV is 3, the highest number of level in any attribute. NREP is 6, with each respondent requested to answer 6 choice questions. NALT is 2, where each choice set involves choosing between CSA 1 and CSA 2, or equals 3 if the "None" response is also included.

If NALT=2 $N=500 \cdot 3/(2 \cdot 6)=125$

If NALT=3 $N=500 \cdot 3/(3 \cdot 6)=83.33$

Thus, the minimum sample size is 84 or 125 respondents for each version of the survey to yield statistically reliable results, depending which NALT is considered.

In summary, keep in mind that 18 choice experiment sets are needed to get statistically reasonable answers. These sets are split among three survey versions to avoid each respondent to answer all 18 of them (each respondent thus answer 6 choice sets). All the questions remain the same in the three survey versions except the choice experiment part which differs among them. Finally, between 84 and 125 responses are needed for each survey version.

In every survey, it is absolutely necessary to have information about the characteristics of the sample. This is why each respondent is asked to answer several questions about himself and his household in the final part of the survey. It is presented in the following section.

3.3.1.4 Fourth part: Household characteristics

The final part focuses on the general household characteristics, including ZIP code to enable to identify the region where the responses are obtained from, gender and age, race, number of people living in the household, level of education of the respondent, and household income. The occupation of the respondent is also asked. With this information, the household profiles which would likely become CSA members can be determined. For each piece of information, the scale was chosen for comparability with the US Census data, so that the representativeness of the sample can be rigorously compared to the population (US population or Missouri population). This is very important to examine this representativeness before drawing any conclusion or give any proposition.

The number of persons who work at the company/institution that employs the respondent is also asked. Finally, respondents are asked if they are part of a community group or an association. These questions are asked, because previous studies have found that persons involved in community groups or associations are more likely to support local farmers and become CSA members. Moreover, these last two questions will help determine if respondents could be involved in a group CSA.

3.3.2 Adaptation of the US survey to the French version

The French survey is similar to the US one except several aspects that are going to be detailed here, in the order that the questions appear in the survey (appendix 4).

In question 7, 7.3 health food store is replaced by organic store in the French survey. This is because “health food store” are not common in France, and the US health food stores are

similar to French organic stores with organic food, offering high quality food coming from around the world and food known to have particular health characteristics. The other retail outlets listed are the same, except one particular example is deleted in the French survey for specialty store: bakery. This is because almost all the French people go to buy bread at the bakery every day, so if this example appears it would bias the results for other specialty stores.

In questions 9 and 10, farm market institutions are listed. Farmers markets and CSA appear in both countries (farmers markets = marché de producteurs; CSA = AMAP). Pick-your-own and subscription farming exist in France but they are not well defined. They can take various forms among the few farms which could be considered close to the US pick-your-own or subscription farming. PVCs, as seen in the literature review, are expanding significantly in France, so it is important to include them.

Before question 15, a definition of each way to buy products directly from farmers is given. “Magasins proposant des produits alimentaires locaux”, is the equivalent of “grocery stores with local food offerings”; “Marchés de producteurs” is similar to “Farmers Markets”; “Vente à la ferme (ou en bord de route)” is similar to “roadside stands”, except that it includes both farm and roadside stands; “Pick-your-own” appear only in the US version and “Magasin de producteurs” and “PVC” appear only in the French version. All of them were defined in chapter 2. “AMAP” and “CSA” are equivalent. Finally, “AMAP faible engagement” is introduced in the French version, as the “Subscription farming” equivalent. Note that “Group CSA” is only in the US survey; it is not differentiated from regular “AMAP” in the French one. In question 18 of the French survey, no distinction is made about the work commitment in a CSA (French AMAP), where the US survey does.

In questions 17 (17.1) and 19, and also for the choice experiment questions (20 to 25), the price per bundle is used in the French survey, instead of the price per share. Note that the price per bundle is the price of the share divided by the number of weeks. French farmers think it is easier for consumers to compare, even if the total price they pay upfront needs to be computed. The levels of price used are: 12€, 15€ and 18€. The levels correspond to share prices of: 288€, 360€ and 432€ in a 24-week season, which are comparable to the US share prices used ($280, $350, $420). It was assumed that the higher food price level in France compensates for the currency impact, so that $1 can be regarded as 1€ when considering food purchases. Moreover,

the proportional difference between the levels was specified comparably: $70 between the US share prices and 72€ between the French share prices.

The question 29 in the US survey is deleted in the French one, since it is not legal to ask for race in France. The level of education question (31) was specified using the following equivalencies between the US and the French surveys:

- Bac+4/5 ou plus = Graduate school
- Bac+3 (Licence ou equivalent) = Bachelors degree
- Bac+1/2 = Some college or associate degree
- Baccalauréat general, technologique ou professionel = High school degree or equivalent
- The other 3 French levels = lower than high school

The question about the level of income of the household (32) is hard to state comparably between the US and the French surveys, because the US Census and the French Census do not use the same scales. Quartiles and average of the Midi-Pyrenees household income were available. As a practical solution, a proposition was drawn to allow for the possibility to decide if respondents have an income which is inferior to the first quartile (13,000€), higher than the third quartile (38,000€), or between the two quartiles (different levels of middle-class). This makes the comparison difficult between the US and French levels of income, but it was considered more important to establish how the two samples are comparable to the respective population.

Similarly for income levels, question 33 asks for occupation of the respondent, and it is not that easy to make the two versions comparable. Here are ones that were relatively similar:

- Agriculture, sylviculture, pêche = farming, fishing and forestry occupations
- Sans emploi = unemployed
- Etudiant = student
- Retraité = retired

The other occupations were harder to maintain similarity. “Construction” is more likely to be related to construction, extraction, and maintenance activities; “Industrie” to production, transportation, and material moving; “Commerce” and “Services” would together be related to management, professional, and related occupations but also to service occupations and sales and office occupations.

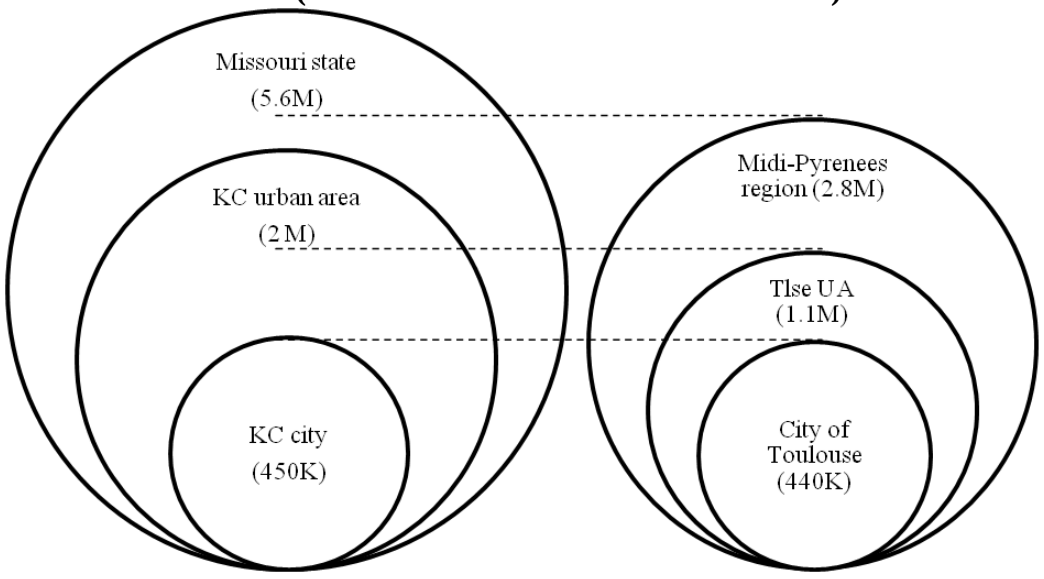
3.4 Data

3.4.1 Population interrogated

The thesis focuses on two geographically defined areas, the Kansas City metropolitan area and the Midi-Pyrenees region, where the largest city is Toulouse.

According to the US Census, 5.6 million people live in Missouri (2000), and the Kansas City (Missouri) population is around 450,000 persons (US Census 2000). In the Kansas City urban area that includes suburbs in Kansas, population is around 2 million people (City Population, 2010). The city of Toulouse has a population of 440,000 inhabitants. The Toulouse urban area is 1.1 million persons and the Midi-Pyrenees population is 2.8 million persons (INSEE, 2007). This tells us that the two cities, Kansas City and Toulouse, have a similar population size, but the Kansas City urban area is almost twice as large as the Toulouse urban area. This is in part why it was chosen to conduct the surveys in the Kansas City urban area in the US, and in the Midi-Pyrenees region in France, according to the population sizes. The following figure shows how the size of the populations compares for the two defined areas (figure 4).

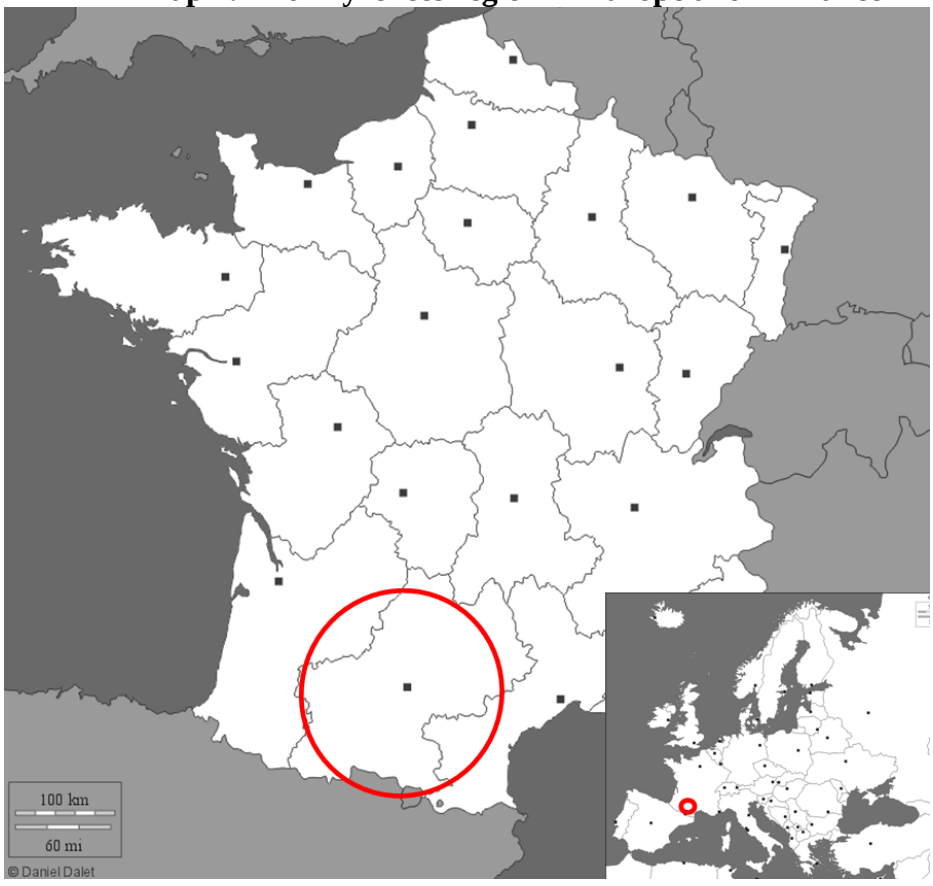
Figure 4: Size of the population among the defined areas
(Note: Tlse UA = Toulouse Urban Area)



In maps 3 and 4, the KC area and Midi-Pyrenees region are circled. Note that the geographical size enclosed in the red circle is similar in Europe (in France) and in the US.

Map 3: Kansas City area in the US

Map 4: Midi-Pyrenees region in Europe and in France



But the size of the population is not the only reason for choosing these two particular areas. Indeed, on a more technical point of view, the development of CSAs in both studied areas started at about the same time in around 2003. To date, the development has reached around 25 CSA farms in Kansas City urban area and 28 in Toulouse urban area (101 AMAP in Midi-Pyrenees region). It is one more reason why these areas were chosen, it makes the results comparable on a historical basis.

3.4.2 Administration of the survey

In both countries, the survey was conducted online. The survey was created using the online survey system at Kansas State University provided through Axio Survey, which allows designing and processing online surveys. Once the survey questions had been written and edited, the survey was entered online and further edited.

3.4.2.1 Survey designing

First, opening instructions were written, to explain the purpose of the survey (appendices 3 and 4). A similar structure was used in both versions. The opening instructions paragraph starts by thanking for participating in the survey. As seen in the tools section, it is important to thank the respondents. Then it is explained who is conducting the survey, for which project and who the funder is (the USDA Farmers Market Promotion Program). Citing the USDA gives credibility to the survey. After that, some background is given about the topic and the direct purpose of the survey is given: to help to better understand the factors and aspects that are the most important when buying perishable groceries (including local food). In the French opening instructions, it is explained that it is a comparative study between the US and France, and that the results will help in promoting the development of local agriculture. In the US, there are fewer details about the final goal of the project but the project title, which is descriptive, is mentioned ("CSAs and Organic Farmers Markets: Strengthening Producer Capacity and Consumer Linkages around Kansas City"). Giving more details to the French respondents is a way to suggest to them of potential future benefits, as seen in the tools section, because they might be less concerned about a survey request originating from the US. Moreover, the approximate time needed to complete the survey is given. It is then specified that this study ensures voluntary and anonymous participation of human subjects, and the contact of the chair committee on research involving Human subjects is provided if respondents have any question. The opening statement closes with

the project team members' names and position titles to make respondents confident and give them trust.

The last question of the survey was placed open-ended to allow for respondents to share their comments and suggestions. This gives them the freedom to say something that might have not appeared in the survey or that frustrated them. Thus, they would exit the survey with the impression that they contributed.

3.4.2.2 Survey processing

In the US, the survey was conducted in collaboration with E-Rewards. In France, it was conducted with Survey Sampling International (SSI). The two companies work similarly, URL links were provided to them for each version of the survey, and they were responsible to send these URLs to the targeted population.

3.4.2.2.1 Sample size

The sample size n was determined from the following formulas (random sample) (Merino, 2010):

$n_0 = (P*Q)/ ((d/t)^2)$

$n = n_0 / (1 + n_0/N)$

where the probability of favorable answers is P=50%. 50% is chosen arbitrarily, there is no way to know what P would be, but taking P=50% maximizes the suggested sample size (Merino, 2010). Q is the probability of unfavorable answers, so Q=100-P=50%. The t-value for 5% significance is 1.96 from the normal distribution. Then, d is the error margin that the researcher is ready to accept. For example, if 50% of the population are males, using error margin d=5 will imply accepting the results if the average percentage of male in the sample is between 45% and 55%. The lower the error margin, the higher the size of the sample n will be. N is the size of the population, which equals 2 million in Kansas City (KC) area and 2.8 million in Midi-Pyrenees (MP) region, respectively.

Using error margin d=5 gives: $n_0 = 384.16$

⇨ $n_{KC} = 384.09$

⇨ $n_{MP} = 384.11$

From this, it appears that 384 responses per survey would be needed with error margin of 5 from a random sample. It calls for 128 answers per version, which is comparable to the suggested sample sizes calculated for choice experiment considerations of 84 to 125 responses. Thus, it seems reasonable to use these sample sizes. Because both companies, E-rewards and SSI are able to target the interrogated population, the surveys would not be random. Actually, it was asked of the companies to match as well as possible the population demographic characteristics, particularly in terms of gender, age, level of income and education. Moreover, the interest in health and natural food was also partially taken into account. So, the sample size was chosen to be a minimum of 300 completed answers for each survey, in the US and in France, meaning at least 100 responses for each version. This is slightly smaller than the results from the random sample size computations but because the survey is not completely random with some targeting, these sample sizes seem reasonable at d=5 error margin.

3.4.2.2.2 Pretesting

The US survey was first pre-tested on about 25 persons, including faculty members, experts who were interviewed, several students and several students' parents. They gave feedback about the survey, from very technical points (university professors and farmers) to general design problems or misunderstandings. When modifications were done based on these comments, the survey started to be processed slowly by E-rewards, in order to test it one more time before sending it onto the respondents at large. After the first day it appeared that some problems were remaining. Thus, several changes were made before sending to the large sample (300 people).

In France, after the adaptation of the survey was made, it was reviewed by several people, including professors, and it was tested on 16 persons, including mainly students and family members. No major modifications were made after the review.

3.4.2.2.3 Compensating respondents

E-rewards and SSI both reward respondents from answering the survey. Rewards can take various forms, it can either be points, coupons, money or, as with SSI, money that will be given directly to a charity organization.

In the US survey, E-Rewards provides a user ID to each respondent that he has to enter in the first question. It allows E-Rewards to identify respondents and their completion level. Indeed, if they fully complete the survey, respondents are rewarded a full credit amount. If they were directed out of the survey after the screening questions, they are rewarded only a partial credit amount.

For the French survey, user ID was not provided. Instead, respondents were directed to different SSI webpages after having been screened or having fully completed the survey.

3.5 Components of the analysis

3.5.1 Descriptive statistics and models' assumptions

Descriptive statistics including means, standard deviations, medians, histograms, t-tests, correlation tests, chi-squared tests are calculated using Excel and XLStat softwares. The detail will be presented in the results chapter.

Before explaining models in more details, keep in mind that the standard economic assumption of individual maximizing utility is used. That is, each consumer is assumed to maximize its satisfaction (or utility) when consuming (or not consuming) goods and services, possessing wealth and spending leisure time. This is illustrated by Stagl and O'Hara (2002) who explain that tastes and preferences do not change rapidly but can change on the long run when people interact with others. In the case of direct marketing institutions and particularly of CSAs, they suggest that individual interest maximizing behavior may be influenced by ethical motivations.

3.5.2 Tobit model

One important goal of this thesis is to determine consumer willingness to become a CSA member, and his willingness to pay (WTP) to become a CSA member and receive a bundle of products every week. To reach this goal, two methods would be used. The first consists of using an open-ended question (question 19) asking directly respondents how much they would be willing to pay to become a member of a typical CSA. The second method consists of using a choice experiment, which will be explained in the next subsections.

To analyze results from the first method, a Tobit model is used. A Tobit model is a particular regression model (Maddala, 2001). A regression model can generally be expressed as follows:

(1) $y^*_i = \beta x_i + u_i$

where y^*_i is the dependent or explained variable, x_i is the explanatory variable, and u_i is the error term. That means that x explains partially how y changes and u is what is not explained by x when y changes. For example, if y is the quantity of fruits bought by individual i, and x the price for fruits; β is expected to be negative due to law of demand. But there will still be influences from other factors that could lead individual i to consume amounts of fruits different from what a particular price level may suggest. The error term u accounts for such discrepancies.

The particularity of the Tobit model is that some observations on y* are censored (the model is also known as a censored normal regression model) (Maddala, 2001). The equation for the regression model then becomes:

(2) $y_i =$

where y_i is the response given by respondents.

In the case of the open ended question of this study (question 19) that asks people to indicate the maximum price they are willing to pay, they will answer either a positive amount or zero, given the definition of price. Using this model will be suitable, since the "zero" responses from people who are not willing to pay anything to become CSA members are censored. Tobits model were run using Limdep software. A code example can be found in appendix 7.

The WTP is specified as the explained variable. The explanatory variables that are included in the regression are detailed in chapter 4. Marginal effects are computed for each explanatory variable. They allow for evaluating the effect of each variable on the WTP.

3.5.3 Discrete choice models

3.5.3.1 Introduction

As a second method to estimate people willingness to become CSA members and consumers WTP to join a CSA, choice experiment was constructed and included in the survey to obtain estimates with as little hypothetical bias as possible. The analysis of choice experiment responses will allow for determining the willingness to pay to become CSA members and identifying the most relevant attributes consumers care about. But how is it possible to analyze the choice experiment responses?

From the choice experiment design, it is clear that the respondent has to choose among a finite number of alternatives: either CSA1, CSA2 or neither of the two. Thus, it is pretty clear a discrete choice model should be used to analyze the choice experiment responses (Train, 2009). To be suitable for analysis by a discrete choice model, the set of alternatives, called the choice set and defined in previous subsections, has to be exhaustive, meaning all possible alternatives are included. Moreover, alternatives have to be mutually exclusive, in other words, the respondent can choose only one alternative. Finally, the number of alternatives has to be finite. As seen in the explanation of the choice experiment construction for this research, respondents are required to pick one among CSA1, CSA2 or neither of the two. So, the alternatives are exhaustive; if the respondent does not want to join either CSA1 or CSA2, he has the possibility to join none of them. The alternatives are exclusive, because only one of the possibilities can be chosen, and finite, because there are only 3 possibilities.

The objective is to understand the behavioral process that leads the consumer to make a choice. In this process, there are factors which determine, or cause, the consumer's choice. The supposed most important factors have been determined from the literature review and expert interviews and can be specified as observable factors. But other factors are unobservable. According to Train (2009), the factors relate to the consumer choice through a function: $y=h(x,\varepsilon)$, where x are the observed factors, ε the unobserved ones and y the consumer choice. This function is named the behavioral process. Because ε is unobserved, it cannot be predicted exactly. That is why the probability of a particular outcome is derived (Train, 2009). The probability that the consumer chooses a particular outcome from the choice set is the probability that the unobserved factors are such that the behavioral process results in that outcome: $P(y|x) = \text{Prob}(\varepsilon \text{ s.t. } h(x,\varepsilon)=y)$.

There are several ways to estimate these probabilities. The general assumption when running discrete choice models is utility-maximizing behavior of the consumer. The utility consumer n obtains from alternative j is $U_{nj} = V_{nj}+\varepsilon_{nj}$, where V_{nj} is the representative or observed utility and ε_{nj} are the factors that affect utility U_{nj} but are not included in V_{nj}. Note that $V_{nj} = V(x_{nj}, s_n)$, with x_{nj} as some observed attributes of the alternatives as faced by the consumer and s_n as characteristics of the consumer (Train, 2009). The differences among the choice models reside in the specifications of the unobserved factors density: $f(\varepsilon_n)$. This density is the distribution of the unobserved portion of utility (ε) within the population of consumers who have the same observed portion of utility (V).

The multinomial logit model is the most common discrete choice model. It assumes that ε_{ni} is independently, identically distributed (iid) extreme value for all i. The main limitation is that the unobserved factors are uncorrelated among alternatives and they have the same variance for all alternatives. Moreover, when applied to a sequence of choices over time, the logit model assumes that each choice is independent and do not affect the other choices. In fact, an unobserved factor which affects a choice in one period might persist and could affect a next choice. Thus, there will be dependence among choices over time (Train, 2009).

The mixed logit model allows for unobserved factors to have any distribution. The unobserved factor is decomposed into 2 parts, one which contains all the correlation and heteroskedasticity (different variances among the random alternatives), and another which is iid extreme value. Thus, the mixed logit model can approximate any discrete choice model (Train, 2009).

The two models are going to be detailed in the next two sections and applied to the choice experiment responses from the survey. The models can be compared to determine which results are more reliable using likelihood ratio tests, where the likelihood ratio can be computed as:

D = - 2 * (ln(likelihood for null model) – ln(likelihood for alternative model))

This formula requires using nested models, where a more complex (alternative) model can be transformed into the simpler model (null) by imposing some constraints. The ratio under the null is distributed as a Chi-square distribution with the degrees of freedom equaling the number of constraints.

3.5.3.2 Multinomial logit model

Under the assumption of the multinomial logit model that each ε_{nj} is iid extreme value, the density for each unobserved variable is:

(3) $f(\varepsilon_{nj}) = \exp(-\varepsilon_{nj})*\exp(-\exp(-\varepsilon_{nj}))$.

The cumulative distribution is:

(4) $F(\varepsilon_{nj}) = \exp(-\exp(-\varepsilon_{nj}))$.

The difference between two extreme value variables is distributed logistic. If ε_{nj} and ε_{ni} are iid extreme value, then $\varepsilon^*_{nji} = \varepsilon_{nj} - \varepsilon_{ni}$ follows a logistic distribution:

(5) $F(\varepsilon^*_{nji}) = (\exp(\varepsilon^*_{nji})) / (1+\exp(\varepsilon^*_{nji}))$

Using the extreme value distribution for the errors (so the logistic distribution for the error differences) is similar to assuming the errors are independently normal (Train, 2009).

The independence of the unobserved portion of utility means that the unobserved portion of utility for one alternative is not related to the unobserved portion of utility for another alternative. This is a very restrictive assumption which is relaxed in the mixed logit model that will be described in the next section. But it is important to understand that with the multinomial logit, if the observed utility (seen in the previous section as V_{nj}) is defined well enough, the unobserved utility (ε_{nj}) will be small and independent, so it will not provide any information about the error for another alternative and it will not affect the overall utility U_{nj} much. Thus, to get a good representation of the utility U_{nj} with a multinomial logit model, it is necessary to specify V_{nj} as well as possible. If executed, the multinomial logit model will be appropriate.

The probability that consumer n chooses alternative i is (McFadden, 1974):

(6) $P_{ni} = \text{Prob}(V_{ni} + \varepsilon_{ni} > V_{nj} + \varepsilon_{nj} \; \forall \; j \neq i)$

$= \text{Prob}(\varepsilon_{nj} < \varepsilon_{ni} + V_{ni} - V_{nj} \; \forall \; j \neq i)$

From (4) and (6) and after several mathematical manipulations, the logit probability for an alternative i to be chosen by consumer n can be derived. If $V_{nj} = \beta' x_{nj}$, where x_{nj} is a vector of observed attributes of alternative j, the probability can be written as:

(7) $P_{ni} = (\exp(\beta' x_{ni})) / (\Sigma_j \exp(\beta x_{nj}))$.

To estimate the choice probabilities from the survey, attributes included: price; vegetables and eggs; vegetables, eggs and meat; choice in the mix; farm; pick-up; home; availability; work commitment. The "vegetables" attribute was considered as the base to see whether eggs and meat are valued at a premium when added to the vegetables mix. To use Limdep software, the data were prepared with SAS software, in order to fit the required format (appendix 8). The Limdep code used to obtain the results can be seen in appendix 9. The same code has been used for both the US and French data.

There are limitations to this multinomial logit model. First, the error terms are assumed to be independent among the alternatives, this has been explained before.

Second, taste variation cannot be represented by the multinomial logit model when they are random. Indeed, the multinomial logit model can capture systematic taste variations that are related to observed characteristics of the consumer but cannot capture other differences in taste that are not linked to observed characteristics. To clarify this, imagine a study about house purchases. In his model, the researcher integrates the price of the house, related to the household income (higher is the income, higher would be the price of the house), and the number of bedrooms, related to the number of children (more children, more bedrooms). It makes sense that when tastes (high or low price; large or small number of bedrooms) vary systematically in relation to the observed variables (income and number of children), then the variables can be incorporated into multinomial logit models. However, if taste variation is at least partly random, for example if the number of bedrooms is also related to the age of the children (if they are in college, they might not spend much time at home), then the multinomial logit model is misspecified (Train, 2009). In the case of this study, it is obvious that taste variation will be at least partly random. Indeed, for all the attributes taken into account in the model, even if education and income level are used as observed variables, for example, the share price will not vary systematically in relation to them. Because even if two people are identical in terms of income, education, size of the household, and other observable charactistics, they will not make the same choices. Different people are different, reflecting each individual preferences and concerns (Train, 2009). A mixed logit model can then be used to incorporate random taste variation appropriately and fully (Train, 2009).

Third, substitution patterns among alternatives occur in many situations. Generally, a substitution occurs when the attribute of one alternative, say "A", changes (price decrease), then the probability of its being chosen increase. Because some consumers who would have chosen other alternatives with the original attributes now choose "A" instead. Thus, an increase in the probability of one alternative ("A") means a decrease in probability for other alternatives (Train, 2009). The multinomial logit model implies certain substitution patterns. The first one is the property of independence from irrelevant alternatives (IIA). It means that the ratio of the logit probabilities for alternatives i and j (P_{ni}/P_{nj}) is independent from alternatives other than i and j. This is realistic in certain situations but inappropriate in others (Train, 2009). The second issue can be expressed in terms of cross-elasticities of logit probabilities. The IIA requires that $P^1_{ni}/P^1_{nj} = P^0_{ni}/P^0_{nj}$, where superscript 0 denotes the probabilities before the change and 1 after. Again, this proportional substitution is realistic in some situations but can also be inappropriate.

It clearly appears that the multinomial logit model has important restrictions in taste, substitution effects and independence of alternatives. Thus, a more general model should be used to analyze the responses.

3.5.3.3 Mixed logit model

According to Train (2009), the mixed logit model can approximate any random utility model. This model is very flexible and avoids the limitations of the multinomial logit model. Correlation in unobserved factors over time, random taste variation and unrestricted substitution patterns are allowed.

Mixed logit probabilities are the integrals of regular logit probabilities over a density of parameters (Train, 2009). It can be expressed as follow:

(8) $P_{ni} = \int ((\exp(\beta' x_{ni})) / (\Sigma_j \exp(\beta x_{nj})))f(\beta)d\beta$

where the highlight term comes from (5) and f(β) is a density function. The mixed logit probability is actually a weighted average of logit probabilities at various values of β. The weights are given by the density f(β). In other words, with a mixed logit, β varies over consumers (tastes vary among people) where it was fixed with a multinomial logit model.

The distribution f(β) has to be specified. It can take any distribution. The more common are normal and lognormal, but it can also be triangular or uniform. Distributions are arbitrary approximations of the real behavioral profile (Hensher and Greene, 2003). The normal distribution is going to be used in this thesis, simply because it is the most common.

In a mixed logit model, the error term η can be decomposed into two parts:

$$\eta_{nj} = \mu'_n z_{nj} + \varepsilon_{nj}$$

where z_{nj} is a vector of observed variable for alternative j, μ is a vector of individual-specific random terms, and ε_{nj} is iid extreme value (Train, 2009). Thus, η_{nj} can be correlated over alternatives depending on the specification of z_{nj}. It relaxes a limitation of the multinomial logit model. The utility then becomes:

$$U_{nj} = \beta' x_{nj} + \mu'_n z_{nj} + \varepsilon_{nj}$$

Finally, the mixed logit model does not have the IIA property. The ratio P_{ni}/P_{nj} depends on all the data, including attributes of other alternatives than i and j. So this limitation of the multinomial logit model is addressed, too.

Two mixed logit models are estimated, one using only the attribute variables as in the multinomial logit model and the other allowing for the parameter means to depend on demographic variables. The estimations used Limdep software, and the codes can be seen in appendix 10 and 11, respectively for the mixed without demographic variables and the one with.

3.5.3.4 Particular mixed logit model case: the latent class model

Generally, the density f(β) for a mixed logit model is continuous. But it is possible to choose a discrete density f(β), this particular mixed logit model is called a latent class model (Train, 2009). On this case, β can take several possibilities, say M possible values, from b_1 to b_M. The probability that $\beta=b_m$ is denoted as s_m. The choice probability then becomes:

$$(9)\ P_{ni} = \Sigma\, s_m \left((\exp(b'_m x_{ni})) / (\Sigma_j \exp(b'_m x_{nj}))\right)$$

This is particularly useful when there are M segments in the population, each having its own characteristics. It then allows for estimating the b's for each segment. For this study, it

would be very useful to draw groups in the population that are more likely to become CSA members and identify their characteristics.

This model has been used using the same variables as the mixed logit model with demographic variables. Detailed explanations about the process and the results are presented in chapter 4. The Limdep code is reported in appendix 12; the same code was used for the US and the French versions.

3.5.3.5 Willingness to pay computations

Consumer willingness to pay for attributes can be computed from discrete choice model estimates in a straightforward manner by dividing the coefficient obtained for any attribute variable by the coefficient obtained for the price variable. But for the information about the coefficient distribution to be taken into account (which is preferred), one has to use simulation, drawing from the estimated covariance matrix for the parameters (Hensher and Greene, 2003). This was done in this thesis for each discrete choice model that was estimated, using the Wald procedure in Limdep software. It allows for computing the WTP and computing in addition the standard deviations and p-values for each WTP obtained for each variable. Indeed, the estimated covariance matrix is included in the computation in addition to the coefficients in the Wald procedure and allows the software to compute all these results. A code example is in appendix 13.

In the next chapter, the results are presented.

CHAPTER 4 - Results

4.1 Descriptive statistics

4.1.1 Introduction

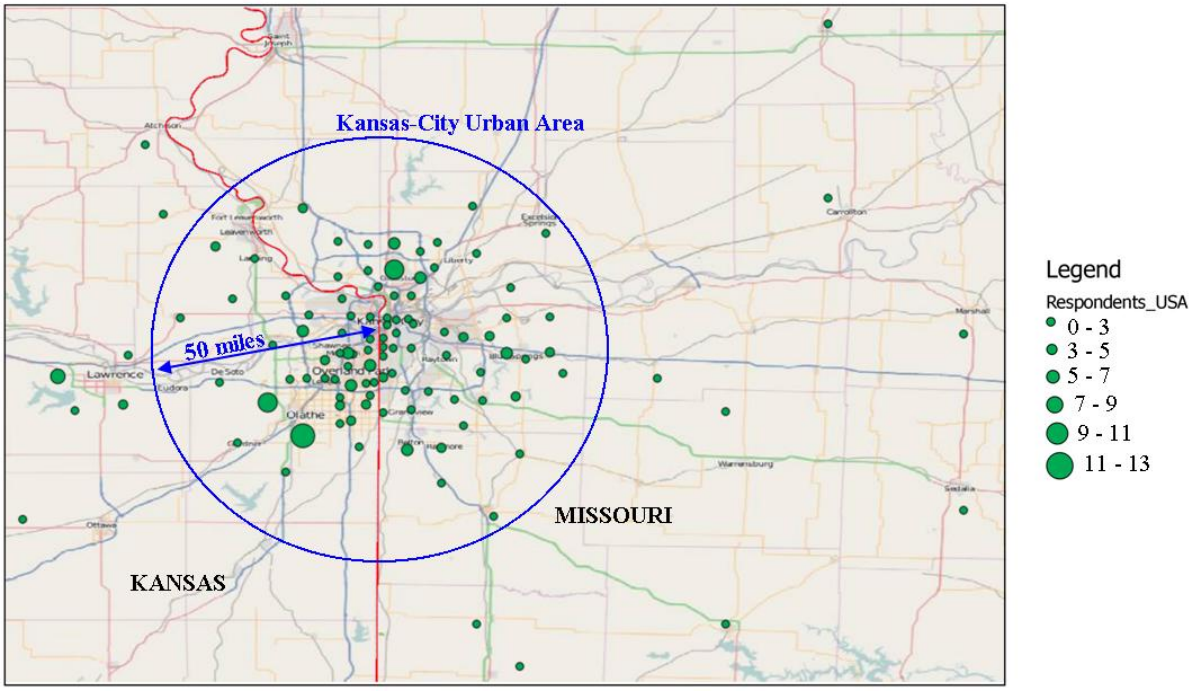
An online survey was administered in both countries, the USA and France. As seen in the Methodology chapter, well known research companies were responsible to contact potential respondents. In total, 358 surveys were sent in the US and 451 in France. The US survey was conducted in mid-December 2009, while the French one was conducted in mid-April 2010. For the US survey, 304 completed responses were collected (84.9% completion rate), with 102 for version 1 and 101 responses for versions 2 and 3, respectively. The French survey collected 317 completed responses (70.3% completion rate), with 111, 104 and 102 responses, respectively, for versions 1, 2 and 3. This is summarized in table 4.

Table 4: Survey completion summary

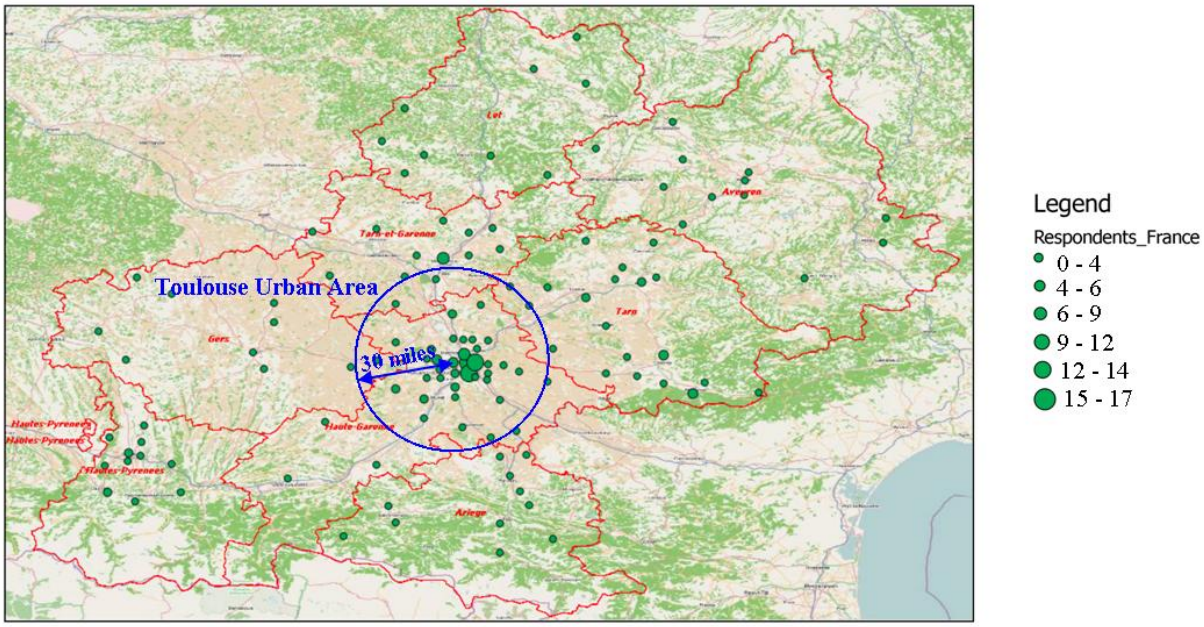
	US Survey	**French Survey**
Period when responses were collected	Mid-December 2009	Mid-April 2010
Number of sent surveys	358	451
Number of completed survey - Total	304	317
- **Version 1**	102	111
- **Version 2**	101	104
- **Version 3**	101	102

The following maps show the respondents repartition in the Kansas City urban area (map 5) and in the Midi-Pyrenees region (map 6). They have been created using the zip code provided by respondents in question 26.

Map 5: Repartition of the survey respondents in the Kansas City urban area



Map 6: Repartition of the French respondents in the Midi-Pyrenees region



From these maps, one can see that respondents mainly come from urban areas: Kansas City and Toulouse. People questioned who do not live in urban areas are spread out on the

territory, particularly in the Midi-Pyrenees region (the largest territory in size). This repartition is adapted to the purpose of this thesis because urban areas were mainly targeted.

4.1.2 Respondent characteristics

In table 5, the US survey respondents' characteristics are compared with the characteristics of the Missouri population based on the US Census 2000. In addition, the French survey respondents' characteristics can be compared to those of the US respondents.

Table 5: Respondents characteristics

	US survey respondents		Missouri population[1]	French survey respondents	
	n	% Frequency	% Frequency	n	% Frequency
Gender					
Male	132	43.4%	48.6%	97	30.6%
Female	172	56.6%	51.4%	220	69.4%
Age					
Between 18 and 19	0	0.0%	3.8%	7	2.2%
Between 20 and 24	13	4.3%	8.9%	41	12.9%
Between 25 and 34	72	23.7%	17.8%	94	29.7%
Between 35 and 44	75	24.7%	21.4%	77	24.3%
Between 45 and 54	70	23.0%	17.9%	40	12.6%
Between 55 and 64	51	16.8%	12.2%	46	14.5%
More than 65	23	7.6%	18.2%	12	3.8%
Level of education					
Graduate school	74	24.3%	7.6%	42	13.2%
Bachelors degree	107	35.2%	14.0%	59	18.6%
Some college or associate degree	93	30.6%	27.0%	77	24.3%
High school degree or equivalent	29	9.5%	32.7%	63	19.9%
Lower than high school graduate	1	0.3%	18.6%	76	24.0%
Race					
White	278	91.4%	86.1%	N/A	N/A
Black/African American	10	3.3%	11.7%	N/A	N/A
Hispanic	6	2.0%	2.1%	N/A	N/A
American Indian/Alaska Native	2	0.7%	1.1%	N/A	N/A
Asian	7	2.3%	1.4%	N/A	N/A
Native Hawaiian/Pacific Islander	1	0.3%	0.1%	N/A	N/A
Other	3	1.0%	1.2%	N/A	N/A

[1] US Census 2000

Table 6: Midi-Pyrenees population characteristics (Source: INSEE, 2008)

Midi-Pyrenees Population	
	% Frequency
Gender	
Male	49.0%
Female	51.0%
Age	
Between 18 and 19	2.9%
Between 20 and 39	31.3%
Between 40 and 59	35.0%
Between 60 and 74	18.0%
More than 75	12.8%

First, one can notice from tables 5 and 6 that 56.6% of the US respondents were female compared to almost 70% of the French respondents.

The chi-squared test was used to verify how the panel is representative when compared with the population. For the gender in the US, the computed statistic was 3.26, which was less than 3.84 from the chi-squared distribution table. So the null of equivalence between the sample and population means was not rejected at a 5% level (degree of freedom = 1). This means that the US panel is representative of the Missouri population in terms of gender. However, the null was rejected for the French survey, so the French panel is not representative of the Midi-Pyrenees population in terms of gender. Chi-squared tests conducted on age, education, race and income concluded that the US panel is not representative of the Missouri population for any of these demographic characteristics at the 5% significance level. For education and income, the panel is also not representative of the Kansas City population (within the city limits). Chi-squared tests could not be conduct on the French panel because ranges are not comparable. As discussed in the Methodology chapter, because the survey was not administered to fully randomly selected consumers, one cannot conclude that the panel is not representative of the targeted population in the US. Indeed, because the survey has targeted healthy/natural food sensitive people (at least on part of the respondents), it is not obvious that the healthy/natural food sensitive people have the same characteristics than the general population. According to chapter 2, the targeted population is more likely to have more female, educated, Caucasian, high income people. Panels' characteristics of both countries are still going to be compared to the general population in the following paragraphs.

Respondents between 25 and 54 of age represent 71.4% of the US responses, compared to 57.1% of the Missouri population over 18. Also, 66.6% of the French respondents are between 25 and 54 of age. If a linear distribution is assumed within the age ranges of the Midi-Pyrenees population, about 49.7% of the population is between 25 and 54. So in both the US and French surveys, there are higher proportions of middle-aged people (between 25 and 54) than in the population of the defined areas. Inversely, the populations between 18 and 25 and over 65 are under-represented. In particular, only 7.6% of the US sample belonged to the age segment over 65 compared to 18.6% of the Missouri population, and only 3.8% of the French respondents were over 65 compared to about 24.8% in Midi-Pyrenees.

Regarding the level of education, nearly 90% of the US respondents held at least some college or associate degree, where less than 50% of the Missouri population did. Compared to the French respondents, about 56% of them have a similar level of education. Thus, the US survey respondents have attained higher education than the population. We might compare this to the urban area of Kansas City population because we can assume that more educated people live in urban areas. Indeed, because the US survey has been done in the Kansas City area, the sample might include a higher proportion of high educated people than the Missouri population.

Table 7: Kansas City population level of education (Source: 2006-2008 Survey, US Census)

Kansas City population (290,096 persons of age 25 and over)	
	% Frequency
Level of education	
Bachelor's degree or higher	29.3%
Some college or associate degree	29.1%
High school degree or equivalent	27.8%
Lower than high school graduate	13.7%

Table 7 presents data about the education level for the above 25 years of age population of Kansas City (KC, Missouri) within the city limits. From this table, we can see that 58.9% of the population living within the city limits of KC have at least some college or associate degree, which is about 10% higher than the Missouri state population but still lower than the 90% of the US survey respondents.

In France in 2009, about 50% of the population acceded to college or equivalent level of education (Afsa, 2009); compared to the French respondents, about 56% of them have a similar level of education. So, the French sample can be considered representative of the population in terms of education.

The level of education from the US survey respondents is high, so the income level is also expected to be higher than the general population. For this reason, it is useful to compare the survey panel to the KC population (within the city limits) in addition to the Missouri population. Similar to the education level being higher in urban areas, we expect household income to also be higher in urban areas than in rural areas. Table 8 shows the income repartition among the US survey respondents and these populations.

Table 8: Household income levels (US)

	US survey respondents		Missouri Population[1]	Kansas City Population[2]
	n	% Frequency	% Frequency	% Frequency
Annual household Income				
Less than $10,000	8	2.6%	10.1%	10.0%
Between $10,000 and $24,999	24	7.9%	21.6%	18.4%
Between $25,000 and $49,999	53	17.4%	31.8%	27.1%
Between $50,000 and $74,999	77	25.3%	18.9%	18.3%
Between $75,000 and $99,999	64	21.1%	8.8%	10.6%
Between $100,000 and $199,999	71	23.4%	7.1%	13.2%
More than $200,000	7	2.3%	1.6%	2.5%

[1]US Census 2000.

[2]2006-2008 American Community Survey, US Census.

As expected the KC population is wealthier than the Missouri one. Indeed, 44.6% of the KC household incomes are higher than $50,000 where only 36.4% of the Missouri incomes are. Moreover, as expected because of the high level of education of the US survey panel, a large portion of the US surveyed households have a high income: 72.1% of the household incomes are higher than $50,000. This is 27.5 points higher than the KC percentage for the similar range. It will be kept in mind for the conclusions that a large number of above average income people answered the survey. Even if wealthier people are assumed to be more likely interested in food quality and food issues (somehow targeted in this survey), their proportion in the panel seems high. Another reason for this difference is probably the accessibility to this survey, which was conducted online.

Table 9: Household income levels (France)

	French survey respondents	
	n	% Frequency
Annual household Income		
Less than 13,000€	59	18.6%
Between 13,000€ and 22,999€	96	30.3%
Between 23,000€ and 27,999€	50	15.8%
Between 28,000€ and 37,999€	54	17.0%
Between 38,000€ and 47,999€	32	10.1%
Between 48,000€ and 77,999€	20	6.3%
More than 78,000€	6	1.9%

Table 10: Household income repartition in Midi-Pyrenees (Source: INSEE, 2004)

Household Income in Midi-Pyrenees region	
1st quartile	13,522 €
2nd quartile	22,894 €
3rd quartile	36,255 €
Mean	28,149 €

The French survey panel seems quite in correlation with the Midi-Pyrenees data (tables 9 and 10). Indeed, 48.9% of the respondents have an annual household income less than 22,999€, which is comparable to the second quartile. Moreover, 18.6% of the panel is below 13,000€ as their annual household income (similar to 1st quartile), where 18.3% are above 38,000€ (similar to the 3rd quartile). So the panel seems representative of the Midi-Pyrénées region in terms of annual household income.

The comparison between the US level of income and the French level of income is not pertinent here. A valid comparison would be challenging because of currency difference and also because living costs and general standard of living have dissimilarities between the two countries. Indeed, what is interesting for this study is to see the social class of the respondents in its context, meaning inside the geographical area where they are living (with living costs and standard of living characteristics of the region).

4.1.3 Shopping and food consumption habits

This section presents the current shopping and food consumption habits of both panels, in the US and in France.

First, the shopping frequency for various products is asked. Results are presented in figures 5 and 6, respectively for the US and France.

Figure 5: Shopping Frequency (Question 4, US)

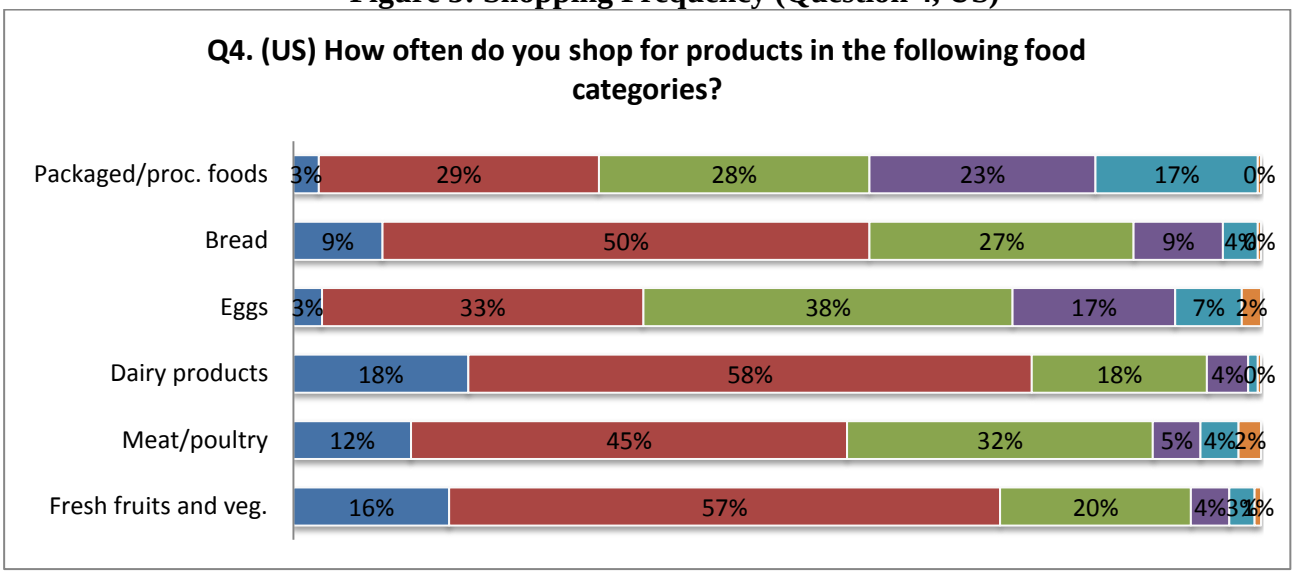
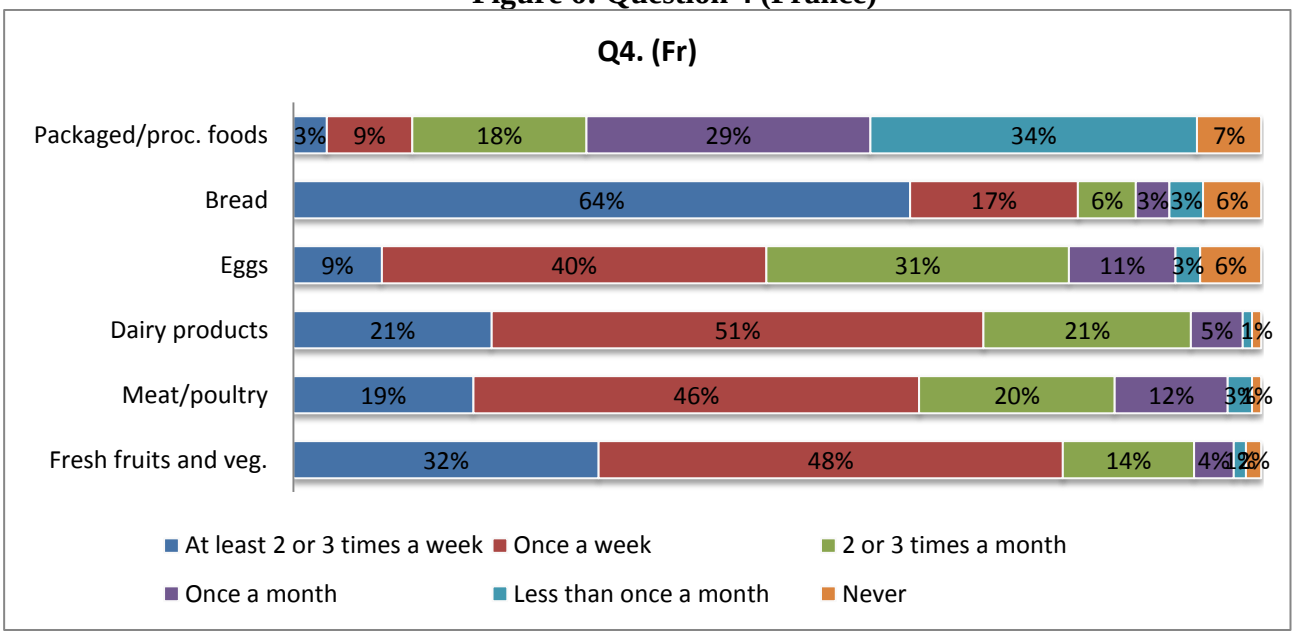


Figure 6: Question 4 (France)



On these graphs (figures 5 and 6), it appears first, that French people are buying fresh food more often than Americans. Further, 80% of the French panel buys fresh fruits and vegetables at least once a week, whereas 73% of Americans do so. Moreover, the proportion of French people buying fruits and vegetables at least two or three times a week is twice the proportion of American people, representing 32% and 16% of the panels respectively. For meat and poultry, 65% of French people buy items in this category at least once a week, compared to 57% of American people. For eggs, the proportions of weekly buyers are 49% and 36%, respectively, for French and Americans. For dairy products, the tendency is inversed, with 72% of French people buying it at least once a week, and 76% of the American panel. An explanation to that is probably the nature of the packaging for milk. Indeed, in the US almost all the milk for consumption needs to be kept refrigerated. This is not the case in France, where milk is processed into products that are shelf-stable and can be kept for a long time without any refrigeration before opening.

Considering bread, 64% of the French panel is buys bread at least two or three times a week; when only 9% of Americans do so. Actually we can assume that in France, a large part of the population is buying bread ("French baguette") every day at the bakery, which is not at all the case in the US where people are buying bread with shelf life of several days. So the reason for this large difference is mostly due to food culture. However, for packaged and processed foods, 32% of American people buy these foods at least once a week; compared to only 12% of French. Thus, it seems that French people are more likely to buy fresh food regularly than Americans. This is true except for the particular case of dairy products.

Overall, a major proportion of people in both countries purchase fruits, vegetables, meat, poultry and dairy products at least once a week, which is good news for producers interested in direct marketing. The market does exist for farm products supply every week.

The following figures (figures 7 and 8) go a bit deeper on the food purchase habits by asking concern over product origin.

Figure 7: Tendency to Check Product Origin (Question 5, US)

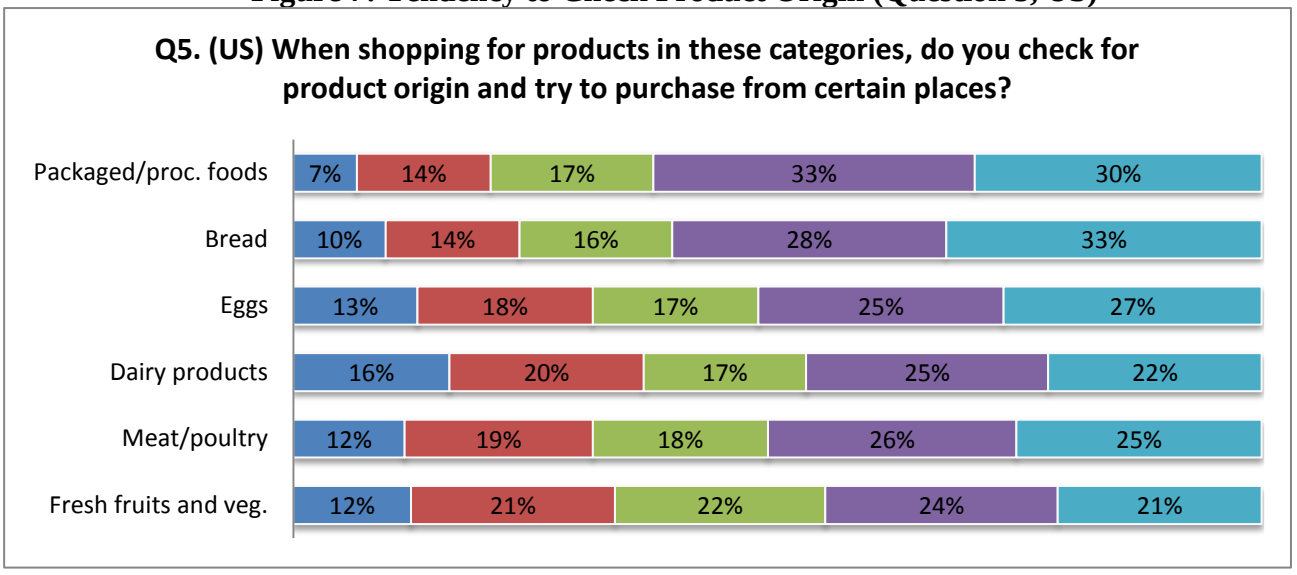
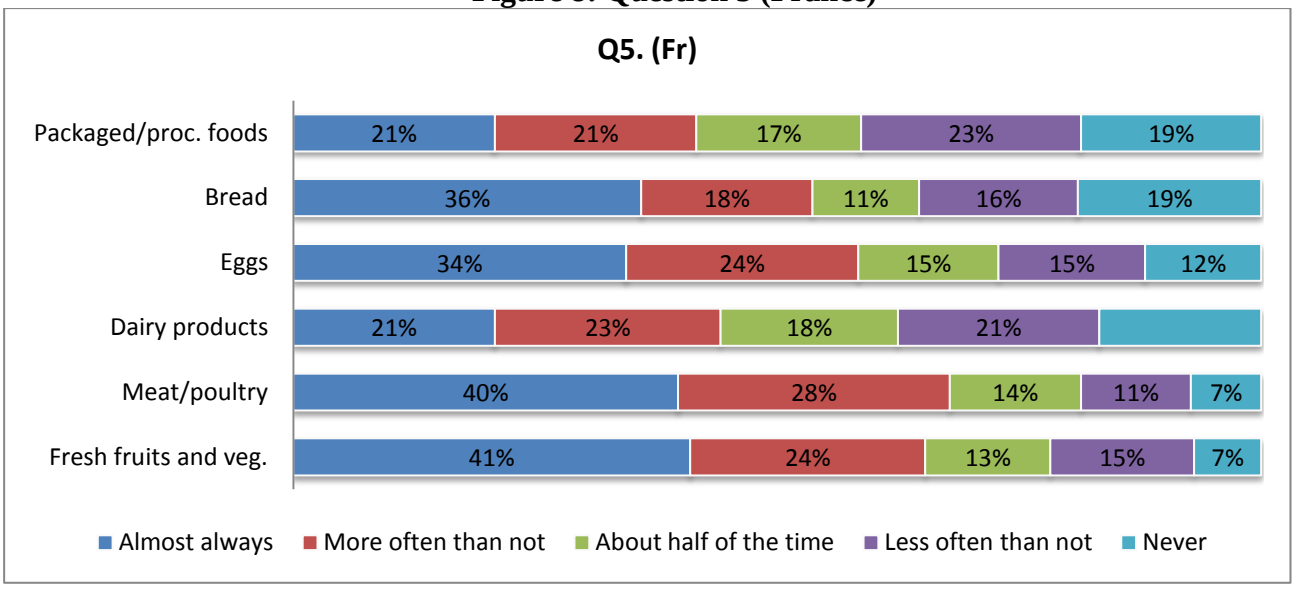


Figure 8: Question 5 (France)



If an overall look is done on the US responses (figure 7), it appears that between 21% and 36% of people are checking for product origin and trying to purchase them from certain places "almost always" or "more often than not" across all the food categories (fresh fruits and vegetables, meat/poultry, dairy, eggs, bread, packaged/processed foods). Checking the same overall look on the French answers (figure 8) gives a range between 42% and 68% across all categories. So it appears that French people are more concerned about food origin than

Americans. French are checking origin mostly for meat/poultry, fruits and vegetables and eggs, with about or more than 60% of respondents checking the origin and trying to purchase from certain places “almost always” or “more often than not”. Dairy products and packaged or processed food are checked at similar frequency only by 44% and 42% of the French panel, respectively. Inversely, in the US, people are more likely to check dairy products origin, 36% of the respondents checking the origin “almost always” or “more often than not”. About 30% of the population checks at similar frequency for fruits, vegetables, meat, poultry and eggs. And only around 20% check for bread and packaged/processed foods on this criteria.

The greater importance French people place on food origin could be explained by the food tradition. There are regional cooking traditions in France, so labels and certificates of origin have been developed to insure consumers they are buying products from the original areas where they historically come from. This is particularly the case for wine (e.g., Champagne, St Emilion) and cheese (e.g., Comté, Roquefort), but also for other particular products such as fruits and vegetables (e.g., “Piment d’Espelette” = Espelette hot pepper, “Pomme du Limousin” = Limousin Apple), meat (e.g., “Taureau de Camargue” = Camargue Bull, “Chapon de Bresse” = Bresse capon), etc.

To sum these results, one can say that French respondents pay more attention to origin when purchasing food than US people but there is still a part of the US population that seems concerned about origin issues (about 20-25%).

Figures 9 and 10 now focus on results about the shopping outlets people are using to purchase their groceries.

Figure 9: Shopping Outlets (Question 7, US)

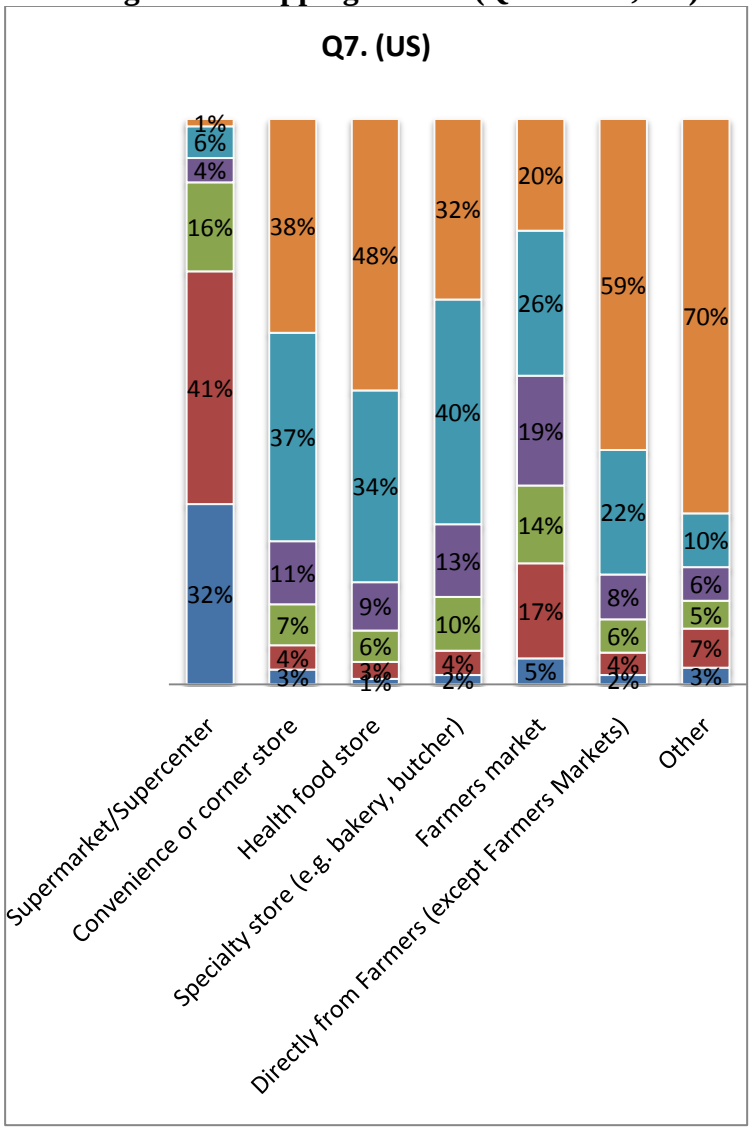
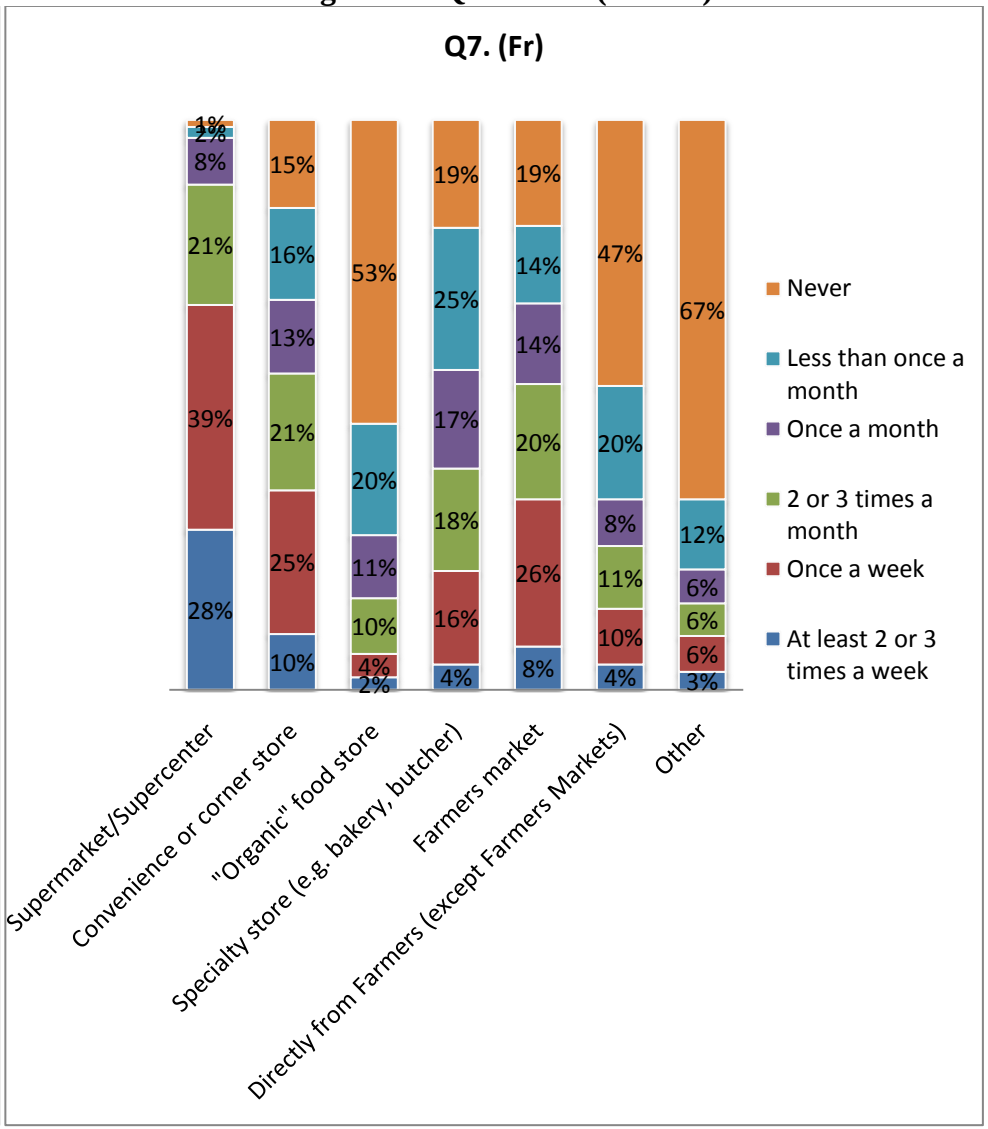


Figure 10: Question 7 (France)



Note: Q7. How often do you purchase your groceries at the following outlets?

The first thing which appears from those diagrams (figures 9 and 10) is that supermarket and supercenter are the outlets where people shop the more regularly in both the US and in France. Thus, 73% of the US respondents and 67% of the French respondents purchase their groceries at least once a week on those outlets. Convenience or corner stores are not much used by the US respondents; about 7% use them at least once a week; where 35% of the French do so. For the farmers markets, 34% of the French respondents use them at least once a week and 22% of the Americans, but similar proportions of people never use farmers market in both countries, i.e., 20% of the respondents in the US and 19% in France. About food bought directly from farmers but not in farmers market, 59% of the US panel never does and 22% does less than once a month. In France, 47% never does and 20% does less than once a month. Note that health food store in the US and organic food store in France are used marginally.

These results shows that the US and French respondents have similar habits concerning grocery purchases; their main outlet is typically a supermarket or supercenter, and around a quarter of the population (a bit more in France) goes regularly to farmers markets. The main difference concerns the convenience and corner stores, which are much more used in France than in the US.

To go further on the purpose of this thesis, the following graphs (figures 11 and 12) present results obtained when asking about familiarity of respondents about direct from producers to consumers' market channels.

Figure 11: Familiarity with Marketing Institutions (Question 9, US)

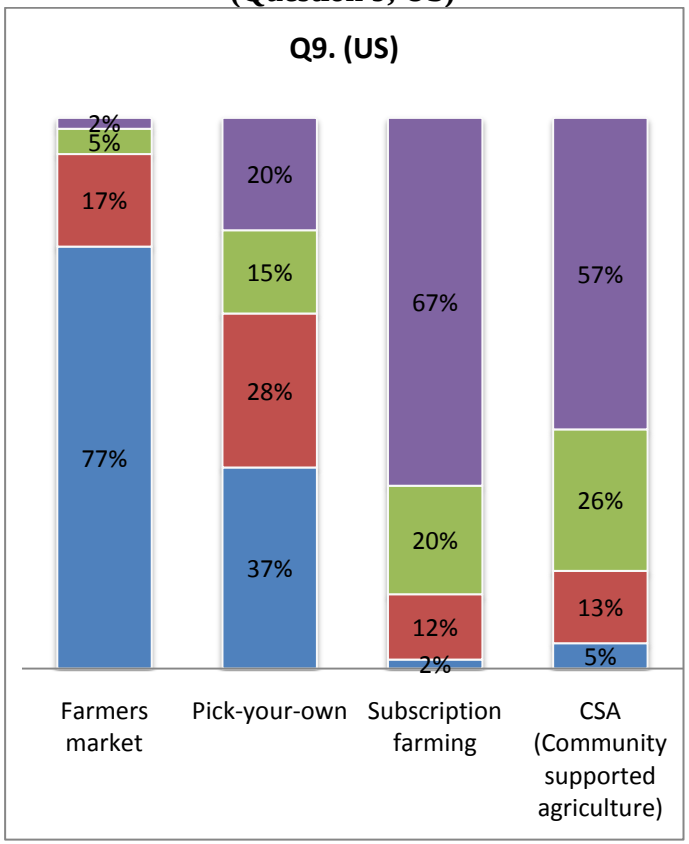
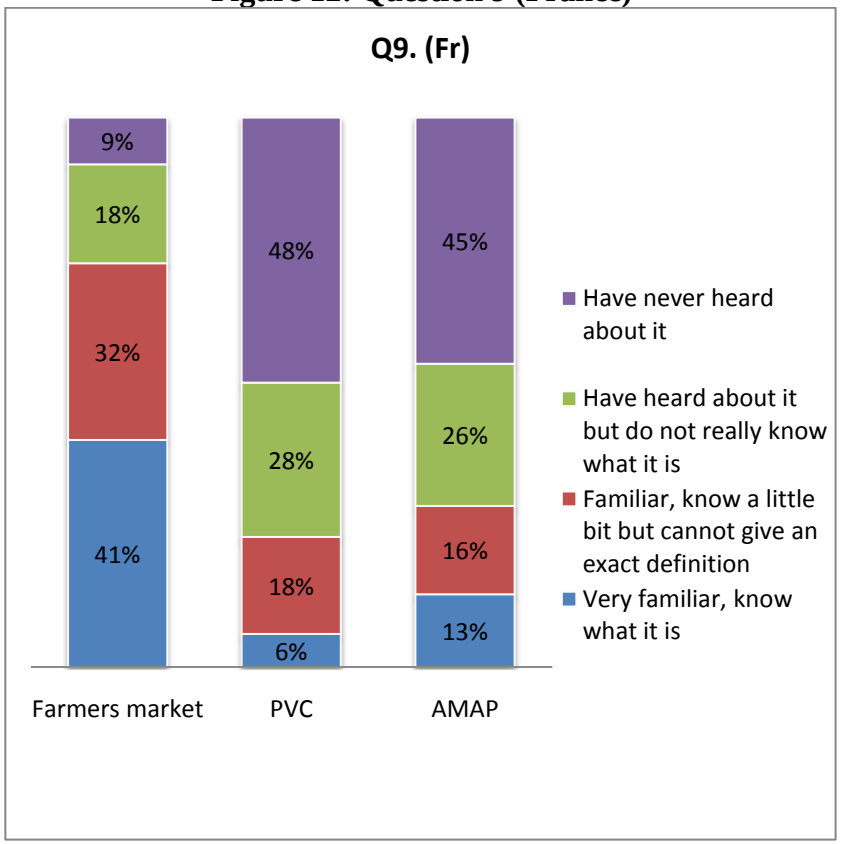


Figure 12: Question 9 (France)



Note: Q9. How familiar are you with the following marketing institutions?

These graphs (figures 11 and 12) show various things. First, 77% of the US panel are very familiar with farmers' markets and know what they are. Only 41% of the French population knows. Note that 73% of the French panel is familiar or very familiar with farmers markets (94% in the US). Then pick-your-own is familiar or very familiar for 65% of the US panel. In France, PVC (Collective Point of Sale, explained in chapter 2) is known at least a little bit by 24% of the population, and 48% have never heard about it. As seen in chapter 2,

AMAP in France are the equivalent of the American CSAs; this type of marketing institution is familiar or very familiar for 18% of the population in the US and 29% in France. However, 57% of the population in the US and 45% in France have never heard about it. For subscription farming, considered as a CSA with fewer obligations, 67% of the US panel has never heard about it.

There is clearly a lack of information among the general population about CSAs and equivalent institutions in both countries. Farmers markets are well known in the US but could be better promoted in France.

The next graphs (figures 13 and 14) specified respondents' knowledge results about direct channels on the area they are living in.

Figure 13: Knowledge about Marketing Institution (Question 10, US)

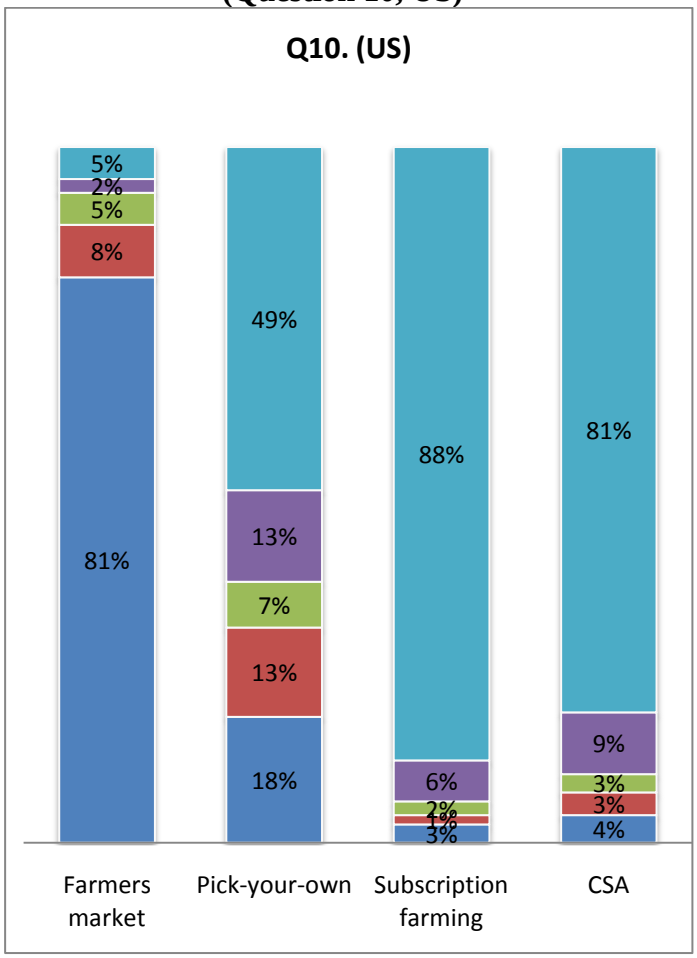
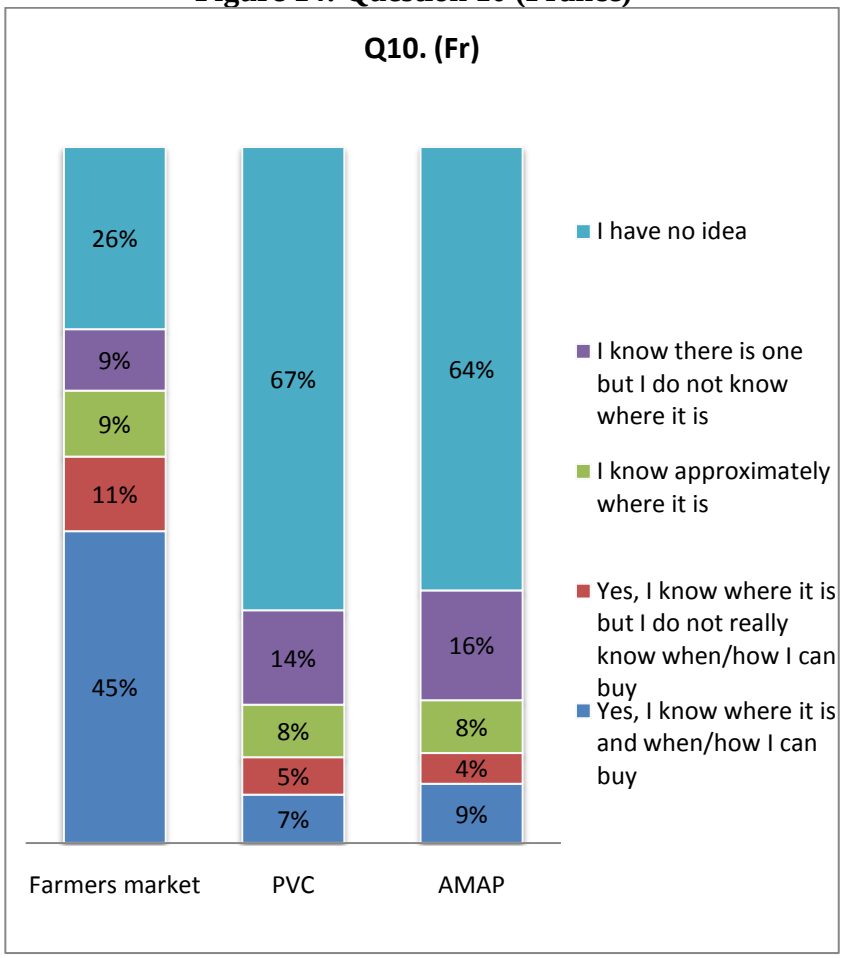


Figure 14: Question 10 (France)



Note: Q10. Do you know where you can access the following marketing institutions in your neighborhood?

As expected from the responses to the previous question, US people know how to access Farmers Markets well, with 89% of them knowing where it is (figure 13). In France, only 56% of the panel knows where farmers markets are (figure 14). However, more than

80% of the US panel has no idea where they can access either CSA or subscription farming in their neighborhood and more than 60% of the French respondents have no idea where and how to access AMAP or PVC.

This points out that a local communication is needed in both the Kansas City area and the Midi-Pyrenees region to inform the population on the local food offering possibilities on their communities.

Table 11 then gives detailed results on respondents' willingness to travel off of their regular routes to purchase food directly from farmers when using various transportation types, either walking, taking public transportation or driving.

Table 11: Questions 11,12 and 13

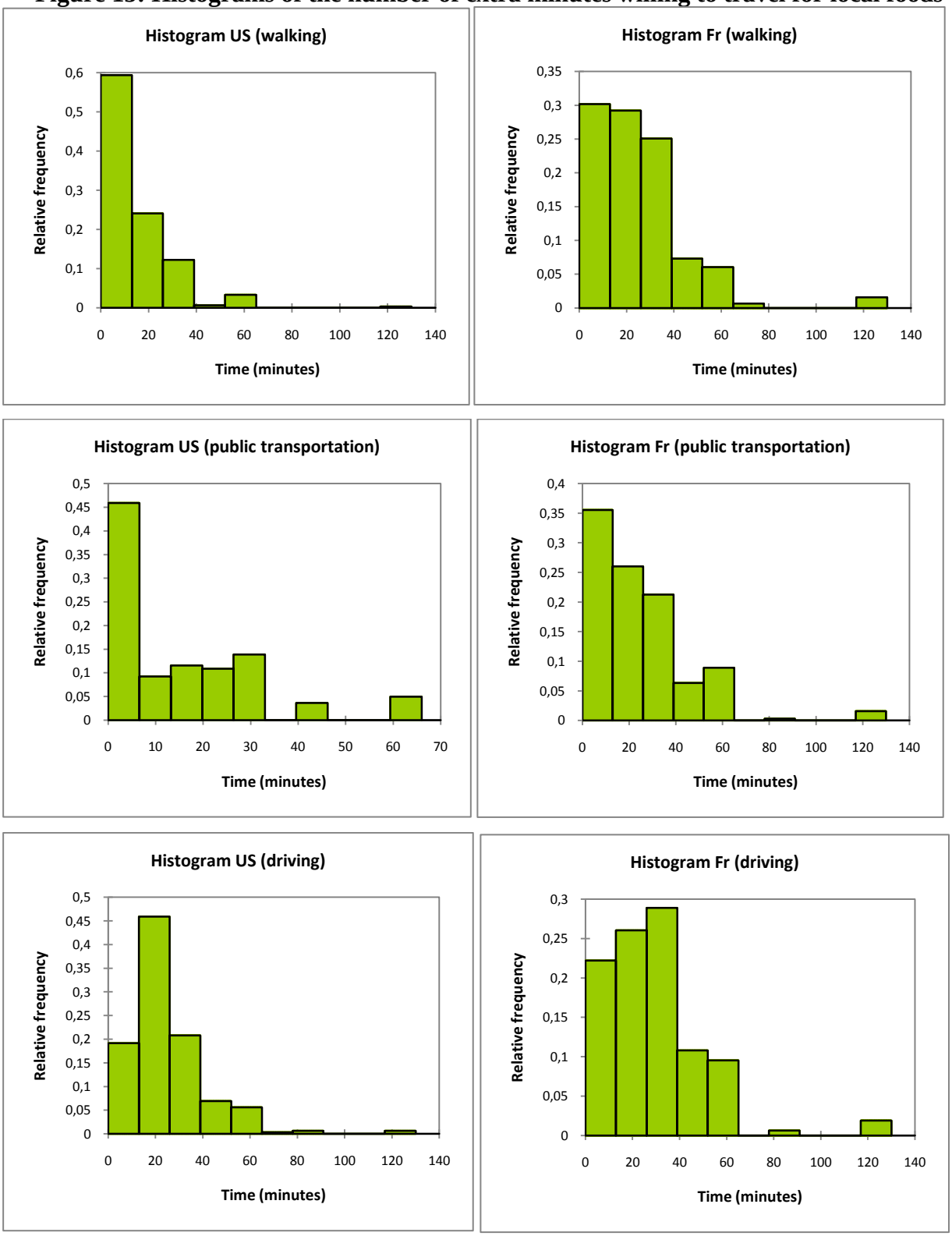
	US			France		
Q. 11-12-13	**Less than 60 minutes for all transportation type**					
Statistic	walking	public transport.	driving	walking	public transport.	driving
No. of observations	304	304	304	317	317	317
No. of missing values	33	33	33	61	61	61
Sum of weights	**271**	**271**	**271**	**256**	**256**	**256**
Minimum	0	0	0	0	0	0
Maximum	45	45	45	45	50	52
Freq. of minimum	74	145	35	75	126	71
Freq. of maximum	2	4	10	8	2	1
1st Quartile	5	0	15	10	0	10
Median	**10**	**10**	**20**	**15**	**15**	**20**
3rd Quartile	15	20	30	30	30	30
Mean	**11.173**	**10.867**	**19.804**	**18.484**	**16.156**	**22.031**
Standard deviation (n)	9.090	11.871	9.962	10.993	12.813	12.119
Variation coefficient	0.814	1.092	0.503	0.595	0.793	0.550
Standard error of the mean	0.553	0.722	0.606	0.688	0.802	0.759
	60 minutes or more for at least one type of transportation					
	walking	public transport.	driving	walking	public transport.	driving
No. of observations	304	304	304	317	317	317
No. of missing values	271	271	271	256	256	256
Sum of weights	**33**	**33**	**33**	**61**	**61**	**61**
Minimum	0	0	10	0	0	0
Maximum	500	120	120	360	240	360
Freq. of minimum	273	278	1	257	262	258
Freq. of maximum	1	1	2	1	1	1
1st Quartile	15	30	45	30	30	30
Median	30	45	60	45	60	60
3rd Quartile	60	60	60	60	60	60
Mean	**49.000**	**42.121**	**56.364**	**55.492**	**54.180**	**60.328**
Standard deviation (n)	83.765	27.220	24.286	50.795	38.964	48.813
Variation coefficient	1.709	0.646	0.431	0.915	0.719	0.809
Standard error of the mean	14.808	4.812	4.293	6.558	5.030	6.302

In this table, people who said they were willing to travel 60 minutes or more off of their regular commuting/shopping route to purchase food directly from a farmer every week were separated to the others in order to get more realistic results and avoid the influence of extreme values. In fact, 33 people choose to travel 60 minutes or more in at least one of the transportation possibilities in the US panel, and 61 in France. For those people, it appears that the time they are ready to travel off of their usual shopping route is more than 40 minutes every week on average in the US and more than 50 minutes in France. But with large differences among people, the standard deviations and standard errors of the means are huge; between 24 and 83 minutes for the standard deviation.

People who choose less than 60 minutes for all transportation type are willing to travel around 11 minutes off of their shopping route if they walk or use public transportation an average in the US and almost 20 minutes if they are driving. In France, respondents are willing to walk 18 minutes on average, they are willing to spend 16 minutes if they use public transportation and 22 minutes on average if they drive. Overall, people are willing to spend more time if they are driving than walking or using public transportation. This makes sense because it is easier to carry food when you drive. The physical condition could be another point in the explanation. One interesting point is that on average, people are willing to spend more time if they walk than if they use public transportation, the difference is more noticeable in France than in the US. People might consider it is more pleasant to walk to purchase food from a farmer than to use public transportation which can be noisy and crowded. Standard deviations are quite high, between 9 and 12 among the 3 transportation types of each country.

The histograms below (figure 15) present the relative frequency of time periods respondents would be willing to travel off of their regular shopping/commuting route every week. All the answers are taken in consideration in these histograms except the highest one for the US and the 2 highest answers for France to display the figures using readable horizontal axes.

Figure 15: Histograms of the number of extra minutes willing to travel for local foods



In the cases of walking and public transportation, it is clear that the French population willingness to travel off of their regular shopping route is more evenly distributed over travel

time. Indeed, 60% of the US panel is willing to travel off between 0 and 13 minutes of their regular route when walking. This is the case for only 30% of the French respondents. However, 29% of the French panel is then willing to travel on a range between 13 and 26 minutes and 25% between 26 and 39 minutes. The Americans are willing to do so for 24% and 12% of them respectively for the ranges 13-26 and 26-39 minutes. In addition, 45% of the US respondents are willing to travel off of their usual route when using public transportation less than 7 minutes and 10% of people between 7 and 13 minutes, which makes 55% willing to travel off for less than 13 minutes. On the same range of time, 35% of the French respondents are willing to do so. In addition, 47% of the French panel is willing to spend between 13 and 39 minutes to travel off of their regular shopping route every week when using public transportation.

In the case of driving, the US respondents are for most of them (46%) willing to travel off between 13 and 26 minutes. Only 19% are willing to travel off for a smaller time. In France, 22% are willing to travel off for less than 13 minutes, a higher rate than in the US, but then 26% are willing to travel in a range of 13 to 26 minutes. This means that 52% of the French respondents are willing to travel off of their regular shopping route for more than 26 minutes, and only 35% of the US respondents. So more French respondents are willing to travel less than 13 minutes than US respondents, but there are also more French people who are ready to travel off more than 26 minutes than in the US. The US panel has a higher percentage of people willing to travel on a median time, between 13 and 26 minutes.

If this study is used to advise CSA farmers on distribution strategies for their products, the US case provides more concrete suggestions than the French one. In sum, most US respondents would be willing to spend less than 15 minutes if walking or using public transportation, and about 20 minutes when driving. This tells that the time constraint is an important factor to take into consideration for US farmers. For the French case, it is not that clear; about a quarter of the population would be willing to walk less than 13 minutes, another quarter between 13 and 26 minutes, another one between 26 and 39 and the last quarter more than 39 minutes, which makes it difficult to give advice. Results from public transportation is a little bit more clear, giving 35% willing to travel less than 13 minutes. When driving, about half of the French population would not spend more than 26 minutes. The time constraint appears less binding in France but remains an important factor if population from expanded geographical areas is targeted by farmers.

4.1.4 Preferences and perceptions

Table 12 presents the means and standard deviations of the answers at question 6 which was asking for the appealing about various attributes when purchasing perishable groceries. Responses are on a scale from 1: extremely important, to 5: not at all important (2: very important; 3: moderately important; 4: slightly important).

The statistics are presented in the ranking according to the US respondents from the most important (lower mean) to the less important (higher mean). Table 13 presents the attributes based on the ranking according to the French respondents. A pairwise t-test has been conducted to evaluate the differences between the US and the French responses, and the results are presented in table 9. The critical t value is 1.964 with the degrees of freedom of 619 and alpha of 0.05. These conditions will apply for the tables 12 to 23.

Table 12: Important Attributes of Perishable Groceries by US Ranking (Question 6)

Question 6		Mean	Standard deviation	Difference	t (Observed value)	p-value (Two-tailed)
Taste						
	US	1.329	0.668			
	French	1.347	0.621	-0.018	-0.349	**0.727**
Appearance (color, visual appeal)						
	US	1.533	0.783			
	French	1.962	1.015	-0.429	-5.884	< 0.0001
Price						
	US	1.678	0.789			
	French	1.536	0.765	0.141	2.268	0.024
Nutrition						
	US	1.757	0.848			
	French	2.293	1.012	-0.537	-7.148	< 0.0001
Risk of food-borne illnesses						
	US	2.013	1.202			
	French	1.842	1.047	0.171	1.891	**0.059**
Variety						
	US	2.234	0.945			
	French	2.151	0.912	0.082	1.102	**0.271**
Pesticide use						
	US	2.714	1.216			
	French	2.224	1.149	0.490	5.161	< 0.0001
Brand (company/store)						
	US	2.786	1.029			
	French	2.817	1.147	-0.031	-0.352	**0.725**
Where it is sold						
	US	2.819	1.067			
	French	2.505	1.090	0.314	3.630	0.0003
Convenient packaging						
	US	3.003	0.966			
	French	3.079	1.168	-0.076	-0.877	**0.381**
Environmental impact						
	US	3.053	1.017			
	French	2.549	1.109	0.504	5.894	< 0.0001
Where it was produced						
	US	3.059	1.139			
	French	2.325	1.127	0.734	8.074	< 0.0001
Third-party verified claims (e.g., cage-free, hormone-free)						
	US	3.447	1.187			
	French	2.590	1.044	0.857	9.566	< 0.0001
Certified organic						
	US	3.559	1.147			
	French	2.956	1.135	0.603	6.586	< 0.0001

Table 13: Important Attributes of Perishable Groceries by French ranking (Question 6)

Q.6	Mean (Fr)
Taste	1.347
Price	1.536
Risk of food-borne illnesses	1.842
Appearance (color, visual appeal)	1.962
Variety	2.151
Pesticide use	2.224
Nutrition	2.293
Where it was produced	2.325
Where it is sold	2.505
Environmental impact	2.549
Third-party verified claims (e.g., cage-free, hormone-free)	2.590
Brand (company/store)	2.817
Certified organic	2.956
Convenient packaging	3.079

At first look, taste appears to be the most important attributes for both sample groups. Actually, looking at the t-test, the p-value is greater than 0.05 so the difference between the means of the 2 country responses is statistically equal to zero. The appearance of products, as their color and visual aspect, is ranked 2nd on the US survey, with a mean of 1.533. The French mean for appearance is only 1.962, ranking this attribute on the 4th position. Thus, it seems that Americans pay more attention to the visual aspect of their food purchases. The correlation between taste and appearance is 0.631 on the American survey (Pearson correlation test, appendix 14), which means there is a weak association between these attributes. On the French survey there is apparently no association between taste and appearance (correlation coefficient = 0.279; appendix 15).

Price is ranked as the third important in the US and second in France. The t-test says that the difference between the means is not equal to zero between the US and France, suggesting that French people ranked it more important than US people on average. Price is not associated with any other attribute, either in the US or in France.

Nutrition is then the fourth important attribute for the US respondents. It is only ranked 7 on the French survey. The difference between the means is large. For the US, nutrition is associated with taste by a modest correlation of 0.580. One can speculate that the US respondents are more concerned about the nutrition because they consider good food to be food with high

nutrition level and substantial taste in contrast to the French cooking tradition, which probably results in French respondents to focus mostly on taste and more subjective attributes than nutrition facts.

The risk of food borne illnesses is ranked on the 5th position in the US survey and 4th in France. Both countries seem to take this attribute seriously with means close to 2, meaning it is very important. The difference between the means is statistically equivalent to zero at the 5% level. There is a correlation of 0.548 and 0.578 respectively for the US and France between this risk and the pesticide use, which is sensible as both of these attributes are related to health. The pesticide use attribute is ranked 7 in the US and 6 by the French respondents. The t-test does not conclude for a difference between the means of zero for pesticide use between the US and France. The French respondents are more concerned than the US counterpart about pesticide. The French respondents are more likely to say it is a very important attribute when the Americans are more likely to say it is a moderately important attribute.

Variety is ranked just above the pesticide use in both countries, the US and France, respectively in 6th and 5th position. It is considered to be a "very important" attribute and the difference between the means of the two countries is zero. The brand attribute is ranked on the 8th position in the US and 12th position in France. The ranking is quite different, but in both countries, the brand is considered moderately important by the major part of the samples. The difference between the means of the US and French survey is considered to be zero. Similarly, the convenience of the packaging is ranked 10th in the US and 14th in France, but the difference between the means is equal to zero. The attribute "where it is sold" appears on 9th rank in the US and in France, but the average French respondent value it more important.

The "environmental impact", "where it was produced", "third part verified" and "certified organic" attributes are ranked respectively from 10th to 14th positions in the US. With importance considered moderate or slight. This is a big difference with the French respondents who ranked the same attributes between very important and moderately important. Thus, "where it was produced" appears 8th, "environmental impact" 10th, "third party verified" 11th and "certified organic" 13th. The differences between the means of these attributes are, thus, different from zero. This difference in the ranking of these four attributes can be explained by the cultural difference between the US and France. France has a strong culinary tradition and developed labels, origin

certifications and so on to allow consumers to identify the product as well as possible. European consumers focus attention on products origin and process: where it was produced and how it was made.

From that, one can retain that price is definitely important when buying perishable groceries. Other more or less rational attributes such as taste, appearance and safety appear to be also very important for consumers in both countries. Then, US respondents would secondly pay more attention to convenience (variety, where it is sold, packaging) and thirdly to more beliefs such as environmental concerns, process and origin. Inversely, French respondents would pay more attention to their beliefs, and will thirdly consider the convenience.

Then, table 14 gives results from question 14 that was asking for enjoyment for various activities. The scales used are 1: Love it; 2: Enjoy it; 3: Indifferent; 4: Don't particularly enjoy it; 5: Don't enjoy it at all.

Table 14: Preferences for Food-Related Activities by US Ranking (Question 14)

Question 14		Mean	Standard deviation	Difference	t (Observed value)	p-value (Two-tailed)
Eating fresh food						
	US	1.388	0.586			
	French	1.353	0.580	0.035	0.744	**0.457**
Eating healthy food						
	US	1.697	0.718			
	French	1.479	0.682	0.218	3.877	0.0001
Supporting a local farmer						
	US	1.938	0.836			
	French	1.855	0.794	0.083	1.263	**0.207**
Cooking from scratch						
	US	2.010	1.104			
	French	1.817	0.852	0.193	2.443	0.015
Respecting the environment						
	US	2.043	0.841			
	French	1.855	0.814	0.188	2.829	0.005
Discovering what crops are in season						
	US	2.507	1.018			
	French	1.640	0.748	0.866	12.116	< 0.0001
Bringing children to a farm (choose 3 if not applicable)						
	US	2.559	0.806			
	French	2.407	0.932	0.152	2.174	0.030
Knowing where the food comes from						
	US	2.599	1.000			
	French	1.858	0.832	0.741	10.050	< 0.0001
Learning about how food is grown						
	US	2.753	1.088			
	French	2.716	1.189	0.037	0.406	**0.685**
Working on a farm						
	US	3.510	1.180			
	French	2.915	1.226	0.595	6.159	< 0.0001

Table 15: Preferences for Food-Related Activities by French Ranking (Question 14)

Q.14	Mean (Fr)
Eating fresh food	1.353
Eating healthy food	1.479
Discovering what crops are in season	1.640
Cooking from scratch	1.817
Respecting the environment	1.855
Supporting a local farmer	1.855
Knowing where the food comes from	1.858
Bringing children to a farm (choose 3 if not applicable)	2.407
Learning about how food is grown	2.716
Working on a farm	2.915

Eating fresh food and eating healthy food are the 2 important activities the US and French people enjoy (tables 14 and 15). The difference in the means between the US and French answers for "eating fresh food" is considered equal to zero from the t-test. This is not the case for "eating healthy food", which has a mean of 1.7 in the US and 1.5 in France. There is an association between "eating fresh food" and "eating healthy food", the correlation coefficient is 0.648 for the US and 0.666 for France (appendixes 16 and 17). Supporting a local farmer is the third most important activity for American people, it is ranked 6th for French respondents. But, the difference between the mean scores is equal to zero, suggesting people in both samples enjoy supporting local farmers. In both countries, there is a weak correlation between support to local farmers, respecting the environment and knowing where the food comes from with a correlation between 0.5 and 0.6 for the US among these activities and between 0.6 and 0.7 for France. These 3 activities have about similar means in France, around 1.86.

Cooking from scratch is more enjoyed in France than in the US with a mean of 1.8 in France and 2 in the US. It is ranked 4th in the two countries. Learning how food is grown is ranked 9th in both countries, testing with a t-test gives a difference between the means equals to zero. This is associated to the last ranked activity in both countries: working on a farm. The correlation coefficient is 0.569 in the US and 0.726 in France. This correlation makes sense because if someone wants to learn how food is grown, he is more likely to go on a farm and work to learn.

From these results, it appears that the most important messages for farmers to communicate to consumers should pertain to food concerns. Secondly, supporting the rural

community seems to also be an effective message to consumers. Environmental and educational concerns are evaluated to be less important.

Question 15 asks for appealing about different types of marketing institutions to buy directly from farmers. Scales are close to the previous question with 1: Love it; 2: Like it; 3: Indifferent; 4: Don't particularly care for it; 5: Don't care for it at all. Results are presented below (table 16).

Table 16: Preferences for Local Marketing Institutions by US Ranking (Question 15)

Question 15		Mean	Standard Deviation	Difference	t (Observed value)	p-value (Two-tailed)
Grocery stores with local food offerings						
	US	1.503	0.670			
	French	1.874	0.709	-0.371	-6.687	< 0.0001
Farmers markets						
	US	1.609	0.700			
	French	1.719	0.751	-0.111	-1.899	**0.058**
Roadside stands or "Vente à la ferme (ou en bord de route)"						
	US	2.128	0.926			
	French	1.981	0.834	0.147	2.083	0.038
Pick-your-own						
	US	2.704	1.098			
	French	N/A	N/A			
CSA - French "AMAP"						
	US	3.240	1.160			
	French	2.662	0.979	0.578	6.718	< 0.0001
Group CSA						
	US	3.322	1.120			
	French	N/A	N/A			
Subscription farming or "AMAP faible engagement"						
	US	3.454	1.046			
	French	2.776	0.992	0.678	8.289	< 0.0001
"Magasin de producteur"						
	US	N/A	N/A			
	French	2.091	0.743			
"PVC"						
	US	N/A	N/A			
	French	2.375	0.861			

Table 17: Preferences for Local Marketing Institutions by French Ranking (Question 15)

Q.15	Mean (Fr)
Farmers markets	1.719
Grocery stores with local food offerings	1.874
Vente à la ferme (ou en bord de route)	1.981
Magasin de producteur	2.091
PVC	2.375
CSA	2.662
AMAP faible engagement	2.776

Five types of marketing institutions could be compared between the US and France (tables 16 and 17), then, one kind of institution is particular to the US and two are particular to France. The institution which is best ranked by the US respondents is grocery stores with local food offerings, with a mean of 1.5, meaning between "love it" and "like it". The second marketing institution ranked is farmers market in the US with a mean of 1.6. This institution is ranked number one in France, the mean is 1.7. The t-test tells that the difference between the means is equal to zero.

It appears overall that the respondents of both countries, the US and France, prefer marketing institutions in which they are free to buy when they want and without any engagement. Grocery stores, farmers markets, roadside stands, pick-you-own, "magasin de producteur" and PVC do not require any engagement and are ranked above the other institutions with engagement in the two countries. Moreover, these institutions are more likely to be ranked from the more convenient to the less one. Thus, grocery stores with local offerings and farmers markets appear first, probably because the diversity of products available is larger, so people do not need to stop in many places to buy their fresh groceries. A surprising result is that subscription farming is ranked on the last position in the US and in France, after CSA (and group CSA in the US). This does not confirm the idea that people are more likely to prefer an institution if there is less engagement. Indeed, CSA and group CSA need more engagement than subscription farming. Note finally that in France, CSA and subscription farming have a mean between "like it" and "indifferent" when in the US it is between "indifferent" and "don't particularly care for it".

The distributions of the responses are presented below in figures 17 and 18. It confirms that engagement and convenience are playing a role in people finding appeal for certain marketing institutions. More than 85% of the respondents in both countries love or like farmers

markets and grocery stores with local food offerings. CSA and subscription farming have lower levels of appeal, which could also be explained by the fact that people cannot like something if they do not know it. Thus, communication is needed to inform people on what CSAs are and what benefit consumers can get by joining one of them.

Figure 16: Preferences for Local Marketing Institutions (Question 15, US)

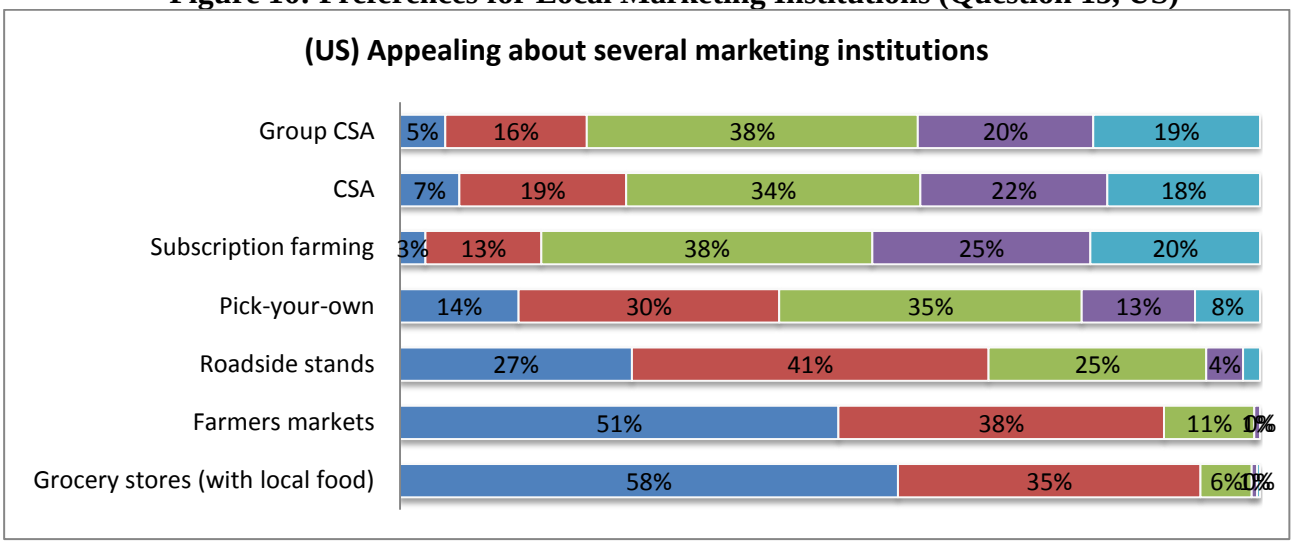
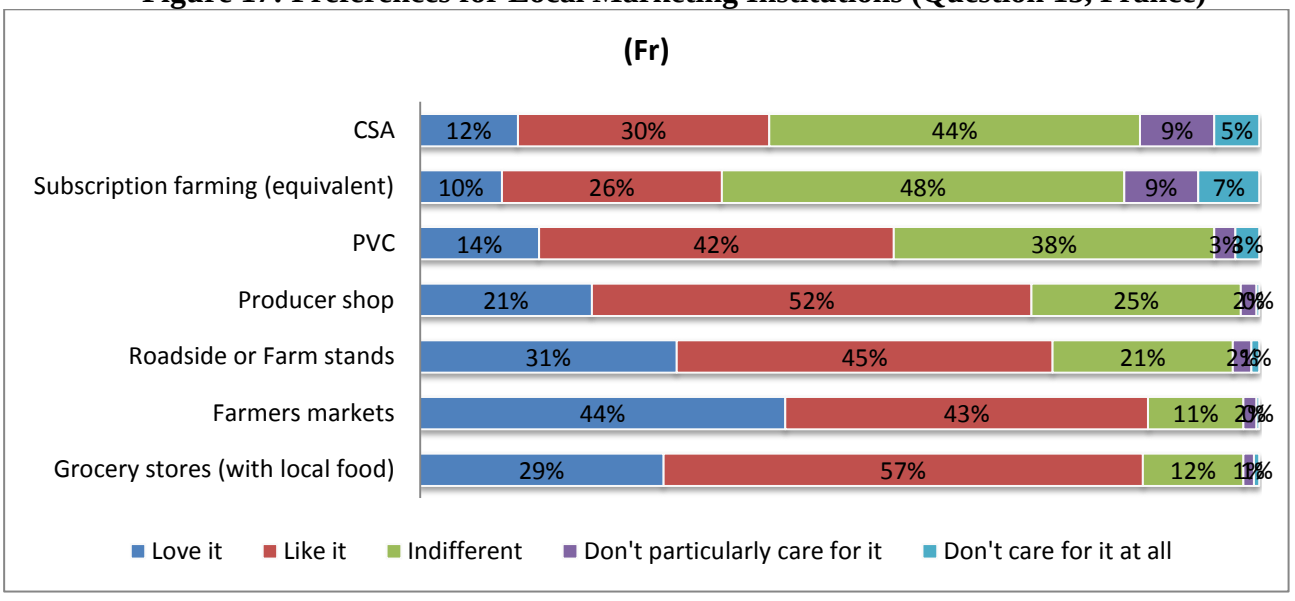


Figure 17: Preferences for Local Marketing Institutions (Question 15, France)



Results from question 16 are detailed in table 18. The question was asking with which frequency people are purchasing food from various marketing institutions. Five scales were possible; 1: Regularly (once a week); 2: Often (2 or 3 times a month); 3: Sometimes (once a month); 4: Rarely (once every 2 or 3 months); 5: Never.

Table 18: Use of Local Marketing Institutions by US Ranking (Question 16)

Question 16		Mean	Standard deviation	Difference	t (Observed value)	p-value (Two-tailed)
Grocery stores with local food offerings						
	US	1.563	0.865			
	French	2.918	1.352	-1.355	-14.810	< 0.0001
Farmers markets						
	US	2.816	1.218			
	French	2.782	1.419	0.033	0.315	**0.753**
Roadside stands or "Vente à la ferme (ou en bord de route)"						
	US	3.516	1.202			
	French	3.438	1.317	0.078	0.770	**0.442**
Pick-your-own						
	US	4.388	0.962			
	French	N/A	N/A			
CSA - French "AMAP"						
	US	4.865	0.555			
	French	4.461	0.985	0.405	6.268	< 0.0001
Group CSA						
	US	4.875	0.511			
	French	N/A	N/A			
Subscription farming or "AMAP faible engagement"						
	US	4.898	0.452			
	French	4.555	0.883	0.343	6.053	< 0.0001
"Magasin de producteur"						
	US	N/A	N/A			
	French	3.792	1.230			
"PVC"						
	US	N/A	N/A			
	French	4.328	1.034			

Table 19: Use of Local Marketing Institutions by French Ranking (Question 16)

Q.16	Mean (Fr)
Farmers markets	2.782
Grocery stores with local food offerings	2.918
Vente à la ferme (ou en bord de route)	3.438
Magasin de producteur	3.792
PVC	4.328
CSA	4.461
AMAP faible engagement	4.555

The rankings on question 16 (tables 18 and 19) remain almost the same as those for question 15 for each country. The observed means are quite large for most of the marketing institutions, meaning the respondents are rarely buying food from these institutions, less than once a month overall. This is true except for grocery stores with local food offerings and farmers markets. Actually, the US respondents are purchasing food from grocery stores with local food offerings several times a month on average, which is considered often if not regular. It is closer to once a month on average in France for this institution. The differences between the means for farmers market and road stands are equal to zero from the t-test. Respondents of both countries are buying food from farmers markets once or twice a month and from road stands once every 2 months or so on average.

This says that overall, either the US or French population are not used to purchasing food directly from farmers except on an irregular basis (less than once a week), where they go to a farmers market or a roadside stand. Other institutions (pick-your-own, CSA, subscription farming, “magasin de producteur” and PVC) are marginally used.

Question 17 was then asking for the conditions people would look at to join a subscription farming, a CSA or a group CSA. Respondents were asked to estimate the attention they would pay to these attributes before joining a subscription or CSA farm using the following scale: 1: A lot of attention; 2: Some attention; 3: Moderate attention; 4: No attention at all. Results are in table 20.

Table 20: Considerations in Joining CSAs by US Ranking (Question 17)

Question 17		Mean	Standard deviation	Difference	t (Observed value)	p-value (Two-tailed)
Prices of the products or price of the share						
	US	1.668	1.104			
	French	1.435	0.738	0.232	3.096	0.002
Type of products available						
	US	1.691	1.097			
	French	1.552	0.768	0.139	1.831	**0.068**
Distance to the delivery location						
	US	1.855	1.107			
	French	1.675	0.791	0.180	2.341	0.020
Quantity of products supplied every week						
	US	1.878	1.082			
	French	1.662	0.817	0.216	2.813	0.005
Delivery schedule						
	US	2.007	1.075			
	French	1.893	0.897	0.114	1.435	**0.152**
Involvement with the farm						
	US	2.615	1.111			
	French	1.858	0.869	0.757	9.480	< 0.0001

Table 21: Considerations in Joining CSAs by French Ranking (Question 17)

Q.17	Mean (Fr)
Prices of the products or price of the share	1.435
Type of products available	1.552
Quantity of products supplied every week	1.662
Distance to the delivery location	1.675
Involvement with the farm	1.858
Delivery schedule	1.893

Asking for the conditions people would look at to join a marketing institution with some engagement required (tables 20 and 21); respondents will first look at the price, either in France or in the US. Looking at the means tell us that French respondents are more concerned about the price than the US counterparts, which may be explained in part to the American respondents

being relatively wealthier than the general population. Second, the type of products available comes into consideration. For this condition, the difference between the means is considered to be equal to zero at the 5% level. People in both countries would pay between a lot and some attention to the type of products before joining. Then, the quantity of products supplied every week and the distance to the delivery location are ranked on third and fourth position in the 2 countries with similar means between them. Finally, delivery schedule and involvement with the farm are ranked last but remain at a level of some to moderate attention.

Respondents seem to be very exigent. Each of the conditions considered in the question should be studied carefully by the farmer before the season, and he should try to find a good compromise between what he can offer without too much difficulty and what consumers can accept. This point will be discussed in more details on the Propositions chapter (chapter 5).

Question 18 asks respondents for their willingness to join either a subscription farming, a CSA or a group CSA, if they would have the opportunity. They had the possibility to answer either 1: I will certainly join; 2: I will likely join; 3: I'm not sure if I will join; 4: I will likely not join; or 5: I will never join. Results appear in table 22 below.

Table 22: Willingness to Join a CSA by US Ranking (Question 18)

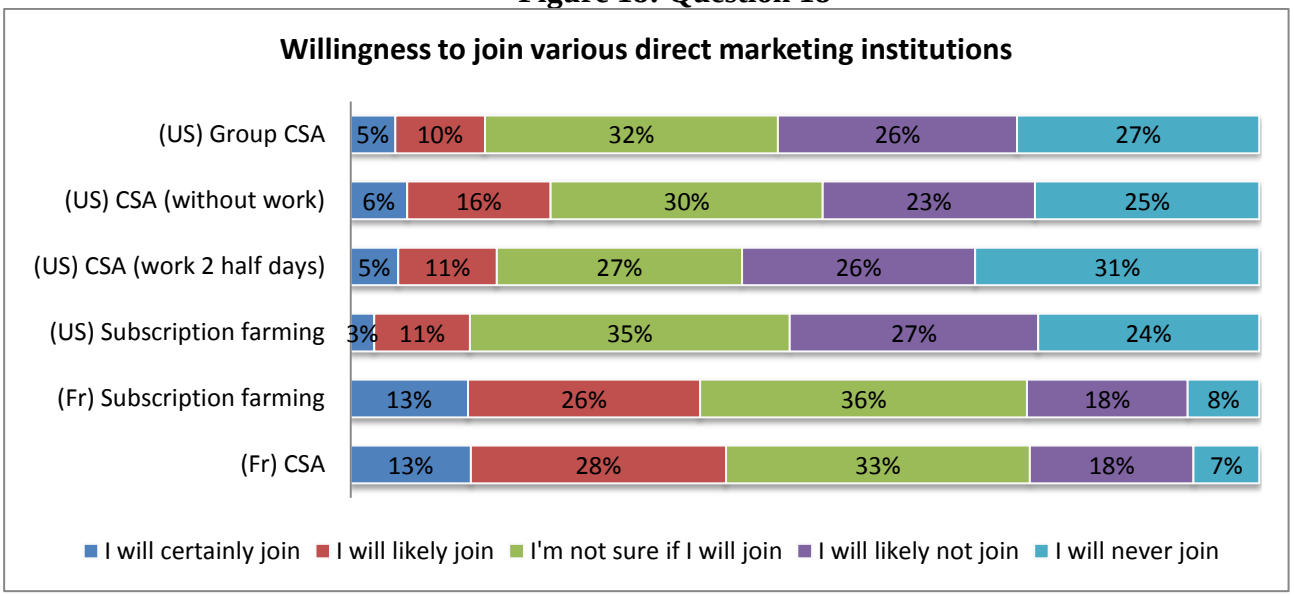
Question 18		Mean	Standard deviation	Difference	t (Observed value)	p-value (Two-tailed)
CSA without work commitment or "AMAP"						
	US	3.444	1.198			
	French	2.779	1.112	0.665	7.172	< 0.0001
Group CSA						
	US	3.599	1.127			
	French	N/A	N/A			
Subscription farming or "AMAP faible engagement"						
	US	3.602	1.048			
	French	2.820	1.112	0.782	9.008	< 0.0001
CSA where you are asked to work 2 half-days a year or "AMAP"						
	US	3.668	1.177			
	French	2.779	1.112	0.889	9.677	< 0.0001

Table 23: Willingness to Join a CSA by French Ranking (Question 18)

Q.18	Mean (Fr)
AMAP	2.779
AMAP faible engagement	2.820

The US respondents' average willingness to join either a CSA, a group CSA or a subscription farming is between 3.4 and 3.7 (table 22), thus, on average, US respondents are more likely to not join a CSA, or they are not sure if they will join. The French respondents mean is around 2.8 to join either a CSA or a subscription farming (table 23), which is between "I will likely join"(2) and "I'm not sure if I'll join"(3). The following diagram (figure 19) shows the distribution among the answers.

Figure 18: Question 18



About 40% of the French respondents will certainly or likely join either a subscription farming or a CSA. In the US, this result is lower, with around 15% willing to join at least likely a subscription farming, a CSA with a work requirement, or a Group CSA. To join a CSA without work requirement, 22% of the US respondents will likely join.

Note that a large part of the population, around 30% in all the cases, is not sure if they are willing to join. This suggests that more communication and advertisement are needed to convince people to join. The lack of information probably results in people hesitant to join.

Finally, question 19 supposes that respondents have the opportunity to join a typical CSA. The CSA they are considering offers weekly bundles of 9 vegetables of farmer's choice. They can pick up the bundle at a pick-up location, which will take them 15 minutes off of their regular commuting/shopping route. The bundles will be provided from April to October, and they will not be asked to spend any time on the farm.

Given this information, US respondents' willingness to pay for a share of this CSA is asked. They should give their answer in US$ (and enter "0" if they are not willing to pay anything for the share).

French respondents willingness to pay is asked per bundle and they gave their answer in Euro (and enter "0" if they are not willing to pay anything to become a member of this CSA).

Results for the US and France are summarized in table 24.

Table 24: Question 19

	US (in USD per share)			France (in EUR per bundle)		
Q.19 Statistics	**All**	**>0**	**>99**	**All**	**>0**	**>4**
No. of observations	300	300	300	317	317	317
No. of missing values	0	112	230	0	84	88
Sum of weights	**300**	**188**	**70**	**317**	**233**	**229**
Minimum	0	1	100	0	1	5.000
Maximum	1000	1000	1000	180	180	180.000
Freq. of minimum	112	1	24	84	1	6
Freq. of maximum	2	2	2	1	1	1
1st Quartile	0.0	20.0	100.0	0.0	10.0	10.0
Median	**15.0**	**40.0**	**200.0**	**10.0**	**15.0**	**15.0**
3rd Quartile	62.5	100.0	300.0	15.0	20.0	20.0
Sum	20036	20036	17020	3827	3827	3818
Mean	**66.787**	**106.574**	**243.143**	**12.073**	**16.425**	**16.672**
Standard deviation (n)	131.452	152.753	180.102	15.631	16.153	16.183
Variation coefficient	1.968	1.433	0.741	1.295	0.983	0.971
Standard error of the mean	7.602	11.170	21.682	0.879	1.060	1.072

From table 24, it can be seen that 112 US respondents (over 300) are not willing to pay anything for a share of this typical CSA. This makes more than one third of the population. If only the people who are willing to pay something are taken into account, it appears that the average amount they are ready to spend is around $107/year. I was seen previously that the price of a share is between $200 and $600 per year, depending on the farm and its offer. If only the people who are willing to pay more than $99 are considered, 70 persons are willing to do so in the US survey. Their average willingness to pay is $243 per share. From this question, the main conclusion is that 23% of the US respondents (70/300) are willing to become CSA members and pay at a reasonable level for farmers. This makes about a quarter of the population, so there is an important potential demand for CSA farms.

Concerning the French survey, the price was not asked per share but per bundle, as explained before. Out of 317 persons, there are 84 of them who are not willing to pay anything. The average willingness to pay for the 233 respondents left is 16.4€. If it is converted to the price of a share, 16.4€ is multiplied by the number of weeks between April and October (28 weeks),

and 459€ (16.4*28) is obtained, which makes almost $600 (459*1.3[2]). This seems to be huge compared to the US survey. There might be a bias in the comparison due to the fact that French people were not asked to pay for a share at one moment but were asked to say their willingness to pay for a bundle of products every week. If we use the same methodology than for the US results, we can keep only the respondents who answered more than 4€, which makes 112€ if we consider the price of the share (4*28). Then, it appears that only 4 people are willing to pay between 0 and 4€ every week, 229 respondents are willing to pay more than 4€ every week, and their average willingness to pay is 16.7€, very similar to 16.4€, which makes sense because only 4 persons have been dropped.

In conclusion, the first thing is that French people are willing to pay almost twice as much as the US respondents to become CSA members. But there might be a bias in this result because the ways these amounts were elicited were not the same. The US respondents might have felt the commitment they had with the CSA because they were asked to give their willingness to pay for a share. Inversely, French respondents were only questioned about their willingness to pay for a weekly bundle, thus they probably did not realize the commitment they had with the farm and the total amount they would have to pay at the beginning of the growing season. It is still clear that overall, more French people, about 74% (233/317) of the population, might consider joining a CSA and would be ready to pay a reasonable price if joining; where 23% (70/300) in the US would be ready to become a CSA member and pay farmers a fair price.

[2] 1€ was between $1.3 and $1.4 from December 2009 to April 2010

4.2 Models

Before going through the results obtained from the various models estimated, the demographic variables used in the analysis are explained in Table 25.

Table 25: Explanation of demographic variables

Variables	Definition of Variables
GENDER	1 if male ; 0 if female
AGE	18-19 =19 ; 20-24=22 ; 25-34=30 ; 35-44=40 ; 45-54=50 ; 55-64=60 ; >65=70
SIZE	Number of people in the household
CHILD	Number of children <18 in the household
EDU	1 if Bachelor degree or higher; 0 otherwise
INC (US)	<$10,000=8 ; 10,000-24,999=17.5 ; 25,000-49,999=37.5 ; 50,000-74,999=62.5 ; 75,000-99,999=87.5 ; 100,000-199,999=150 ; >200,000=250
INC (FR)	<13,000€=10 ; 13,000-22,999=18 ; 23,000-27,999=25.5 ; 28,000-37,999=33 ; 38,000-47,999=43 ; 48,000-77,999=63 ; >78,000=100

4.2.1 Tobit model

The first model estimated is the Tobit model. It analyzes the answer from question 19. As discussed in the Methodology chapter, the Tobit model is suited to estimate regressions where the dependent variable has many "zero" answers. From the descriptive statistics, it appears that 112 respondents in the US (out of 300) and 84 in France (out of 317) answered "zero" to the question "how much would you willing to pay" for a share of a typical CSA. Thus, the Tobit model seems appropriate.

In addition to the demographic variables defined in table 25, table 26 presents the other explanatory variables included in this model. These other variables were specified from responses to various questions of the survey concerning shopping and food consumption habits or preferences and perceptions. They were chosen from the results found in the descriptive statistics section and in compliance with what was discussed in chapter 2. From responses to question 14, enjoyment from "eat fresh", "cooking from scratch", "knowing where the food comes from", and "support a local farmer", were selected to specify variables, consulting the correlation tables

presented in appendix 16 for the US version and appendix 17 for the French survey. Indeed, the degree of enjoyment from "health food" for example was not included in the Tobit model because it was correlated with "fresh food".

Table 26: Explanation of explanatory variables for the Tobit model

Variables	Definition of Variables
DIRECTFF	Shopping directly from farmers [combination of questions 7.5 and 7.6]. 1 if "at least 2 or 3 times a week" or "once a week" in at least one of them; 0 otherwise
FAMCSA	Familiarity with CSAs [from question 9.4]. 1 if "very familiar" or "familiar"; 0 otherwise
MINDRIV	Number of minutes willing to travel off of regular route to buy from farmers if driving [from question 13]
EATFRESH	Enjoying eating fresh [from question 14.1]. 1 if "love it" or "like it"; 0 otherwise
COOK	Enjoying cooking from scratch [from question 14.3]. 1 if "love it" or "like it"; 0 otherwise
KNOWING	Enjoying knowing where the food comes from [from question 14.5]. 1 if "love it" or "like it"; 0 otherwise
SUPPORT	Enjoying supporting a local farmer [from question 14.7]. 1 if "love it" or "like it"
APCSA	Appealing about CSAs [from question 15.6]. 1 if "love it" or "like it"; 0 otherwise

The explained variable is the price, answered by respondents in response to the open-ended question 19.

Tables 27 and 28 present results from the Tobit model estimation using Limdep software NLOGIT 4.0 for both samples. A code example is available in appendix 7. Note that 7 responses were eliminated from the US data before running the Tobit model. Three of them were eliminated because willingness to pay given by respondents were not numerical values; 2 more did not report reasonable household sizes (50 and 46 people) and 2 others were coming from respondents who were willing to drive more than 90 minutes every week to buy directly from farmers; which seems unreasonable. For the French case, 11 data were deleted on total. Three respondents were willing to pay more than 1,500€ for a share, which likely suggest that they misunderstood the question. In addition, one household was composed by 30 people, and seven respondents were willing to drive more than 90 minutes every week to buy directly from farmers.

Table 27: Tobit model results (US)

Variables	Coefficients		Mean	Marginal Effects coefficients	
Constant	-119.887				
	(83.642)				
GENDER	-3.674		.441	-1.850	
	(25.685)			(12.925)	
AGE	-3.782	***	44.603	-1.906	***
	(1.023)			(.513)	
CHILD	-7.276		.771	-3.667	
	(11.059)			(5.570)	
EDU	20.851		.599	10.421	
	(27.149)			(13.453)	
INC	.678	***	83.978	.342	***
	(.254)			(.128)	
DIRECTFF	-4.186		.215	-2.099	
	(31.963)			(15.955)	
FAMCSA	-39.744		.172	-18.966	
	(36.052)			(16.264)	
MINDRIV	3.527	***	23.003	1.778	***
	(.844)			(.429)	
EATFRESH	61.491		.956	27.463	
	(70.930)			(27.685)	
COOK	2.231		.727	1.122	
	(30.275)			(15.196)	
KNOWING	-12.950		.461	-6.514	
	(30.141)			(15.135)	
SUPPORT	82.086	**	.761	37.781	**
	(36.342)			(15.100)	
APCSA	146.569	***	.259	84.205	***
	(31.924)			(20.489)	
Sigma	193.606	***			
	(10.309)				

Numbers in parenthesis represent standard errors

*, ** and *** represent 10%, 5%, 1% significance levels, respectively

Several variables are found to be statistically significant: “age”, “income”, “mindriv”, “support”, and “apcsa” (table 27). Age has a negative coefficient, meaning that older people are willing to pay less to become CSA members. This variable is significant at the 1% significance level. The marginal effect found is -1.906, it means that for every additional year of age, the WTP for a CSA share price decreases by $1.906. So, between two people 10 years apart in age, all else equal, there would be a $19 difference in WTP. The income has a positive influence on the price respondents are willing to pay to join a CSA. This is logical; the higher the income of a household is, the higher its WTP for any good (normal good) is supposed to be. The coefficient is significant at the 1% level but is small in magnitude (0.678) telling that there is a positive influence but it is slight. The marginal effect means that for every thousand dollars increase in annual income, there would be a $0.342 increase in WTP, which is very low. One can consider that the level of income impacts the WTP for a CSA only on a very small amount. The coefficient of “mindriv” is also positive, meaning that the more time people are willing to travel off of their regular routes to buy food directly from farmers, the more they are willing to pay to join a CSA. This seems logical and reflects consumers’ motivation to buy food direct from farmers. The marginal effect is 1.778, meaning that a person willing to travel 10 more minutes than another have a WTP $17.78 higher, *ceteris paribus*. Finally, “support” and “apcsa” are statistically significant and have large coefficients. They respectively reach to the conclusion that the more people enjoy supporting local farmers and the greater appeal they find for CSAs, the more they are willing to pay to join a CSA. A person who enjoys supporting farmers would have a WTP $37.781 higher than a person who does not. Similarly, a person who finds CSA appealing would have a WTP $84.205 higher (everything else staying the same). Variables related to food activities such as eating fresh food and cooking are found to have positive influence on the WTP for CSA but are not statistically significant. The number of children is found to have a negative sign, meaning that the more children there are in the household, the lower its WTP is. But this is also not statistically significant.

Table 28: Tobit model results (France)

Variables	Coefficients		Mean	Marginal Effects coefficients	
Constant	235.019	**			
	(106.280)				
GENDER	31.687		.304	25.646	
	(34.988)			(28.545)	
AGE	-4.101	***	39.637	-3.293	***
	(1.282)			(1.028)	
CHILD	-6.054		.742	-4.861	
	(14.509)			(11.648)	
EDU	64.966	*	.330	52.878	*
	(34.968)			(28.813)	
INC	-1.677	*	27.302	-1.347	*
	(.990)			(.794)	
DIRECTFF	74.616	**	.366	60.637	**
	(34.193)			(28.086)	
FAMCSA	66.012	*	.297	53.887	*
	(35.757)			(29.645)	
MINDRIV	-.118		26.242	-.095	
	(.962)			(.772)	
EATFRESH	-37.638		.967	-30.903	
	(102.520)			(85.968)	
COOK	29.514		.817	23.390	
	(45.819)			(35.818)	
KNOWING	-.677		.797	-.543	
	(43.638)			(35.055)	
SUPPORT	109.084	**	.817	83.107	**
	(47.516)			(34.084)	
APCSA	111.588	***	.412	90.549	***
	(33.145)			(27.105)	
Sigma	257.437	***			
	(12.978)				

Numbers in parenthesis represent standard errors

*, ** and *** represent 10%, 5%, 1% significance levels, respectively

Similarly to the US results, age has a negative influence on French respondents' WTP for CSA. The marginal effect tells that a person who is 10 year younger than another would be willing to pay about 33 Euro more. The influence of age is greater in France than in the US. This is statistically significant at the 1% level. Education and income are also significant but at the 10% level. Education is found to have a positive influence with a large marginal effect of 52.878. French people with a Bachelor degree or higher are willing to pay 52.878 Euro per bundle more than people who do not, all else being equal. Inversely, income is found to have a negative effect, which differs than from the US; but note that in both cases coefficients, even if statistically significant, are small. So, it would likely lead to the conclusion that income does not really affect WTP for CSA. "Famcsa" and "apcsa" which respectively show the influence of the familiarity and appealing about CSA are positive. The more people know what CSA are and the more they like it, the higher their WTP for CSA is. In the US, familiarity with CSA was found to have a negative coefficient, meaning that people who know what CSAs are have a lower WTP, all else being equal. This can be interpreted as people who know about CSAs might already have made the decision to not join; thus they are not willing to pay much money to join. But the coefficient was not statistically significant. Finally, supporting local farmer has a positive and statistically significant coefficient at 1% level. The marginal effect is 83.907, which is large; the influence of enjoying supporting local farms leads to a greater WTP for CSAs. Note that people who are already buying regularly directly from farmers ("directff" variable) are willing to pay more to join a CSA. This variable has a significance influence with a positive marginal effect of $60.637 at 5% level significance.

From the results, it can be summed that in both countries promotional activities should be targeted to younger people, probably young couples with few children for higher efficiency. The income level does not really account for the WTP for a CSA, so any social class can be targeted. Communication should be focused on community support, and should explain what CSA are, in order to make people find CSAs more appealing. Indeed, the greater appeal consumers find about CSAs, the higher their WTP for a CSA share. In the US, convenience should be a focus, since traveling time is a significant determinant of consumers' WTP for CSAs. In France, it appears that people who are already buying directly from farmers have a higher WTP to join a CSA; so some competition might appear in France among the different direct marketing channels.

Targeted communication from CSAs might lead shoppers from farmers markets or other direct from farmers' institutions to switch to CSAs.

4.2.2 Discrete choice models

The main variables used in discrete choice models (multinomial, mixed and latent) come from the choice experiment and are defined in the table below (table 29). As explained in the Methodology chapter, "vegetables" is considered as the base for the variety attribute; where no base was specified for the delivery location attribute, so all the levels of this attribute appear here.

Table 29: Explanation of variables for discrete choice models

Attributes in the choice experiment	**Variables**	**Definition of Variables**
Share Price (US)	PRICE	Either $280, $350 or $420
Share Price (FR)	PRICE	Bundle price of 12€, 15€ or 18€. When multiplied by 24 (weeks) corresponds to 288€, 360€ or 432€ per season.
Variety	VEGEGGS	Eggs are provided in the share, in addition to vegetables
	WMEAT	Meat and eggs are provided in the share, in addition to vegetables (meat is provided at additional cost)
Choice in the Mix	MIX	Either choice or no choice in the mix of products provided
Delivery location	FARM	At the farm every week
	PICKUP	At a Pick-up location (intermediary between farm and home) every week
	HOME	At home every week
Availability	AVAIL	Either 24 or 32 weeks
Work commitment	WORK	Requirement to either work on the farm or not

A preliminary look at the choice experiment responses found that among the 3 versions of the survey and the 6 choice experiment sets for each respondent, 55.9% of the responses were "None" answers in the US and 34.8% in France; meaning neither CSA1 or CSA2 were chosen by the respondents in these proportions.

Note that for all following models (multinomial, mixed with and without demographic characteristics and latent class), 2 observations have been eliminated on the US survey because household sizes do not seem reasonable (50 and 46 people). On the French survey, one was also eliminated, because the response indicated household has 30 people. The results for the simpler discrete choice models are reported first; then more complex and robust ones are presented.

4.2.2.1 Multinomial and mixed logit model

As seen in chapter 3, multinomial and mixed logit models are applied to analyze discrete choice responses from the choice experiment designed in the surveys. The Limdep code used for the estimation is in appendix 9. Note that a normal distribution has been assumed for the mixed logit variables. Table 30 presents the results obtain for both, the multinomial and the mixed logit model, for the US sample. Table 31 does the same for the French panel. The willingness to pay (WTP) is calculated for each attribute in each model in the two tables.

Table 30: US Multinomial and Mixed (without demographic characteristics) results

	US Multinomial logit		US Mixed logit	
Variables	Coefficients	WTP ($)	Coefficients	WTP ($)
VEGEGGS	.306 ***	30.93 ***	.473 **	37.46 ***
	(.108)	(11.06)	(.197)	(13.20)
WMEAT	.716 ***	72.28 ***	.913 ***	72.21 ***
	(.103)	(11.34)	(.235)	(15.63)
MIX	.644 ***	65.02 ***	.791 ***	62.58 ***
	(.080)	(9.08)	(.146)	(11.73)
FARM	1.867 ***	188.56 ***	2.543 ***	201.16 ***
	(.407)	(33.21)	(.776)	(45.73)
PICKUP	2.098 ***	211.88 ***	2.835 ***	224.32 ***
	(.396)	(31.26)	(.768)	(37.81)
HOME	2.260 ***	228.27 ***	3.148 ***	249.03 ***
	(.395)	(30.96)	(.827)	(36.56)
AVAIL	-.005	-.55	-.011	-.86
	(.010)	(1.00)	(.017)	(1.31)
WORK	-.567 ***	-57.21 ***	-1.141 ***	-90.27 ***
	(.082)	(8.92)	(.450)	(25.95)
PRICE	-.010 ***		-.013 ***	
	(.001)		(.002)	

Numbers in parenthesis represent standard errors

*, ** and *** represent 10%, 5%, 1% significance levels, respectively

Table 31: French Multinomial and Mixed (without demographic characteristics) results

	French Multinomial logit		French Mixed logit	
Variables	Coefficients	WTP (€)	Coefficients	WTP (€)
VEGEGGS	.427 ***	74.76 ***	5.081 ***	44.50 ***
	(.085)	(16.52)	(1.030)	(9.31)
WMEAT	.699 ***	122.45 ***	9.713 ***	85.07 ***
	(.084)	(18.61)	(1.323)	(12.59)
MIX	.293 ***	51.30 ***	4.902 ***	42.93 ***
	(.062)	(11.89)	(.732)	(6.39)
FARM	1.474 ***	258.14 ***	47.165 ***	413.11 ***
	(.314)	(42.45)	(6.846)	(47.49)
PICKUP	1.542 ***	270.04 ***	50.867 ***	445.53 ***
	(.310)	(41.51)	(6.974)	(46.19)
HOME	1.763 ***	308.80 ***	52.223 ***	457.41 ***
	(.308)	(40.97)	(6.985)	(47.13)
AVAIL	.001	.25	-.461 ***	-4.04 ***
	(.008)	(1.35)	(.169)	(1.42)
WORK	-.539 ***	-94.43 ***	-10.243 ***	-89.71 ***
	(.063)	(13.95)	(.856)	(6.54)
PRICE	-.006 ***		-.114 ***	
	(.001)		(.009)	

Numbers in parenthesis represent standard errors

*, ** and *** represent 10%, 5%, 1% significance levels, respectively

First, the models are compared. To do so, the likelihood ratio (D) explained in the Methodology chapter is computed.

By comparing the mixed logit model with the multinomial logit model for the US, the likelihood for the multinomial is -1,618.702 and the one of the mixed is -1,616.112. The likelihood ratio is then 5.18 with 8 degrees of freedom (17 degrees of freedom for the mixed logit model minus 9 degrees of freedom for the multinomial). This ratio is smaller than the critical chi-squared value at a 5% significance level (15.51), meaning that these two models are statistically equivalent for the US and that allowing for the parameters to vary across respondents does not add much to explaining the choices. From table 30, it is actually obvious that the two models give very similar results.

Doing the same calculation for the French multinomial (likelihood of -1,941.62) and mixed logit models (likelihood of -1933.694) gives a likelihood ratio of 15.136 which is just

below the value of 15.51 given by the chi-squared table at a 5% significance level. So the two models are also statistically equivalent in the French case.

When estimating more complex models, namely the mixed logit model including demographic characteristics and the latent class model, the models appear not similar to the multinomial and the mixed logit models presented here. To simply our discussion, we will call the mixed logit model without demographic characteristics the "simple mixed" and the mixed logit model including age, education and income variables the "demographic mixed". The demographic mixed and the latent class models were found to be more robust than the multinomial and the simple mixed. So, no further details and explanations are provided on the multinomial and simple mixed models presented on tables 24 and 25. They were presented to illustrate the process that was followed in the analysis.

4.2.2.2 Mixed logit model with demographic characteristics

From the Tobit model, it appeared that among the demographic variables (gender, age, education, number of children and income), only age and income were significant for the US and only age and education for the French version. Thus, age, education and income were included in the mixed logit model with demographic variables.

For the US results, the comparison of the demographic mixed model with the multinomial and the simple mixed give the following results:

- multinomial vs. demographic mixed: the likelihood ratio obtained is 139.646 (-2*(-1,618.702)-(-1,548.879)) with 32 degrees of freedom (41-9). This ratio is greater than the one from the chi-squared table at a 5% significance level. So the two models are different. The demographic mixed has the highest likelihood, so it is more robust.
- simple mixed vs. demographic mixed: the likelihood ratio is 134.466 with 24 degrees of freedom (41-17). This ratio is greater than the one from the chi-squared table at the 5% significance level. So the two models are different, and the demographic mixed is more robust because it has the higher likelihood.

So, both tests conclude that the demographic mixed model is the most preferred. This model is going to be presented in details in the following tables (table 32 and 33).

Table 32: Mixed logit model with demographic characteristics results (US)

Variables	Coefficients		Derived standard deviations of parameter distributions	WTP ($)	
VEGEGGS	1.728	***	.083	138.93	***
	(.564)		(.499)	(42.04)	
WMEAT	2.659	***	.561	213.78	***
	(.641)		(.724)	(40.91)	
MIX	.453		.250	36.38	
	(.387)		(.718)	(30.69)	
FARM	2.400	*	.445	192.94	*
	(1.499)		(1.014)	(117.39)	
PICKUP	3.713	**	.523	298.47	***
	(1.516)		(.631)	(112.98)	
HOME	3.531	**	.226	283.85	***
	(1.477)		(.626)	(110.05)	
AVAIL	.011		.027	.87	
	(.047)		(.025)	(3.74)	
WORK	-1.371	***	1.196	-110.21	***
	(.493)		(.746)	(34.55)	
PRICE	-.012	***			
	(.002)				

Numbers in parenthesis represent standard errors
*, ** and *** represent 10%, 5%, 1% significance levels, respectively

These results show that two variables are not significant: the choice in the mix and seasonal availability. It means that average consumers do not value these attributes in considering the choice to either join or not join a CSA according to this model. Note that the price coefficient, statistically significant at1% level, is negative, which was expected because higher is the price less utility people would be receiving. “Vegeggs” and “wmeat” variables, which are related to variety premiums, have positive coefficients and are significant at 1% level. Moreover, when meat is included in addition to vegetables and eggs, the coefficient is even larger. This means that the variety attribute is important when people are considering joining a CSA. More variety offered to them, the more likely they are joining. Also note that the standard deviations are relatively low for both variables, compared to their coefficients.

When looking at the delivery location attribute, this is not that clear. Indeed, “farm” is a variable that is almost significant at 10% level. Its coefficient is smaller than “pickup” or “home”; which seems logical because people are more likely to join if they do not have to go to the farm but if their bundle is delivered closer to their home. Nevertheless, the “pickup” coefficient is higher than the “home” coefficient, meaning that people are more likely to join a CSA if the delivery location is a pick-up location rather than a direct delivery at home. But the coefficient values are very close (3.713 and 3.531), with standard deviations around 1.5. So conclusion can be made that respondents do not really care if they need to pick-up the bundle at a pick-up location or if it is delivered directly at their home; they will not pay more to have delivery at home. Finally, the work attribute has a negative coefficient; people utility will decrease if they have to work on the farm. This coefficient is significant at the 1% level.

The estimated WTP tell that respondents are willing to pay a $138 premium to the initial share price if they have eggs offered in addition to vegetables, with a standard deviation of $42. The premium is about $214 if meat and eggs can be purchased in addition to vegetables, the standard deviation is $41. So, consumers are willing to pay non-trivial amounts if greater variety is offered. People are willing to pay $193 to join a CSA in which they need to go to farm to receive their bundle of products every week. And they are willing to pay between $280 and $300 to join a CSA which delivers either at a pick-up location or at home. But standard deviations for these WTP are very large, between $110 and $118, which is more than half of the share price for CSA with delivery location at the farm. Finally, consumers will be ready to join a CSA where work is required if the share price is $110 less than in a farm with no work required. For this variable, the standard deviation is small at about $35.

Table 33: Heterogeneity in mean of the demographic mixed logit model (US)

	Age	Education	Income
VEGEGGS	-.0195 *	-.0038	-.0057 **
	(.0105)	(.2696)	(.0027)
WMEAT	-.0347 ***	-.4923 *	-.0002
	(.0124)	(.2733)	(.0025)
MIX	.0044	-.2023	.0032
	(.0083)	(.2070)	(.0020)
FARM	-.0051	-.0831	.0073
	(.0299)	(.7756)	(.0073)
PICKUP	-.0335	-.0460	.0089
	(.0292)	(.7578)	(.0072)
HOME	-.0215	.2977	.0053
	(.0286)	(.7471)	(.0071)
AVAIL	-.0004	.0055	-.0001
	(.0010)	(.0257)	(.0002)
WORK	.0048	.2909	.0004
	(.0094)	(.2199)	(.0021)

Numbers in parenthesis represent standard errors
*, ** and *** represent 10%, 5%, 1% significance levels, respectively

Table 33 reports how the means of the estimated parameters are correlated with demographic variables. Not many coefficients are significant in the table. Age seems to play a role in the variety people preferred. Indeed, the coefficient is negative for "vegeggs" and "wmeat", meaning that older people value less for this added variety. Similarly, more educated consumers and higher earning consumers valued these options less than their counterparts. Because the other coefficients are not significant, it is difficult to come to a conclusion. Nevertheless, none of the standard deviations are statistically significant. This suggests that the heterogeneity among respondent preferences have been captured by the demographic variables in the model.

To estimate the French survey responses, the price variable was multiplied by 24 weeks so the results would be comparable to the US results. When using the likelihood ratio for the French survey, it also leads to the conclusion that the demographic mixed logit model (likelihood of -1,867.368) is more robust than either the multinomial (likelihood of -1,941.262) or the simple

mixed model (likelihood of -1,933.694). The French demographic mixed model is presented in tables 34 and 35.

Table 34: Mixed logit model with demographic characteristics results (France)

Variables	Coefficients		Derived Standard deviations of parameter distributions		WTP (€)	
VEGEGGS	6.613	**	7.767	***	64.18	**
	(3.170)		(2.491)		(30.98)	
WMEAT	22.715	***	8.877	***	220.45	***
	(3.490)		(2.303)		(30.02)	
MIX	7.133	***	2.364		69.22	***
	(2.160)		(1.798)		(20.24)	
FARM	49.169	***	22.880	***	477.20	***
	(12.215)		(3.372)		(97.51)	
PICKUP	44.485	***	7.031	***	431.74	***
	(11.949)		(2.129)		(93.58)	
HOME	51.836	***	28.494	***	503.09	***
	(11.943)		(3.975)		(94.81)	
AVAIL	.232		.877	***	2.25	
	(.276)		(.143)		(2.71)	
WORK	-10.535	***	2.714		-102.25	***
	(2.302)		(1.787)		(21.17)	
PRICE	-.103	***				
	(.013)					

Numbers in parenthesis represent standard errors
*, ** and *** represent 10%, 5%, 1% significance levels, respectively

All the coefficients from table 34 are significant at 1% level, except for the "vegeggs" attribute, where the coefficient is significant at 5% level and the "avail" coefficient, which is not statistically significant. As expected the coefficient for price is negative, with a small standard deviation. Similar to the US survey, the variables related to variety ("vegeggs" and "wmeat") have positive coefficients. And the greater the variety offered, the higher is the coefficient. Actually, when eggs are added to vegetables, the coefficient is 6.631 with a standard deviation of 3.170 and when meat and eggs are added as a possibility of purchase to vegetables, the

coefficient is 22.715, with a small standard deviation of 3.490. This means that French consumers have strong preferences for a share that includes the eggs and meat option. When looking at the delivery alternatives, the scenario differs from in the US case. Indeed, “pickup” has the lowest coefficient, with 44.485, where the “farm” coefficient is 49.169 and the “home” coefficient is 51.836; with standard deviations between 11.9 and 12.3. From this, it can be concluded that the delivery location seem relatively not important for average French respondents. The choice in the mix is found to have a positive coefficient (7.133) with a relatively low standard deviation (2.160), meaning people are more willing to become CSA members if they have the opportunity to participate in the choice of products that will be grown during the season. Finally, similar to the US case, the work variable has a negative sign; if work is required on the farm, people will value the opportunity less.

Similar to the coefficients, the WTP are all significant (at 5% or 1% level), except for the availability variable. The premium people are willing to pay for more variety in products offered is 64.18€ when eggs are added and 220.45€ when eggs and the possibility to purchase meat are added to vegetables. The standard deviations are between 30 and 31, which is low for the “wmeat” variable. This means that variety is a determinant attribute in the French consumer decision to become member or not. The total WTP to become a CSA member vary between 431.74€ and 503.09€, respectively when the delivery location is a pick-up location or at home. When consumers receive their bundle at the farm, they are willing to pay 477.2€. But again, the standard deviation is almost 100€ for the three delivery location, so this attribute does not seem determinant when choosing a CSA. Finally, when choice in the mix is offered, people are willing to pay about 70€ more and if they have to work for the farm, their WTP decreases by 102.25€, with a standard deviation close to 20 for both variables.

Table 35: Heterogeneity in mean of the demographic mixed logit model (France)

	Age	Education	Income
VEGEGGS	.0739	-4.0694 *	-.0579
	(.0823)	(2.1998)	(.0658)
WMEAT	-.1335 *	-5.3770 **	-.1485 **
	(.0760)	(2.1036)	(.0639)
MIX	-.0700	-3.2460 **	.0803 *
	(.0553)	(1.5073)	(.0436)
FARM	-.3368	-4.0650	.1774
	(.2295)	(5.8591)	(.1721)
PICKUP	-.0730	3.5892	.0432
	(.2099)	(5.5294)	(.1627)
HOME	-.3975 *	1.7393	.1975
	(.2204)	(5.7812)	(.1733)
AVAIL	-.0130 *	.1167	-.0047
	(.0069)	(.1861)	(.0057)
WORK	.0519	-1.9664	.0064
	(.0562)	(1.5082)	(.0454)

Numbers in parenthesis represent standard errors
*, ** and *** represent 10%, 5%, 1% significance levels, respectively

Similar to the US model, not many coefficients are significant when looking at the heterogeneity in mean of the demographic variables. Age seems to have some influence on variety, as people who are older are less likely to become members of a CSA which provides eggs and the possibility to purchase meat in addition to vegetables. Moreover, the older people are, the less they are interested by bundles delivered to home or the season being extended. Concerning education, the more educated the respondents are, the less they are interested in variety provided and the less they care about the opportunity to have a choice in the mix. It seems that more educated people prefer a basic CSA membership. Finally, the higher the household income is, the less people valued variety. However, they are interested in having the opportunity to participate in the choice of the mix. In contrast to the US results, standard deviations for six parameters were statistically significant ("vegeggs", "wmeat", "farm", "pickup", "home", and "avail"). This means that there is residual heterogeneity in preferences beyond the demographic variability captured in the model.

4.2.2.3 Latent class model

For the latent model, the first issue to deal with is the number of classes that should be used. By estimating the demographic mixed model with various numbers of classes in an increasing order starting at 2, the Akaike Information Criterion (AIC) was recorded from each estimation. Lower the AIC coefficient is, better fits the model (Shen, Sakata, and Hashimoto 2006). In the case of this study, the two-class latent class model, for both the US and the French case, resulted in the lowest AIC coefficient, respectively. So, the two-class results are reported.

Computing the likelihood ratio between the US multinomial (likelihood of -1,618.702) and the latent class model (likelihood of -1,552.831) gives 131.742 for 13 degrees of freedom (22-9). So the latent model and the multinomial are different and the latent is more robust because its likelihood is higher than the multinomial model.

Doing the same for the French case, knowing that the latent class model likelihood is -1882.468 and the multinomial one is -1,941.262; leads to the same conclusion as for the US that the latent class model is more robust.

Note that likelihood ratio tests between demographic mixed logit and latent class model cannot be done. The results for the US latent class model are presented below (table 36).

Table 36: Latent class model with 2 classes results (US)

Utility parameters in latent class 1 **(81.5%)**			Utility parameters in latent class 2 **(18.5%)**		
Variables	Coefficients	WTP ($)	Variables	Coefficients	WTP ($)
PRICE (1)	-.011 ***		PRICE (2)	-.078	
	(.001)			(.095)	
VEGEGG (1)	.346 ***	32.72 ***	VEGEGG (2)	-9.293	-118.86
	(.117)	(11.27)		(7.853)	(99.55)
WMEAT (1)	.838 ***	79.27 ***	WMEAT (2)	-9.539	-122.01 *
	(.115)	(11.78)		(7.663)	(72.27)
MIX (1)	.700 ***	66.25 ***	MIX (2)	-.550	-7.03
	(.087)	(9.07)		(3.575)	(44.27)
FARM (1)	2.408 ***	227.86 ***	FARM (2)	-32.542	-416.23
	(.443)	(32.91)		(25.665)	(341.00)
PICKUP (1)	2.697 ***	255.18 ***	PICKUP (2)	-42.171	-539.39
	(.434)	(31.27)		(33.342)	(423.67)
HOME (1)	2.851 ***	269.73 ***	HOME (2)	-42.572	-544.52
	(.434)	(31.39)		(33.355)	(428.48)
AVAIL (1)	-.007	-.68	AVAIL (2)	1.821	23.29 **
	(.011)	(.99)		(1.740)	(9.71)
WORK (1)	-.627 ***	-59.36 ***	WORK (2)	9.416	120.43
	(.089)	(9.04)		(7.874)	(100.35)
Theta (1) in class probability model			Theta (2) in class probability model		
Constant	6.783 ***		Constant	.000	Fixed parameter
	(1.482)				
AGE (1)	-.130 ***		AGE (2)	.000	Fixed parameter
	(.026)				
EDU (1)	-.876 *		EDU (2)	.000	Fixed parameter
	(.482)				
INC (1)	.024 **		INC (2)	.000	Fixed parameter
	(.009)				

Numbers in parenthesis represent standard errors
*, ** and *** represent 10%, 5%, 1% significance levels, respectively

From table 36, first note that 81.5% of the population is in the first latent class, the remaining 18.5% is in the second latent class. The second latent class is used as a base when considering the demographic characteristics. The first latent class is characterized as less likely for older people to be in this first latent class; because the age coefficient is negative. Moreover, the higher their education is, the less likely respondents would be in class 1. In contrast, the higher the income of their household is, the more likely respondents will be in class 1. Note that

the coefficients for these demographic variables are significant at the 1% level for age, 5% for income, and at 10% level for education. But also note that the constant coefficient is much larger than the coefficients for age, education and income. So the repartition between class one and two is only partially explained by the demographic variables considered here. Because 81.5% of the population is in latent class 1, the results are expected to be relatively similar to the demographic mixed model.

Looking at the significance of the variables for class 1, it appears that they are all significant at 1% level, except "avail", which is not significant as same as in the demographic mixed. Price and work have negative coefficients, which were expected, but this is also the case for the availability, meaning the longer the season, the less likely people from class 1 are joining a CSA, but the coefficient is not statistically significant. Similar to the demographic mixed, coefficients for higher variety are positive and have relatively low standard deviation. However, for the delivery location, farm has the lowest coefficient and home the highest. This is a difference with the demographic mixed. But again, the coefficient values are close (between 2.4 and 2.9) and standard deviations are not very small (between 0.43 and 0.45). So, consumers from group 1 do not seem to consider the delivery location as a determinant attribute when joining a CSA.

In latent class 2, none of the coefficients are statistically significant. The class 2 people seem to not care much about the CSA attributes in general. The coefficients all have negative signs except availability and work. This means that class 2 people are less likely joining if the price is higher, which was expected, but they will also less likely join if they have more variety offered. Standard deviations are high for all variables. In contrast to class 1 consumers, consumers in class 2 will more likely join if the length of the season is longer of if they have to work on the farm.

Looking at the WTP, they are all statistically significant at 1% level in class 1 except for availability. The premium people are willing to pay to have eggs in addition to vegetables is $32.72 and $79.27 with meat. For having a say in the mix, people are willing to pay $66.25 more. The total WTP to become a CSA member for people in class 1 is between $227 and $270 depending on the delivery location. The difference among the delivery locations does not lead to a large difference in the WTP, standard deviations are between $31 and $33. Thus, one can

conclude that the delivery location does not have a huge impact on the decision. Finally, if they have to work on the farm, people in class 1 WTP will be almost $60 lower. On latent class 2, the only significant results are for “wmeat” and “avail” variables. The WTP when having meat and eggs in the offer is $122.01 less than when only vegetables are provided. However, people in class 2 are willing to pay a little bit more if the season is longer ($23.29). The “work” variable is not significant but the WTP for having to work on the farm is $120.43 with a standard deviation of 100.35.

Next, table 37 presents the results for the French latent class model.

Table 37: Latent class model with 2 classes results (France)

Utility parameters in latent class 1 **(68.3%)**				Utility parameters in latent class 2 **(31.7%)**			
Variables	Coefficients		WTP (€)	Variables	Coefficients		WTP (€)
PRICE (1)	-.007	***		PRICE (2)	-.001		
	(.001)				(.002)		
VEGEGG (1)	.373	***	54.35 ***	VEGEGG (2)	1.067	***	851.07
	(.103)		(16.36)		(.246)		(1134.19)
WMEAT (1)	.775	***	113.02 ***	WMEAT (2)	.876	***	698.86
	(.106)		(18.68)		(.255)		(888.01)
MIX (1)	.346	***	50.39 ***	MIX (2)	.016		12.75
	(.075)		(11.79)		(.179)		(144.54)
FARM (1)	2.815	***	410.39 ***	FARM (2)	-1.724	*	-1375.29
	(.546)		(66.19)		(.936)		(2364.77)
PICKUP (1)	2.617	***	381.60 ***	PICKUP (2)	.290		231.18
	(.519)		(62.94)		(.881)		(552.58)
HOME (1)	2.984	***	435.10 ***	HOME (2)	-.289		-230.56
	(.536)		(66.14)		(.915)		(955.37)
AVAIL (1)	.015	*	2.22 *	AVAIL (2)	-.060	**	-47.54
	(.010)		(1.38)		(.023)		(64.92)
WORK (1)	-.495	***	-72.14 ***	WORK (2)	-.884	***	-704.85
	(.075)		(13.03)		(.192)		(916.68)
Theta (1) in class probability model				Theta (2) in class probability model			
Constant	3.213	***		Constant	.000		Fixed parameter
	(.588)						
AGE (1)	-.058	***		AGE (2)	.000		Fixed parameter
	(.010)						
EDU (1)	-.217			EDU (2)	.000		Fixed parameter
	(.183)						
INC (1)	.001			INC (2)	.000		Fixed parameter
	(.005)						

Numbers in parenthesis represent standard errors
*, ** and *** represent 10%, 5%, 1% significance levels, respectively

From the latent model results above, it appears that there are 68.3% of the respondents in class 1 and 31.7% in class 2. The first class is characterized by having younger people. Indeed, older are the respondents, less likely they will be in class 1 because the age variable is negative and significant at 1% level. However, no conclusion can really be drawn from education and income variables because they are not statistically significant. Note that as in the US case, the

constant is very large compared to the demographic variables taken into account. So it is likely that there are other factors that differentiate people in class 1 or 2 besides age, education and income.

All the variables' coefficients are statistically significant at 1% level in the first class, except the availability variable, which is not significant. As expected, the price variable has a negative sign. Variables related to variety have positive coefficients, as same as previously, it was expected because they are considered as premiums compared to the vegetables base. Concerning the delivery location, as same as in the demographic mixed, "pickup" has the lowest coefficient and "home" highest, with 2.617 and 2.984 respectively. "Farm" has a coefficient value of 2.815. Standard deviations for these delivery location attributes are between 0.51 and 0.55. Thus, farm, pickup and home delivery locations can be considered similar. Mix and availability coefficients are positive. Work coefficient is negative, meaning that if they have to work on the farm, people from class one will less likely become CSA members.

In the second class, the variety variables are significant at 1% level. "Vegeggs" has a coefficient of 1.067, greater than the "wmeat" coefficient which is 0.876. This means that people are more likely to join if eggs are offered with vegetables than if eggs and the possibility to purchase meat are offered in addition to vegetables. The "farm" coefficient is negative and significant at 10% level. This means that people in class 2 would less likely become CSA members if the delivery location is at farm. Finally, availability and work coefficients are negative and significant respectively at 5% and 1% level. People from class 2 are less likely to become CSA members if they have to work on the farm than people from class 1 because the coefficient is -.884 where it is -.495 in the first class.

The WTP are all significant in class 1. Consumers are willing to pay 54.35 more Euros when eggs are added to vegetables and 113.02 when eggs and meat is proposed in addition to vegetables. Standard deviations are low for these variety premiums, around 17. The opportunity to have a choice in the mix has a WTP of 50.39€. The total WTP people from class 1 are ready to pay to become CSA members is between 381.60 and 435.10€, respectively when the delivery location is a pick-up and at home. But standard deviations are greater than 60 for each delivery location variable (farm, pick-up and home). So the delivery location does not really affect the WTP for a CSA. Finally, if work commitment is required, respondents WTP is 72.14€ lower than

when there is no work required. For the second latent class, accounting for 31.7% of the respondents, none of the WTP are statistically significant, so no real conclusion can be drawn.

The results from these discrete choice models (demographic mixed and latent class) tell that price clearly has a negative impact on the willingness to join a CSA, which is logical. This applies to both the US and France cases. The most important information about the price variable is that its coefficient is very small in both countries (and in all the models). This means that the price has a limited influence on the decision to join a CSA. When considering the variety, this appears to be a determining factor; the greater the variety of products proposed in the share is, the greater the willingness to become a CSA member is, and the higher the WTP to join a CSA is for the average respondent in both samples. A significant difference is found between the WTP for a basic CSA which provides only vegetables and the one which propose eggs and meat in addition (about $80 in the US and 110€ in France in latent class 1 of each country; closer to $200 and 200€ from the demographic mixed logit model). In both countries and from all the models (restricting to latent class 1), the delivery location is found to have a limited influence on the consumers WTP and their decision to join or not join a CSA farm. Note that from the mixed logit results in the US when farm is the delivery location, the WTP appear to be lower than for the other locations; but it is not statistically significant. One may think that respondents who were making the results not significant for the US in the mixed logit are in class 2 in the latent class model, accounting as part of the 18.5% of the population in this class. The fact that French respondents value the farm delivery location higher than the pick-up delivery location may be explained by the fact that they consider going to the farm as a pleasant and educational activity (learning how food is grown). The possibility to have a say in the choice in the mix is valued at a premium by consumers, and they are willing to pay roughly $60 or 60€ on average to get this opportunity when joining a CSA. When work is required on the farm, inversely, people WTP decreases by 50 to 100 ($ or €), depending on the models; indicating that the majority of the population is not willing to work on the farm and consider this requirement as a constraint, not a pleasure.

CHAPTER 5 - Conclusions and Propositions

This final part of the thesis is going to present a summary of the results found from the study and put them together in order to answer the four questions that were stated at the beginning of the thesis. Summarizing the results will answer the first three questions, achieving the first overall objective of this thesis project. After that, the findings in Chapters 2 and 4 are used to make recommendations for farmers and answer the fourth question. Finally, some limitations will be discussed.

5.1 Understanding the demand side: a potential development

The conclusion about the first question regarding the size of the population knowing about CSAs, can be drawn as follows. The consumers' familiarity with direct market institutions is very high for farmers' markets in the US; it is lower in France but can still be considered as well known (questions 9 and 10). Moreover, most people (about 90% in the US and more than 50% in France) know where they can access them where they live. However, the familiarity and knowledge about other direct marketing institutions are very low in both countries. Particularly concerning CSAs, which are the heart of this thesis, only about 18% of the US population is familiar with them and 29% in France. That is why communication and consumer education seem to be a priority to be able to expand such institutions. Communication should be done on a local basis, in order to let consumers know where they can access CSAs in their neighborhood. Education can be made in a more general sense, to let people know that institutions such as CSA exist and what they are.

For the size of the population ready to become CSA member, the second question, the answer was about 15% to 20% in the US and about 40% in France (question 18). The undecided persons account for about 30% of the population in both cases. In chapter 2, it was explained that there is a difference between rational ideal and realized behaviors, so even if people are telling they would likely join a CSA, they may never do so. This is why communication should be used with well-prepared arguments in favor of CSAs, in order to give positive information to consumers that would help them join CSA farm. Moreover, from this communication persons

who are undecided could become persons that would be more likely to join a CSA, and then, in the decision process, might decide to act when new information is provided.

When directly asking people how much they would pay to join a typical CSA, about 37% in the US and 26% in France were not willing to pay anything. Thus, the majority of the population remains ready to pay something to join a CSA. From the estimated Tobit model, it appears that people under 40, with fewer children, are willing to pay more to join a CSA than other demographic groups. The income level is not appearing as a determining factor in consumers WTP. The education level has a positive impact on the WTP to join a CSA, particularly in France.

Response to question 3, motivations and barriers, is more complex and involves various elements. The results clearly show that consumers in both countries are buying perishable groceries regularly (question 4), so an institution that offers perishable foods on a regular basis can be proposed to consumers. Concerning the current purchase of these perishable food products, origin is a concern for about 50% of the French sample and 25% of the US sample (question 5). Thus, communication about products' origin can be used and would help to reach approximately half of the French population and a quarter of the US consumers, but it is probably not the only message that should be used. Other advantages should be brought to light when buying directly from producers, such as the benefits of consuming foods of local origin which can be introduced to a population via educational information that will lead consumers to consider the benefit more carefully.

It is obvious that direct market institutions cannot replace other shopping outlets for most consumers; they can only complement them. Indeed, one cannot purchase all his grocery needs directly from farmers. Results showed that supermarkets and supercenters are the main outlets used by consumers in both countries (question 7). In addition to these main outlets, consumers use various other stores which have different properties in terms of convenience or specialties. Direct farmer-to-consumer institutions enter into this category but the properties that lead consumers to purchase from them are not easily identified or are perceived differently by heterogeneous people. A small portion of the population (about a quarter) is using direct marketing institutions regularly, but most consumers are using them on an irregular basis. This is inconvenient for farmers because they cannot anticipate the demand for their products or adjust

their offerings on short notice. This leads to a conclusion that the development of consumer loyalty would be helpful and welcomed by famers to deal with fluctuations in quantities marketed.

More practically, it was found that most US consumers are willing to travel less than 15 minutes from their regular route to purchase directly from farmers if they are not driving. They would be willing to travel a bit further, about 20 minutes, if driving (question 11, 12, 13). This suggests that CSA farmers in the US need to find a way to deliver their products to consumers within 15 or 20 minutes from the consumers' living environment. In France, the conclusion is not that clear, because there is more divergence among respondents: some are very time constrained when others are willing to travel more than 30 minutes. So, French farmers should discuss the delivery location issue with their members and find a compromise between consumers that are really time constrained and those who are willing to travel and would actually like to come to the farm regularly, even if it is a bit far away from their home.

Attributes people are looking at when buying perishables groceries are mainly the price, product safety, appearance and taste (question 6). Next, US consumers put weight on convenience, while French consumers are more looking for attributes that are related to their beliefs. So, one can say that US CSA farmers would have to focus on the practical advantages of their offer where French farmers would have to understand what consumers' beliefs are and try to integrate these beliefs into the farm practices as well as possible in order to supply a fitted offer.

Food-related activities preferred by consumers are linked to the food itself (question 14). So, it appears that farmers should communicate this point. Secondly, people like to support their community; which can be used to help convince consumers to join a CSA. Finally, activities related to environment or education are less appreciated on average but remain enjoyable to many consumers. Note that for the French case some educational activities are well enjoyed, such as discovering what crops are in season, but it is still closely related to the food itself. If consumers know the harvest time for various products, they will buy them at this particular time in order to cook and eat them at the time they will taste the best.

Consumer desire to purchase locally produced food through a CSA is not very high (less than 50% of the population like it) compared to consumers who find farmers' markets or grocery

stores with local food offerings appealing (more than 80% like it) (question 15). This leads to the conclusion that convenience is very important for consumers (particularly in the US); they can go to farmers markets' and grocery stores when they want and will find a large variety of products there. But it also shows that people are poorly informed about CSAs: how can they like them if they do not know anything about them. So communication seems again a priority to inform the public about CSAs. Given the level of familiarity with CSAs, it is logical to find that consumers are not used to purchasing directly from farmers on a regular basis (question 16). They are more likely to buy directly from farmers "sometimes", when they have the opportunity to go to a farmers' market or a roadside or farm stand. Again, communication is needed to inform the public, attract them and try to secure their loyalty. For now, CSAs remain very marginally used.

Results also show that consumers are exigent and pay much attention to products' variety, quality, and quantity, but also to convenience and, finally, give most consideration to price (question 17). The findings are consistent with the stated assumption that each individual is interested in maximizing his utility as much as possible. Results from the models show that the price is considered but is not found to be the final determinant to join a CSA, neither is the delivery location, which is more related to convenience. The factor which is found to have the greatest impact is variety, which is another aspect of convenience. More variety is offered, more people are willing to join a CSA and to pay for the share. The opportunity to have a say in the products that will be grown during the season is also appreciated and lead consumers to have a higher WTP. Inversely, people are not looking forward to working on the farm, their WTP decreases significantly if they are required to work on the CSA. People who know and appreciate the concept of CSA are more likely to join one, as are people who currently use direct from farmers marketing institutions of all kinds, including farmers markets.

Table 38 summarizes answers for the three questions using results obtained and some elements from the literature review.

Table 38: First three objectives summary

Kansas City area (USA)	**Midi-Pyrenees region (France)**
What is the size of the population who knows what CSAs are?	
18%	29%
What is the size of the population that would be ready to become CSA members?	
22%	41%
Willingness to pay for a share of a CSA (from models)	
Between $200 and $300 (37% not willing to pay anything) Large premium for more variety (up to $200, but more likely about $100)	Between 380€ and 500€ (26% not willing to pay anything) Large premium for more variety (up to 200€, but more likely about 100€)
What are the main motivations and barriers that lead consumers to become CSA members or not?	
Common motivations	
Variety offered *** Say in the choice of products grown ** Support local farmers *** Food related activities (eat fresh and cook) ** Product safety ** Product appearance * Product taste ** Uncertainty about products provided *	
Common barriers	
Lack of information *** Difference between ideal and behavior ** Price ** Required work commitment ** Uncertainty about quantity provided * Uncertainty about products provided **	
US motivations	French motivations
Food origin concerns * Convenience ** Beliefs' concerns (environment…) *	Food origin concerns ** Beliefs' concerns (environment…) ** Convenience * Educational activities *
US barriers	French barriers
Time and distance (max 20 min) **	Time and distance (very heterogeneous, max 30 min) *

The number of stars (*) indicates the importance of the attribute, more stars = more importance.

5.2 The supply side adaptation: some recommendations

This section addresses the last question that was stated: What could help farmers to improve CSA farms efficiency? The 4 P's of the classic marketing theory include: Product, Price, Promotion and Place (introduced by McCarthy). The recommendations to current or future CSA farmers will be presented for each "P", based on the results obtained.

Product

A share of a CSA that would have a broad appeal to consumers would provide fresh vegetables and fruits on a regular basis, with as greater as variety as possible for these products, as well as the possibility to provide other types of products, such as eggs and meat, but also bread, honey, jam, and others. The more products that can be offered, the better. It is important to keep in mind that consumers are looking for a high variety of products in CSA bundles in order to maximize the value of each trip. In this sense, different farms, producing various products, can come together to propose an offer as complete as possible. In addition, attention should be given to providing products with a good appearance that consumers would like to eat as soon as possible. In this sense, fruits and vegetables might be cleaned and presented in nice baskets. Two baskets can be provided for each member, so that when they come to pick-up their bundle, they can take the full basket and leave the one from the previous delivery. In this case environmental beliefs will also be satisfied, avoiding plastic or paper bags. Farm delivery will of course be available, offering the possibility for members to come pick their bundle at the farm and enjoy various farm activities. But several pick-up locations should be used in consort, depending on the geographic distribution of the CSA members in the territory, to enhance flexibility and convenience. They will likely be chosen to limit the time constraint to a maximum of 20 minutes for every member. Home delivery should be avoided, since it is time-demanding for the farmer and not highly valued by consumers. A core group may be formed, giving the opportunity for members to participate in the evolutions and choices of farm life, allowing discussions and especially, avoiding members' misunderstanding or frustration. Moreover, a blog or a website can be created in order to keep members updated on what is happening at the farm, to try to let them know as much as possible about what they will receive in the next bundle, and to provide recipes for the particular products that will be provided. Work on the farm will not be a requirement but could be offered as optional.

Price

It will be fixed depending on the quantity and variety of products provided but would more likely be around $300 in the US and 400€ in France per share (based on consumer demand results) for a basic share with only vegetables and fruits. Additional costs would be included as options for products other than fruits and vegetables. Half-share options might also be proposed, in order to satisfy smaller households that would like to join, and will be priced at about two thirds of the normal share. Note that higher premiums people are willing to pay account for more variety in products offered ($100 to $200 in the US and 100 to 200 Euros in France) and the right to have a say in farm decisions (about 50 or 60 more dollars or Euros). For payment methods, the basic idea of a CSA is that members pay at the beginning of the growing season in order for the farmer to be able to run the farm properly during the season. This basic principle should remain, but some flexibility could be allowed. This flexibility can take various forms. According to the director of the KC CSA coalition (appendix 2) the most common way is to take a deposit before the growing season (around January or February) and then ask members to pay before the harvest season fully starts (by the end of May). Payment plans can be allowed on a case by case basis; this could be discussed with the core group so that it is the CSA community decision, and regular members will not feel like they have been harmed and did not benefit from such a plan. Fair Share Farm manager Rebecca Graff introduced the innovative concept of a scholarship for lower income clientele. A certain amount of money can be set aside as farm expenses for such a program.

Promotion

It includes broader promotion, consisting of generally educating consumers about CSAs (what they are) and targeted promotion, to the local population, to inform about the existence of a CSA farm in their neighborhood and how they can join. There are two main ways to communicate. The first is called above the line promotion, consisting of putting advertisements in various media (TV, radio, newspapers). The second is considered more subtle in order for the consumer to not be aware that promotion is taking place (sponsorship, sales promotion). The first concrete suggestions that can be made concern the content that should be used when promoting. It should build on the motivations that were presented in table 38 above. Secondly, the target population would more likely be people under 40, with a relatively high level of education, and not many children. These concern demographic characteristics, but they would also more likely

be people who are already buying through various direct marketing channels, such as farmers` markets. Thus, promotion should probably focus on events related to food or community, basically every local event that can attract either the population most ideologically concerned with food or a large percentage of the general population. To link promotion with the product, the variety of products available via CSAs, their good appearance and their taste should be demonstrated during the events. Farmers should not hesitate to bring a sample of their products when they meet consumers in any platform. It is relatively easy to prepare a stand and ask people to test the product, and at the same time, explain to them what CSAs are in order to educate and inform them. The cost of such promotion should be taken into account. Depending on the type of event and its location, a group or an individual action can be chosen. If many people are attending the event, a team action can be planned, with the Kansas City CSA coalition, for example, leading several CSA farmers to participate in the action as a group. Thus, the promotion would more likely be educational. If the event is taking place in a small community, an individual action could be considered by the farmer for his own business. Costs will certainly differ between the two cases.

Place

Place is also referred to as the distribution channel. In the case of CSAs, producers need to be directly in relation with the ultimate consumer; there are no middlemen. The delivery location of the bundle every week is most likely to be either at the farm, at the member home, or at a pick-up location chosen to be closer than the farm to members' regular routes. Note that this was not found to be a determining attribute for people's decision to join. It seems to be more a practical detail that should be addressed after consumers decide to join. The core group can take a large responsibility in the distribution management, which would allow the farmer to focus on food production. As said in the Product part, delivery location will more likely be chosen to limit the time constraint for members to a maximum of 20 minutes. But it is more likely to be in a pleasant place, where members can socialize and children play.

5.3 Some limitations to these results

As seen in part 2, there is a difference between the ideal beliefs held by individuals and their decisions to act. This difference is not easy to estimate, but is likely to have a considerable

influence on the results found. Indeed, because of the lack of knowledge of people about direct farmer-to-consumer institutions, definitions were provided in the survey in order to explain to respondents what the different institutions are. So it is more likely that results reflect the "rational ideal" people have about CSAs and other direct market institutions than their real decision to act (except for the 18% American and 29% French people who knew what CSAs are before the study). But this still reflects consumers' opinion about CSAs and other direct marketing institutions. Thus appropriate and targeted communication should lead individuals to move from the ideal statement to the decision behavior.

Another limitation concerns respondents' characteristics. Data came from an online survey, which may induce some bias because not all the population has access to internet. Moreover, as presented at the beginning of the results; samples were not necessarily representative of the population. US respondents were particularly more educated and had higher income than the general population. So, the part of the population who knows what CSAs are is certainly higher in the findings than in reality because people with more education are more generally informed and thus could have heard about CSAs. The WTP found is expected to be higher than WTP that would have been found from the general population because the sample is characterized by high incomes. But the results about the size of the population ready to become CSA members and the motivations and barriers of this population are expected to be applicable to the general population, because results and previous studies found little or no difference in the willingness to join and the motivations and barriers to join regarding the level of income and education. Note that the purpose of this thesis was more to find tendencies of the consumer demand than its exact and precise characteristics. In this sense, the goal has been achieved. Then, CSA development can be processed in accordance with the tendencies found and applied to the general population without much bias.

A final limitation concerns the WTP comparison between the US and France. Indeed, the method used was not the same because the share price was used in the US survey and the bundle price in the French survey. If we compare the results obtained from the open-ended question (question 19) to the results obtained in the demographic mixed logit model for the pick-up delivery location (to be consistent with the specification of the open-ended question):

- For the US; from the open ended question, the average WTP when taking all the responses into account is $66.787. When taking only the responses higher than $99, the average WTP is then $243.143.The WTP obtained from the model is $298.47 for a pick-up delivery location. It makes an error of 77.6% [(298.47-66.787)/298.47] with all responses and 18.6% with only the above $99 responses.
- For France; the average WTP from the open-ended question is €12.073/bundle which makes €289.752/share when all the responses are taken into account. When only the responses above €4/bundle are used, the mean is €16.672/bundle or €400.128/share. From the model, it is €431.74/share. The error is then 32.9% with all responses and 7.3% with only the above €4/bundle (or €96/share) answers.

It appears from these results that the difference between the open-ended results and the choice experiment results are smaller in the French case than in the US case. The results can at least in part be attributed to people being more consistent in their answers when the reference price level is lower than for higher levels, where the differences can be magnified.

This research contributed to a better understanding of demand for locally grown food that is directly marketed from farmers to consumers. The findings provide reliable estimates on the degree of public awareness about direct marketing institutions and also on the size of the potential market. Moreover, the main motivations and barriers that lead consumers to join or not join CSAs have been identified, allowing for recommendations to be drawn in order to enhance people's willingness to become CSA members and their WTP for a share. Realistic recommendations were stated, particularly on the offer, the product in a general sense, that should more likely be offered, and its price. But detailed recommendations on ways to reach consumers and offer them the product were left for future endeavors. Future research efforts may like to focus more on the distribution channel possibilities and on effectiveness of communication plans at the community level and at the regional (or national) level.

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Appendix 1: Interview Report of Rebecca Graff: "Fair Share Farm" manager on October, 29th 2009

105 memberships in 2009, cover both salaries, two full time farmers (her and Tom Ruggieri).

Model: peace work organic farm => State of New-York, pioneers in the US, for 20 years.

Their CSA requires work from members. There are 3 pick-up locations. Very involved membership.

Core group: 15 CSA members => run distribution, schedule farm work and survey members, organize dinner at the end of the season.

2 apprentices, 4 people total everyday in the farm during the growing season. 5-6 acres of vegetables and fruits.

Farming community in their area is pretty much gone, except for crops and cattle. Members like to come to the farm, bring the kids, things like that.

70 to 75% of the members stay from one season to the next one.

They have scholarship for people who have financial difficulties.

Spring sign-up in March: orientation for members, explanations. The core group organizes the contracts signing. There is the ability for members to also sign with other farms, for bread or meat particularly. Members should have paid everything before the end of July.

A good variety of vegetables are produced, pretty much everything that could be grown in this area. 8-9 items are provided every week per share.

Advantages of CSA for farmers: having money before the growing season to be able to buy everything they need for the growing season. Because they do not have time during the growing season, too much work on the farm.

Advantages for consumers: education, how food is grown. They can learn about production, at different levels: new gardeners or people who were gardener but cannot do it anymore (no time, too busy, too old…). Better price probably, $25/week if the total share is divided (24 weeks). Adventurous members like to be surprised by the share.

Rebecca and Tom have a blog, they give recipes every week, and they give some example to explain how to cook the vegetables which are in the share of the week. They also try to say what will be on the share for the following week.

Most of their members like to cook, like to eat. People are "really in the food", talk about it, how it is grown, how they can cook it.

Disadvantages for farmers: R and T do not go to the market, so they do not have tasks related to bringing crops to the market (pack, drive…). But they spend a lot of time on the computer, keeping in touch with people by emails (with questions). Then the blog takes a couple of hours per week.

Disadvantages for consumers: they cannot choose what they get. But R and T have an "extra box", with extra products, so people can exchange their products, put those they do not want in the box and take something else which is in it. But it is not the same as going to the farmers market and taking what they want.

Question about the lack of information concerning CSAs: Rebecca does not really know. They are in their "little bubble" of CSA community. She assumes most people do not know about CSA or just heard about it and do not really know what it is.

Rebecca has surveyed her members with "Survey Monkey" obtaining 96 responses out of 105 members. She shared her results. Main reasons why people are CSA members are:

- For the food, good and very fresh vegetables, organic
- For environmental prospective. No pesticides: for their children or for the environment
- Health conscious people
- Some are three of those!

Some CSA are certified organic. R and T are not, but they farm in an organic way.

- Support local farmers, buying local => also for environmental reasons: local

But if you want local food, you still have to search for it.

Work at the farm. 2 mornings of work are required per share. So if it is a couple, only one Saturday morning, from 8 to 12. The workers of each Saturday bring the vegetables to the pick-up places at the end of the morning. T and R do not have to do it, they save time and money (gas).

Questions she has: how many people are interested in CSA?

HenHouse Market => she is interested in a comparison between a classic CSA and CSA in general grocery stores. She thinks it is getting popular in groceries; she would like to know why. Good Nature Family Farms (not necessarily organic) provide products for HenHouse Market. What are the differences between the 2 systems? How many people who purchase in Henhouse Markets would change and become real CSA members?

Domains of activity of people may be relevant in identifying consumers who are interested in CSAs (many of her members are professors and school teachers). The same with education, most members of Fair share Farm have a college degree.

Appendix 2: Interview Report of Season Burnett: director of the Kansas City CSA coalition on October, 29th 2009

Fair Share Farm is identified as the model for the other CSA farmers in Kansas City area. Even if each farm would like to be unique!

Season started 2 years ago, after a request of several CSA farmers. The purpose was to create a hub to allow people to find CSA farms. Season's friend created a website to try to give information about CSAs around Kansas City. Season thinks they did pretty well about providing information on the CSAs in the Kansas City area, particularly on their location and how each of them works. The goal for next year is to be able to draw the distribution area for each farm and where the members come from. Thus, people who would like to become members would be able to choose easily which CSA farm is the best for them.

Several different kinds of CSA:

- Shareholder CSA (like Fair Share Farm): they require their members to work on the farm. 2 of those in KC area.
- Subscription CSA: do not require their members to work on the farm, members just pick-up their share and go, there is much less interaction with the farmer.
- Special case: one farmer takes the money of his members at the beginning of the growing season and whenever something is ready to harvest he will call his members to harvest (not on the website).

Farms size: from 3 members to 100 (Fair Share Farm).

- New kind of CSA: group CSA farm. For example, everybody from an office buy via a CSA. Everybody pays at the beginning of the growing season. Then, every week, the farmer delivers directly to the office. It works for different groups: church group, work group, association…
- Meat CSA: a couple in KC area. Probably another one will likely be formed later. They provide chicken, beef, pork, eggs and one of them provides lamb.

Most of the CSAs provide eggs and sometimes chicken in addition to vegetables (and fruit sometimes).

About the delivery options: all the farms offer delivery at the farm and in at least one other location: parking lot or in a member's house. Most farmers have 3-4 pick-up locations where they deliver each week (except Rebecca and Tom where the members do the delivery). Only one farm delivers directly to home (they charge a little bit more for that) but this is very inconvenient.

Payment methods:

Rebecca and Tom have a scholarship for low income people. They have a certain amount of money they use for this program. They are the only ones to do that. But usually all the other farmers have a sort of payment plan, consumers just have to talk with them.

The majority of the farms take a deposit before the growing season in the fall. Then in January or February they contact the members to give the price of the share and members have to pay the balance usually before the end of May.

One CSA is doing a weekly payment.

Communication is done mainly by email. There is usually no meeting at the beginning of the growing season. The "old" members explain to the new ones how it works.

For the choice of products, some farmers are more adventurous than others on what they grow. But they are usually very open-minded. So if members ask for a particular product, they will try to grow it, if there is a chance that it will work!

Some CSA farms have a waiting list, the oldest and more well-known ones. The coalition tries to move people who are on waiting lists to other CSAs.

Most farms offer full size share (6-9 items), partial share (4-6 items), and sometimes individual share. It allows for the coalition and consumers to compare farms.

Most farmers also allow their members to purchase products via other type of CSA like meat and bread.

Not many CSA farmers are certified organic. They do not have to be certified to be part of the coalition but they have to explain how they grow their products. They have to be consistent; they do not have to be commercial farms.

About HenHouse Market, Season thinks that it is a "baby step" for someone who would like to become a CSA member. HenHouse Market has the products from Good Nature Family Farm, a group of 200 farms in Kansas and Missouri states. Some are organic; some are completely commercial. It is local but not in the spirit of the coalition. If people start buying local food via HenHouse Market they will maybe transfer to a "real" CSA after a couple of years.

Very difficult to reach the Kansas City population because of the saturation of information and media: buy local, buy organic on a general level. People do not really know how to do it. Maybe they want to buy local and organic but how and where? Very difficult to go local and go organic in the particular areas of KC, the information is too large, not targeted enough usually.

A lot of people still think that eating local and eating organic is for elite, white people.

Marketing ideas:

- Food circle
- Organic farmers market, urban farmers (a group of young people in KC), really try to attract people to the movement

Disadvantages of CSA: limited market outreach. Farmers who are in farmers markets can advertise themselves more. But, farmers are pretty busy usually, they do not really have time to advertise or communicate efficiently.

CSA farmers are really helpful the ones with the others.

Some farmers have had issues with the difference between the share they provide and the share people expect; it is not always easy to deal with that. Farmers need to be good educators and marketers. A good communication is very important.

Why people join CSA: People like to know from where their food comes from. If they have a question about it they can easily contact the farmer. Sometimes people join for the sense of community. It is especially true when members work in the farm, they have to talk to each other; this is socialization, friendship. There is also education, people would like to learn how food is grown.

Environmental concerns: really local, maximum 100 miles radius Kansas City. The coalition tries to expand the farmers' organic practices: no till…

Her questions:

- Location of people who could be interested in CSA membership, ZIP code, to be able to draw maps
- For people who are interested in creating a group CSA: if they can give the name of their company, of their group, association, and location.
- How far would interested people be able to travel? It is very subjective. People who live in a city are probably not willing to drive 30 minutes out of the city, but "country" people are maybe more able to drive, even longer. It is probably not a matter for them to take their car. For urban people they need to leave the city, the road might be busy…

Appendix 3: US survey

Buying food from farmers (version 1)

Opening instructions

Greetings!

Thank you for agreeing to participate in our survey. The survey is being conducted by Kansas State University as part of the project, “CSAs and Organic Farmers Markets: Strengthening Producer Capacity and Consumer Linkages around Kansas City" funded by the USDA Farmers Market Promotion Program. You may have noticed that increasingly more food products are labeled with information on where and how they have been produced. This survey is designed to better understand what aspects of buying perishable food products are important to shoppers. This survey will take you about 15 minutes to finish.

Your participation is strictly voluntary, and your response to this survey will be kept completely anonymous. If you have questions about the rights of research subjects or about the manner in which the study is conducted, please contact Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

Sincerely,

Hikaru Hanawa Peterson, Associate Professor
Quentin Baudouin, Masters Candidate
Department of Agricultural Economics
Kansas State University

Page 1

1. **Please enter the User ID that was provided on the survey summary page:**

2. **How much of your household's grocery shopping do you personally do?**

- All or most of it
- About half of it
- Less than half of it

If "less than half of it" => Page 18

Page 2

3. **Do you live in or near any of the following cities or metropolitan areas?**

- Cleveland
- Dallas
- Indianapolis
- Kansas City
- Los Angeles
- Louisville
- Memphis
- New-York
- None of the above

If not "Kansas City" => Page 18

Page 3

4. **How often do you shop for products in the following food categories?**

Choose the frequency that most closely represents your situation from each row.

1-At least two or three times a week; 2-Once a week; 3-Two or three times a month; 3-Once a month; ; 5-Less than once a month; 6-Never	
- Fresh fruits and vegetables	1-2-3-4-5-6
- Meat/poultry	1-2-3-4-5-6
- Dairy products	1-2-3-4-5-6
- Eggs	1-2-3-4-5-6
- Bread	1-2-3-4-5-6
- Packaged/processed foods (jam, honey,…)	1-2-3-4-5-6

5. **When shopping for products in these categories, do you check for product origin and try to purchase products from certain places?**

Choose one from each row.

1-Almost always; 2-More often than not; 3-About half of the time; 4-Less often than not; 5-Never	
- Fresh fruits and vegetables	1-2-3-4-5
- Meat/poultry	1-2-3-4-5
- Dairy products	1-2-3-4-5
- Eggs	1-2-3-4-5
- Bread	1-2-3-4-5
- Packaged/processed foods (jam, honey,…)	1-2-3-4-5

6. How important to you are the following attributes when you purchase perishable groceries (fresh fruits and vegetables, eggs, dairy and meat products):

1- Extremely important; 2- Very important; 3-Moderately important; 4- Slightly important; 5- Not at all important

- Variety	1-2-3-4-5
- Appearance (color, visual appeal)	1-2-3-4-5
- Taste	1-2-3-4-5
- Nutrition	1-2-3-4-5
- Certified organic	1-2-3-4-5
- Third-party verified claims (e.g., cage-free, hormone free)	1-2-3-4-5
- Pesticide use	1-2-3-4-5
- Risk of food-borne illnesses	1-2-3-4-5
- Brand (company/store)	1-2-3-4-5
- Convenient packaging	1-2-3-4-5
- Where it was produced	1-2-3-4-5
- Where it is sold	1-2-3-4-5
- Environmental impact	1-2-3-4-5
- Price	1-2-3-4-5

Page 4

7. **How often do you purchase your groceries at the following retail outlets?**

1-At least two or three times a week; 2-Once a week; 3-Two or three times a month; 4-Once a month; ; 5-Less than once a month; 6-Never

- Supermarket/Supercenter (e.g., Walmart, Kroger)	1-2-3-4-5
- Convenience or corner store	1-2-3-4-5
- Health food store	1-2-3-4-5
- Specialty store (e.g. bakery, butcher, or ethnic food stores)	1-2-3-4-5
- Farmers Markets when in season	1-2-3-4-5
- Directly from producers when in season (but not at farmers markets; e.g., CSA)	1-2-3-4-5
- Other store type	1-2-3-4-5

8. **If you answered something other than "Never" on the previous question for "Other store type" (7.7), please specify:**

Page 5

9. How familiar are you with the following farm marketing institutions?

1-Very familiar, know what it is; 2-Familiar, know a little bit about it but cannot give an exact definition; 3-Have heard about it but do not really know what it is; 4-Have never heard about it

- Farmers Market 1-2-3-4
- Pick-your-own 1-2-3-4
- Subscription farming 1-2-3-4
- CSA (Community supported agriculture) 1-2-3-4

10. Do you know where you can access the following marketing institutions in your neighborhood?

1-Yes, I know where it is and when/how I can buy; 2-Yes, I know where it is but I do not really know when/how I can buy; 3-I know approximately where it is; 4-I know there is one but I do not know where it is; 5-I have no idea

- Farmers Market 1-2-3-4-5
- Pick-your-own 1-2-3-4-5
- Subscription farming 1-2-3-4-5
- CSA (Community supported agriculture) 1-2-3-4-5

Page 6

What is the maximum distance you would be willing to travel off of your regular commuting/shopping route to purchase food directly from a farmer every week? If you are currently buying directly from a farmer, then please answer in terms of the extra distance you are travelling to do so.

11. Please specify how many minutes in total if <u>walking</u>.

12. Please specify how many minutes in total if talking <u>public transportation</u>.

13. Please specify how many minutes in total if <u>driving</u>.

Page 7

14. How much do you enjoy these following activities?

1-Love it ; 2-Enjoy it; 3- Indifferent; 4-Don't particularly enjoy it; 5-Don't enjoy it at all

- Eating fresh food	1-2-3-4-5
- Eating healthy food	1-2-3-4-5
- Cooking from scratch	1-2-3-4-5
- Discovering what crops are in season	1-2-3-4-5
- Knowing where the food comes from	1-2-3-4-5
- Respecting the environment	1-2-3-4-5
- Supporting a local farmer	1-2-3-4-5
- Working on a farm	1-2-3-4-5
- Learning about how food is grown	1-2-3-4-5
- Bringing children to a farm (choose 3 if not applicable)	1-2-3-4-5

Page 8

Please read carefully the following ways to buy products from farmers:

- **Grocery stores with local food offerings**: Stores may sell farm products with information on where they are from, including "local."

- **Farmers' markets**: These markets take place regularly at a particular location. Farmers and other vendors come to sell food and other products directly to consumers.

- **Roadside stands**: These stands or stores are located along roads and sell farm products. Some offering a wide variety of products with elaborate storefront, while others are not manned and expect consumers to leave the payment in good will.

- **Pick-your-own**: Farmers open their fields to consumers and allow them to personally select and harvest various types of produce.

Page 9

- **Subscription farming**: Consumers typically pay a subscription fee for the right to purchase fresh produce during harvest time. Subscribers then pay for the produce they purchase.

- **Community Supported Agriculture (CSA)**: Shareholders pay for a share of the harvest at the beginning of the growing season. In return, they receive a bundle of produce weekly during the growing season as well as the opportunity to participate in farm-related activities. Members also share the risks of farming, including poor harvests due to unfavorable weather or pests.

- **Group CSA**: The principle is the same for CSA except that the farmer supplies to a group such as a business office. Each participating group member purchases a share at the beginning of the growing season, and the farmer delivers weekly to the office. It could also work with churches or any other groups of individuals that allow for centralized deliveries.

15. How appealing to you are the following types of marketing institutions to buy produce from farmers?

1-Love it; 2-Like it; 3-Indifferent; 4-Don't particularly care for it; 5-Don't care for it at all

- Grocery stores with local food offerings	1-2-3-4-5
- Farmers markets	1-2-3-4-5
- Roadside stand	1-2-3-4-5
- Pick-your-own	1-2-3-4-5
- Subscription farming	1-2-3-4-5
- CSA (Community supported agriculture)	1-2-3-4-5
- Group CSA	1-2-3-4-5

16. How often do you purchase food from these marketing institutions (during the growing season)?

1-Regularly (once a week); 2-Often (2 or 3 times a month); 3-Sometimes (once a month); 4-Rarely (once every 2 or 3 months); 5-Never

- Grocery stores with local food offerings	1-2-3-4-5
- Farmers markets	1-2-3-4-5
- Roadside stand	1-2-3-4-5
- Pick-your-own	1-2-3-4-5
- Subscription farming	1-2-3-4-5
- CSA (Community supported agriculture)	1-2-3-4-5
- Group CSA	1-2-3-4-5

Page 10

17. What would be the conditions you would look at to join a subscription farming, a CSA or a group CSA?

Estimate the attention you would pay to these attributes before joining a subscription or CSA farm.

1-A lot of attention; 2-Some attention; 3-Moderate attention; 4-No attention at all	
- Prices of the products or price of the share	1-2-3-4
- Distance to the delivery location	1-2-3-4
- Delivery schedule	1-2-3-4
- Type of products available	1-2-3-4
- Quantity of products supplied every week	1-2-3-4
- Involvement with the farm	1-2-3-4

18. How willing are you to join a subscription farming, a CSA or a group CSA, if you had the opportunity?

1-I will certainly join; 2-I will likely join; 3-I'm not sure if I will join; 4-I will likely not join; 5-I will never join	
- Subscription farming	1-2-3-4-5
- CSA where you are asked to work 2 half-days a year	1-2-3-4-5
- CSA without work commitment	1-2-3-4-5
- Group CSA	1-2-3-4-5

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Please read carefully.

Suppose you're considering joining a **Community Supported Agriculture (CSA) program**. To choose which CSA to join, you have collected some information about various CSAs: the price of the share, the variety of products supplied, etc. These different pieces of information are defined as below.

- The **share price** is the price you pay at the beginning of the growing season to become a CSA member and receive a bundle of products every week.

- The **variety** is the type of product you will receive during the growing season.
    - "Veg" means you will receive vegetables every week;
    - "Veg+Eggs" means you will receive vegetables and eggs every week;
    - "Veg+Eggs+Meat" means you will receive vegetables and eggs every week and can order meat and have it delivered with vegetables and eggs on regular basis. You will pay for the meat in addition to the share, depending on the type (beef, pork, poultry, lamb) and the quantity you order.

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- The **choice in the mix** is the say you have in the mix of farm products produced and delivered to you:

  - "Yes" means you participate in the decision with the farmer and other shareholders at the beginning of the growing season;
  - "No" means that you simply take the products the farmer offers.

- The **delivery location** is the place where you receive your farm products:

  - "Farm" means that you pick up your bundle of products directly from the farm every week;
  - "Pick-up" means that you pick up you bundle of products every week at a pickup location different from the farm that is more convenient for you (say in a parking lot or at another CSA member house, closer to your house or your work than the farm);
  - "Home" means that someone delivers your bundle of products directly to your home or workplace every week.

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- **Availability** is the length of the season you'll be receiving your farm products:

  - "May-Oct" corresponds to 24 weeks or 6 months, from May to October.
  - "Apr-Nov" corresponds to 32 weeks or 8 months, from April to November.

- Finally, the **work commitment** reflects whether you are asked to spend time on the farm-related activities:

  - "Yes" means that the farmer asks you to work 2 mornings per season for the CSA (for example, to harvest or to deliver).
  - "No" means that you are not asked to work for the community at all.

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19. **Suppose you are joining a CSA. The CSA you are considering offers weekly bundles of 9 vegetables of farmer's choice. You can pick up the bundle at a pick-up location, which will take you 15 minutes off of your regular commuting/shopping route. The bundles will be provided from April to October, and you will not be asked to spend any time on the farm.**

How much would you be willing to pay for a share of this CSA? Please give your answer in US$ (enter "0" if you are not willing to pay anything for the share).

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For each question below, please compare the two CSAs with different conditions, and choose one or neither of them to join. The third option, "None" means you would not join either CSA 1 or CSA 2.

20. Choice 1

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg+eggs	Veg+eggs+meat(at additional cost)	
Choice in the mix	Yes	No	
Delivery location	Pick-up	Farm	
Availability	May-Oct	Apr-Nov	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

21. Choice 2

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg+eggs	Veg	
Choice in the mix	Yes	No	
Delivery location	Home	Farm	
Availability	Apr-Nov	May-Oct	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

22. Choice 3

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg+eggs	Veg+eggs+meat(at additional cost)	
Choice in the mix	No	Yes	
Delivery location	Farm	Home	
Availability	May-Oct	Apr-Nov	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

23. Choice 4

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg+eggs+meat(at additional cost)	Veg	
Choice in the mix	No	Yes	
Delivery location	Pick-up	Home	
Availability	Apr-Nov	May-Oct	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

24. Choice 5

	CSA 1	CSA 2	
Share price	$420	$350	**None**
Variety	Veg	Veg+eggs	
Choice in the mix	Yes	No	
Delivery location	Pick-up	Farm	
Availability	Apr-Nov	May-Oct	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

25. Choice 6

	CSA 1	CSA 2	
Share price	$420	$350	**None**
Variety	Veg+eggs+meat(at additional cost)	Veg	
Choice in the mix	Yes	No	
Delivery location	Home	Pick-up	
Availability	May-Oct	Apr-Nov	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

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26. Please enter your 5-digit ZIP code:

27. What is your gender?

- Male
- Female

28. How old are you?

- Less than 20
- Between 20 and 24
- Between 25 and 34
- Between 35 and 44
- Between 45 and 54
- Between 55 and 64
- More than 65

29. What is your race (choose all that apply):

- White
- Black/African American
- Hispanic
- American Indian/Alaska Native
- Asian
- Native Hawaiian/Pacific Islander
- Other: _____

30. How many people does your typical food bill cover?

1-one; 2-two; 3-three; 4-four; 5-five; 6-six; 7-seven; 8-eight; 9-nine or more; 10-zero	
- Under 2 years of age	1-2-3-4-5-6-7-8-9-10
- Age 2-5	1-2-3-4-5-6-7-8-9-10
- Age 6-13	1-2-3-4-5-6-7-8-9-10
- Age 14-17	1-2-3-4-5-6-7-8-9-10
- Age 18-24	1-2-3-4-5-6-7-8-9-10
- Age 25-44	1-2-3-4-5-6-7-8-9-10
- Age 45-64	1-2-3-4-5-6-7-8-9-10
- Age 65 and older	1-2-3-4-5-6-7-8-9-10

31. What is your highest level of education?

- Graduate school
- Bachelors degree
- Some college or associate degree
- High School degree or equivalent
- Lower than High school

32. What is your annual household income before tax?

- Less than $10,000
- Between $10,000 and $24,999
- Between $25,000 and $49,999
- Between $50,000 and $74,999
- Between $75,000 and $99,999
- Between $100,000 and $199,000
- More than $200,000

33. What is your occupation?

- Management, professional, and related occupations
- Service occupations
- Sales and office occupations
- Farming, fishing, and forestry occupations
- Construction, extraction, and maintenance occupations
- Production, transportation, and material moving
- Unemployed
- Student
- Retired
- Other: _____

34. How many persons work for the company/institution you work for?

- Not applicable
- Less than 10
- Between 10 and 19
- Between 20 and 99
- Between 100 and 499
- More than 500

35. Are you involved in a community group or an association? (choose all that apply)

- None
- Charity organizations
- Community organizations
- Professional organizations
- Political organizations
- Religious organizations
- School associations
- Other: _____

36. Do you have any comments, opinions, suggestions about CSAs or more generally about food bought directly from farmers? If yes, feel free to use the space below.

Page 17

Congratulations!

You have fully qualified and completed this research study. Your e-Rewards account will be credited the full credit amount within 7-10 business days.

Thank you for your time and your opinions!

Page 18

Thank you for your interest in this study. Unfortunately, it appears that your answers do not meet the criteria to fully qualify and complete this study. We do appreciate your willingness to participate through and as promised, your e-Rewards account will receive the partial credit amount within 7-10 business days. Thank you for your time and your opinions!

Closing Message

Thank you for completing the survey!

For more information about CSAs around Kansas City, you can visit the website of the Kansas City CSA Coalition: http://www.kc-csac.org/

If you are interested in group CSA, please contact us at the following email address: quentinb@ksu.edu.

Version 2 Choice Experiment

20. Choice 1

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg	Veg+eggs+meat(at additional cost)	
Choice in the mix	No	Yes	
Delivery location	Home	Farm	
Availability	May-Oct	Apr-Nov	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

21. Choice 2

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg+eggs+meat(at additional cost)	Veg	
Choice in the mix	No	Yes	
Delivery location	Home	Pick-up	
Availability	May-Oct	Apr-Nov	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

22. Choice 3

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg	Veg+eggs	
Choice in the mix	No	Yes	
Delivery location	Pick-up	Home	
Availability	May-Oct	Apr-Nov	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

23. Choice 4

	CSA 1	CSA 2	
Share price	$420	$350	**None**
Variety	Veg+eggs	Veg+eggs+meat(at additional cost)	
Choice in the mix	No	Yes	
Delivery location	Home	Farm	
Availability	Apr-Nov	May-Oct	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

24. Choice 5

	CSA 1	CSA 2	
Share price	$420	$350	**None**
Variety	Veg+eggs	Veg+eggs+meat(at additional cost)	
Choice in the mix	No	Yes	
Delivery location	Farm	Pick-up	
Availability	Apr-Nov	May-Oct	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

25. Choice 6

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg	Veg+eggs	
Choice in the mix	Yes	No	
Delivery location	Farm	Pick-up	
Availability	May-Oct	Apr-Nov	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

Version 3 Choice Experiment

20. Choice 1

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg	Veg+eggs+meat(at additional cost)	
Choice in the mix	Yes	No	
Delivery location	Farm	Home	
Availability	Apr-Nov	May-Oct	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

21. Choice 2

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg	Veg+eggs	
Choice in the mix	Yes	No	
Delivery location	Home	Pick-up	
Availability	Apr-Nov	May-Oct	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

22. Choice 3

	CSA 1	CSA 2	
Share price	$420	$350	**None**
Variety	Veg+eggs+meat(at additional cost)	Veg+eggs	
Choice in the mix	No	Yes	
Delivery location	Pick-up	Farm	
Availability	May-Oct	Apr-Nov	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

23. Choice 4

	CSA 1	CSA 2	
Share price	$350	$280	**None**
Variety	Veg+eggs+meat(at additional cost)	Veg+eggs	
Choice in the mix	No	Yes	
Delivery location	Farm	Pick-up	
Availability	Apr-Nov	May-Oct	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

24. Choice 5

	CSA 1	CSA 2	
Share price	$420	$280	**None**
Variety	Veg+eggs+meat(at additional cost)	Veg	
Choice in the mix	Yes	No	
Delivery location	Pick-up	Home	
Availability	Apr-Nov	May-Oct	
Work commitment	Yes	No	

CSA 1: O CSA 2: O None: O

25. Choice 6

	CSA 1	CSA 2	
Share price	$420	$350	**None**
Variety	Veg+eggs	Veg	
Choice in the mix	Yes	No	
Delivery location	Farm	Home	
Availability	May-Oct	Apr-Nov	
Work commitment	No	Yes	

CSA 1: O CSA 2: O None: O

Appendix 4: French survey

Acheter de la nourriture directement aux producteurs (version 1)

Opening instructions

Bonjour,

Merci pour votre participation à cette enquête. Cette enquête est conduite par l'Ecole d'Ingénieurs agricoles de Purpan, à Toulouse, et fait partie d'un projet mené en collaboration avec Kansas State University (Etats-Unis). Cette enquête a pour but de comparer les modes de consommation en produits locaux des ménages français et américains et d'étudier les facteurs les plus importants pour les consommateurs lorsqu'ils achètent des produits locaux. Les résultats de cette enquête serviront à promouvoir le développement de l'agriculture locale, et notamment des AMAP. Il vous faudra environ 15 minutes pour répondre à cette enquête.

Votre participation à cette enquête est volontaire et les réponses que vous donnerez sont strictement anonymes. Si vous avez des questions à propos de cette enquête, n'hésitez pas à contacter: Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, USA.

Cordialement,

Hikaru Hanawa Peterson, Professeur à Kansas State University
Quentin Baudouin, Etudiant à l'Ecole d'Ingénieurs de Purpan

Page 1

1. **No User ID asked for the French version**

2. **Quelle part des achats alimentaires de votre ménage faites-vous personnellement?**

- Tous ou la majorité
- Environ la moitié
- Moins de la moitié

Si “moins de la moitié” => Page 18

Page 2

3. **Dans quelle région de France vivez-vous?**

- Île-de-France
- Rhône-Alpes
- Provence-Alpes-Côte d’Azur
- Midi-Pyrénées
- Nord-Pas-de-Calais
- Aquitaine
- Bretagne
- Pays de la Loire
- Aucune des régions citées

Si différent de “Midi-Pyrénées” => Page 18

Page 3

4. Selon quelle fréquence achetez-vous des produits dans les catégories suivantes?

Choisissez la fréquence qui représente le mieux votre situation pour chaque type de produit.

1-Au moins 2 ou 3 fois par semaine; 2-Une fois par semaine; 3-2 ou 3 fois par mois; 3-Une fois par mois; ; 5-Moins d'une fois par mois; 6-Jamais

- Légumes ou fruits frais 1-2-3-4-5-6
- Viande/volailles 1-2-3-4-5-6
- Produits laitiers 1-2-3-4-5-6
- Œufs 1-2-3-4-5-6
- Pain 1-2-3-4-5-6
- Produits élaborés: confiture, miel 1-2-3-4-5-6

5. Lorsque vous achetez des produits dans ces catégories, faites-vous attention à l'origine et essayez-vous d'acheter des produits de provenance spécifiques?

Choisissez une réponse pour chaque ligne.

1-Presque toujours; 2-Souvent; 3-Environ la moitié du temps; 4-Rarement; 5-Jamais

- Légumes ou fruits frais 1-2-3-4-5
- Viande/volailles 1-2-3-4-5
- Produits laitiers 1-2-3-4-5
- Œufs 1-2-3-4-5
- Pain 1-2-3-4-5
- Produits élaborés: confiture, miel 1-2-3-4-5

6. Pour vous, quelle est l'importance des critères suivants lorsque vous achetez des produits périssables (fruits et légumes frais, œufs, produits laitiers et carnés):

1-Extrêmement important; 2-Très important; 3-Modérément important; 4-Peu important; 5-Pas important du tout

- Variété	1-2-3-4-5
- Apparence (couleur, aspect visuel)	1-2-3-4-5
- Goût	1-2-3-4-5
- Valeur nutritionnelle	1-2-3-4-5
- Certification biologique	1-2-3-4-5
- Label de qualité	1-2-3-4-5
- Utilisation de pesticides	1-2-3-4-5
- Risques d'intoxications alimentaires	1-2-3-4-5
- Marque (produit/magasin)	1-2-3-4-5
- Praticité de l'emballage	1-2-3-4-5
- Lieu de production	1-2-3-4-5
- Lieu de vente	1-2-3-4-5
- Impact environnemental	1-2-3-4-5
- Prix	1-2-3-4-5

Page 4

7. **Selon quelle fréquence achetez-vous vos produits alimentaires dans les magasins suivants?**

1-Au moins 2 ou 3 fois par semaine; 2-Une fois par semaine; 3-2 ou 3 fois par mois; 4-Une fois par mois; 5-Moins d'une fois par mois; 6-Jamais

- Supermarché/Hypermarché	1-2-3-4-5
- Magasin de proximité	1-2-3-4-5
- Magasin bio	1-2-3-4-5
- Magasin spécialisé (ex: boucherie, charcuterie)	1-2-3-4-5
- Marché de producteurs (en saison)	1-2-3-4-5
- Directement aux producteurs en saison (mais différent des marchés de producteurs; ex: AMAP)	1-2-3-4-5
- Autre type de magasin	1-2-3-4-5

8. **Si vous avez répondu autre chose que "jamais" à la question précédente pour "autre type de magasin" (7.7), veuillez préciser SVP:**

Page 5

9. Êtes-vous familier(e) avec les structures de vente de produits fermiers suivantes?

1-Très familier(e), je sais ce que c'est; 2-Familier, je sais à peu près ce que c'est mais je ne pourrai pas donner une définition exacte; 3-J'en ai entendu parler mais je ne sais pas vraiment ce que c'est; 4-Je n'en ai jamais entendu parler

- Marché de producteurs 1-2-3-4
- PVC (Point de Vente Collectif) 1-2-3-4
- AMAP (Association pour le Maintien de l'Agriculture Paysanne) 1-2-3-4

10. Savez-vous où vous pouvez accéder aux structures de vente de produits fermiers suivantes près de chez vous?

1-Oui, je sais où c'est et quand/comment je peux acheter; 2-Oui, je sais où c'est mais je ne sais pas vraiment quand/comment je peux acheter; 3-Je sais à peu près où c'est; 4-Je sais qu'il y en a une mais je ne sais pas où c'est; 5-Je n'en ai aucune idée

- Marché de producteurs 1-2-3-4-5
- PVC (point de Vente Collectif) 1-2-3-4-5
- AMAP (Association pour le Maintien de l'Agriculture Paysanne) 1-2-3-4-5

Page 6

Quelle est la distance maximale que vous seriez prêt(e) à effectuer par rapport à vos trajets habituels pour acheter de la nourriture directement à des producteurs chaque semaine? Si vous achetez déjà directement à des producteurs, veuillez répondre en terme de distance supplémentaire que vous effectuez.

11. Merci d'indiquer le nombre total de minutes (aller-retour) pour un trajet <u>à pied</u>.

12. Merci d'indiquer le nombre total de minutes (aller-retour) pour un trajet en <u>transports en commun</u>.

13. Merci d'indiquer le nombre total de minutes (aller-retour) pour un trajet en <u>voiture</u>.

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14. Que pensez-vous des activités suivantes?

1-Adore; 2-Aime; 3-Indifférent; 4-N'aime pas particulièrement; 5-N'aime pas du tout	
- Consommer des produits frais	1-2-3-4-5
- Consommer des produits sains	1-2-3-4-5
- Cuisiner à partir de produits bruts	1-2-3-4-5
- Découvrir les produits en fonction des saisons	1-2-3-4-5
- Savoir d'où vient la nourriture	1-2-3-4-5
- Respecter l'environnement	1-2-3-4-5
- Soutenir un producteur local	1-2-3-4-5
- Participer aux travaux de la ferme	1-2-3-4-5
- Apprendre comment cultivar des cultures vivrières	1-2-3-4-5
- Emmener les enfants à la ferme (choisissez 3 si cette question ne vous concerne pas)	1-2-3-4-5

Page 8

Veuillez lire attentivement les moyens suivants permettant d'acheter de la nourriture directement aux producteurs:

- **Magasins proposant des produits alimentaires locaux**: Magasins qui vendent des produits fermiers avec l'indication de leur provenance.

- **Marchés de producteurs**: Ces marchés ont lieu régulièrement dans un endroit précis. Des producteurs et d'autres vendeurs viennent vendre de la nourriture ou d'autres produits directement aux consommateurs.

- **Vente à la ferme (ou en bord de route)**: Ces points de vente à la ferme ou en bord de route proposent des produits fermiers. Ils peuvent proposer un seul produit ou bien une plus large variété de produits.

- **Magasin de producteur**: Le producteur possède un magasin dans lequel il propose ses produits toute l'année.

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- **Point de Vente Collectif (PVC)**: Un PVC est un lieu de vente géré par des producteurs, qui ont choisi de se regrouper pour vendre leurs produits.

- **Association Pour le Maintien d'une Agriculture Paysanne (AMAP)**: Une AMAP est une association entre des consommateurs et un producteur, qui a pour but de tisser des liens autour d'un panier de produits livré régulièrement. Les consommateurs achètent une part de la récolte au début de la saison. En retour, ils reçoivent un panier de produits régulièrement (chaque semaine en général) ainsi que la possibilité de participer aux activités de la ferme. Les membres d'une AMAP partagent avec le producteur les risques liés à la production, incluant des récoltes faibles dues aux mauvaises conditions climatiques ou aux maladies par exemple.

- **AMAP "faible engagement"**: Les consommateurs payent une cotisation annuelle pour devenir membres de l'AMAP puis payent ensuite à la quantité de produits achetés.

15. Dans quelle mesure appréciez-vous les structures de vente suivantes pour acheter des produits fermiers?

1-Adore; 2-Aime; 3-Indifférent; 4-N'aime pas particulièrement; 5-N'aime pas du tout

- Magasin proposant des produits alimentaires locaux	1-2-3-4-5
- Marché de producteurs	1-2-3-4-5
- Vente à la ferme (ou en bord de route)	1-2-3-4-5
- Magasin de producteurs	1-2-3-4-5
- PVC (Point de Vente Collectif)	1-2-3-4-5
- AMAP (Association pour le Maintien d'une Agriculture Paysanne)	1-2-3-4-5
- AMAP "faible engagement"	1-2-3-4-5

16. Selon quelle fréquence achetez-vous de la nourriture dans ces structures (pendant la saison)?

1-Régulièrement (une fois par semaine); 2-Souvent (2 ou 3 fois par mois); 3-Parfois (une fois par mois); 4-Rarement (une fois tous les 2 ou 3 mois); 5-Jamais

- Magasin proposant des produits alimentaires locaux	1-2-3-4-5
- Marché de producteurs	1-2-3-4-5
- Vente à la ferme (ou en bord de route)	1-2-3-4-5
- Magasin de producteurs	1-2-3-4-5
- PVC (Point de Vente Collectif)	1-2-3-4-5
- AMAP (Association pour le Maintien d'une Agriculture Paysanne)	1-2-3-4-5
- AMAP "faible engagement"	1-2-3-4-5

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17. Quels sont les critères auxquels vous porteriez attention pour rejoindre une AMAP?

Estimez l'attention que vous auriez pour ces critères avant de devenir membre d'une AMAP.

1-Beaucoup d'attention; 2-Une certaine attention; 3-Une faible attention; 4-Aucune attention

- Prix au panier 1-2-3-4
- Distance du lieu de livraison 1-2-3-4
- Horaire et jour de livraison 1-2-3-4
- Types de produits disponibles 1-2-3-4
- Quantité de produits fournis chaque semaine 1-2-3-4
- Engagement avec la ferme 1-2-3-4

18. Seriez-vous prêt(e) à devenir membre d'un AMAP ou d'une AMAP "faible engagement" si vous en aviez l'opportunité?

1-Oui, très certainement; 2-Oui, probablement; 3-Je ne suis pas sûr; 4-Probablement non; 5-Jamais

- AMAP (Association pour le Maintien d'une Agriculture Paysanne) 1-2-3-4-5
- AMAP "faible engagement" 1-2-3-4-5

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Veuillez lire attentivement s'il vous plaît.

Supposez que vous songiez à devenir membre d'une AMAP. Pour choisir quelle AMAP rejoindre, vous avez collecté diverses informations à propos de plusieurs AMAP: le prix au panier, la variété des produits proposés, etc. Ces différentes informations sont définies comme suit.

- Le **prix au panier** est le prix total que vous allez payer au producteur en début d'année divisé par le nombre de paniers que vous allez recevoir dans l'année (un panier par semaine pendant X semaines).

- La **variété** est le type de produits que vous recevrez pendant l'année.
    - "Leg" signifie que vous recevrez des légumes • chaque semaine;
    - "Leg+Œufs" signifie que vous recevrez des légumes et des oeufs chaque semaine;
    - "Leg+Œufs+Viande" signifie que vous recevrez des légumes et des œufs chaque semaine et que vous aurez la possibilité de commander de la viande et qu'elle vous sera livrée de façon régulière. Vous paierez pour la viande en plus de votre part annuelle, en fonction du type de viande (boeuf, porc, volaille, mouton) et de la quantité commandée.

Page 12

- Le **choix de production** est la force de proposition que vous avez dans le choix des produits qui vont être produits et livrés dans l'année:

  - "Oui" signifie que vous participez aux décisions avec le producteur et les autres membres de l'AMAP au début de l'année;
  - "Non" signifie que vous prenez simplement les produits que vous propose le producteur.

- Le **lieu de livraison** est le lieu où vous recevez votre panier de produits:

  - "Ferme" signifie que vous allez chercher votre panier directement à la ferme chaque semaine;
  - "Point de livraison" signifie que vous allez chercher votre panier chaque semaine dans un lieu défini plus pratique pour vous que la ferme (ex: dans un parking ou chez un autre membre de l'AMAP, plus proche de chez vous ou de votre lieu de travail que la ferme);
  - "Domicile" signifie que quelqu'un vous livre votre panier directement à votre domicile ou sur votre lieu de travail chaque semaine.

Page 13

- **Disponibilité** est la durée pendant laquelle vous allez recevoir des produits fermiers:

  - "Mai-Oct" correspond à 24 semaines ou 6 mois, de mai à octobre.
  - "Avr-Nov" correspond à 32 semaines ou 8 mois, de avril à novembre.

- Enfin, l'**engagement associatif** reflète s'il vous est demandé de participer au fonctionnement de l'AMAP:

  - "Oui" signifie qu'il vous est demandé de travailler au moins 2 demi-journées par saison pour l'AMAP (ex: pour livrer ou récolter).
  - "Non" signifie qu'il ne vous est pas demandé du tout de travailler pour l'AMAP.

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19. **Supposez que vous deveniez membre d'une AMAP. Cette AMAP propose chaque semaine un panier comprenant 9 types de légumes différents (ex: 1 kg de pommes de terre + 1 botte de poireaux + 1 bouquet de persil + etc.) choisis par le producteur. Vous récupérez votre panier dans un lieu se trouvant à 15 minutes de votre trajet habituel. Les paniers seront distribués d'avril à octobre (28 semaines) et il ne vous est pas demandé de travailler pour l'AMAP.**

    Combien seriez-vous prêt(e) à payer par panier pour devenir membre de cette AMAP? Veuillez donner votre réponse en Euro (mettez "0" si vous n'êtes pas prêt(e) à payer pour devenir membre de cette AMAP).

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Pour chaque question ci-après, veuillez comparer les deux AMAP ayant des caractéristiques différentes, choisissez celle don't vous deviendriez membre, ou aucune. La troisième option, "Aucune", signifie que vous ne deviendriez pas membre de l'une des AMAP proposées.

20. Choix 1

	AMAP 1	AMAP 2	
Prix au panier	15€	12€	**Aucune**
Variété	Leg+Oeufs	Leg+Oeufs+Viande(avec un coût supplémentaire)	
Choix de production	Oui	Non	
Lieu de livraison	Point de livraison	Ferme	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

21. Choix 2

	AMAP 1	AMAP 2	
Prix au panier	15€	12€	**Aucune**
Variété	Leg+Oeufs	Leg	
Choix de production	Oui	Non	
Lieu de livraison	Domicile	Ferme	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

22. Choix 3

	AMAP 1	AMAP 2	
Prix au panier	18€	12€	**Aucune**
Variété	Leg+Oeufs	Leg+Oeufs+Viande(avec un coût supplémentaire)	
Choix de production	Non	Oui	
Lieu de livraison	Ferme	Domicile	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

23. Choix 4

	AMAP 1	AMAP 2	
Prix au panier	18€	12€	**Aucune**
Variété	Leg+Oeufs+Viande(avec un coût supplémentaire)	Leg	
Choix de production	Non	Oui	
Lieu de livraison	Point de livraison	Domicile	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

24. Choix 5

	AMAP 1	AMAP 2	
Prix au panier	18€	15€	**Aucune**
Variété	Leg	Leg+Oeufs	
Choix de production	Oui	Non	
Lieu de livraison	Point de livraison	Ferme	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

25. Choix 6

	AMAP 1	AMAP 2	
Prix au panier	18€	15€	**Aucune**
Variété	Leg+Oeufs+Viande(avec un coût supplémentaire)	Leg	
Choix de production	Oui	Non	
Lieu de livraison	Domicile	Point de livraison	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

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26. Veuillez entrer votre code postal:

27. Quel est votre sexe?

- Homme
- Femme

28. Quel âge avez-vous?

- Moins de 20 ans
- Entre 20 et 24 ans
- Entre 25 et 34 ans
- Entre 35 et 44 ans
- Entre 45 et 54 ans
- Entre 55 et 64 ans
- Plus de 65 ans

29. Race is not asked for the French version

30. Combien de personnes (en moyenne) votre facture alimentaire couvre t'elle?

Merci d'indiquer le nombre de personnes pour chaque classe d'âge (note: 10 = zéro personne)

1-une; 2-deux; 3-trois; 4-quatre; 5-cinq; 6-six; 7-sept; 8-huit; 9-neuf ou plus; 10-zero	
- Moins de 2 ans	1-2-3-4-5-6-7-8-9-10
- De 2 à 5 ans	1-2-3-4-5-6-7-8-9-10
- De 6 à 13 ans	1-2-3-4-5-6-7-8-9-10
- De 14 à 17 ans	1-2-3-4-5-6-7-8-9-10
- De 18 à 24 ans	1-2-3-4-5-6-7-8-9-10
- De 25 à 44 ans	1-2-3-4-5-6-7-8-9-10
- De 45 à 64 ans	1-2-3-4-5-6-7-8-9-10
- Plus de 65 ans	1-2-3-4-5-6-7-8-9-10

31. Quel est votre plus haut niveau de formation?

- Bac+4/5 ou plus
- Bac+3 (Licence ou équivalent)
- Bac+1/2
- Baccalauréat général, technologique ou professionnel
- BEP, CAP ou équivalent
- BEPC (brevet des collèges)
- Pas de formation au-delà du collège

32. Quel est le revenu annuel de votre ménage avant impôts?

- Moins de 13 000€
- Entre 13 000€ et 22 999€
- Entre 23 000€ et 27 999€
- Entre 28 000€ et 37 999€
- Entre 38 000€ et 47 999€
- Entre 48 000€ et 77 999€
- Plus de 78 000€

33. Quelle est votre activité principale?

- Agriculture, sylviculture, pêche
- Industrie
- Construction
- Commerce
- Services
- Sans emploi
- Etudiant
- Retraité
- Autre: _____

34. Combien de personnes travaillent pour l'entreprise/l'organisme pour lequel vous travaillez?

- Non applicable
- Moins de 10
- Entre 10 et 19
- Entre 20 et 99
- Entre 100 et 499
- Plus de 500

35. Êtes-vous membre d'une association ou d'une communauté? (cochez toutes les réponses vous concernant)

- Aucune
- Association caritative
- Organisation communautaire (ex: mairie, club sportif)
- Organisation professionnelle (ex: syndicat)
- Parti politique
- Organisation religieuse
- Association scolaire (ex: association de parents d'élèves)
- Autre: _____

36. Avez-vous des commentaires, des opinions ou des suggestions à propos des AMAP ou plus généralement à propos de la nourriture achetée directement aux producteurs? Si oui, merci d'utiliser l'espace ci-dessous.

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Félicitations!

Vous avez entièrement répondu à cette enquête. Merci de cliquer sur le lien suivant:

http://dkr1.ssisurveys.com/projects/end?rst=1

Merci pour votre temps et vos opinions!

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Merci pour votre intérêt pour cette étude. Malheureusement, il apparaît que vos réponses ne correspondent pas aux critères permettant de répondre entièrement à cette enquête. Merci de cliquer sur le lien ci-dessous.

http://dkr1.ssisurveys.com/projects/end?rst=2

Merci pour votre temps et vos opinions!

Closing Message

Merci d'avoir répondu à cette enquête.

Version 2 Choice Experiment

20. Choix 1

	AMAP 1	AMAP 2	
Prix au panier	18€	12€	**Aucune**
Variété	Leg	Leg+Oeufs+Viande(avec un coût supplémentaire)	
Choix de production	Non	Oui	
Lieu de livraison	Domicile	Ferme	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

21. Choix 2

	AMAP 1	AMAP 2	
Prix au panier	15€	12€	**Aucune**
Variété	Leg+Oeufs+Viande(avec un coût supplémentaire)	Leg	
Choix de production	Non	Oui	
Lieu de livraison	Domicile	Point de livraison	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

22. Choix 3

	AMAP 1	AMAP 2	
Prix au panier	15€	12€	**Aucune**
Variété	Leg	Leg+Oeufs	
Choix de production	Non	Oui	
Lieu de livraison	Point de livraison	Domicile	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

23. Choix 4

	AMAP 1	AMAP 2	
Prix au panier	18€	15€	**Aucune**
Variété	Leg+Oeufs	Leg+Oeufs+Viande(avec un coût supplémentaire)	
Choix de production	Non	Oui	
Lieu de livraison	Domicile	Ferme	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

24. Choix 5

	AMAP 1	AMAP 2	
Prix au panier	18€	15€	**Aucune**
Variété	Leg+Oeufs	Leg+Oeufs+Viande(avec un coût supplémentaire)	
Choix de production	Non	Oui	
Lieu de livraison	Ferme	Point de livraison	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

25. Choix 6

	AMAP 1	AMAP 2	
Prix au panier	18€	12€	**Aucune**
Variété	Leg	Leg+Oeufs	
Choix de production	Oui	Non	
Lieu de livraison	Ferme	Point de livraison	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Oui	Non	

CSA 1: O CSA 2: O None: O

Version 3 Choice Experiment

20. Choix 1

	AMAP 1	AMAP 2	
Prix au panier	15€	12€	**Aucune**
Variété	Leg	Leg+Oeufs+Viande(avec un coût supplémentaire)	
Choix de production	Oui	Non	
Lieu de livraison	Ferme	Domicile	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

21. Choix 2

	AMAP 1	AMAP 2	
Prix au panier	18€	12€	**Aucune**
Variété	Leg	Leg+Oeufs	
Choix de production	Oui	Non	
Lieu de livraison	Domicile	Point de livraison	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

22. Choix 3

	AMAP 1	AMAP 2	
Prix au panier	18€	15€	**Aucune**
Variété	Leg+Oeufs+Viande(avec un coût supplémentaire)	Leg+Oeufs	
Choix de production	Non	Oui	
Lieu de livraison	Point de livraison	Ferme	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

23. Choix 4

	AMAP 1	AMAP 2	
Prix au panier	15€	12€	**Aucune**
Variété	Leg+Oeufs+Viande(avec un coût supplémentaire)	Leg+Oeufs	
Choix de production	Non	Oui	
Lieu de livraison	Ferme	Point de livraison	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

24. Choix 5

	AMAP 1	AMAP 2	
Prix au panier	18€	12€	**Aucune**
Variété	Leg+Oeufs+Viande(avec un coût supplémentaire)	Leg	
Choix de production	Oui	Non	
Lieu de livraison	Point de livraison	Domicile	
Disponibilité	Avr-Nov	Mai-Oct	
Engagement associatif	Oui	Non	

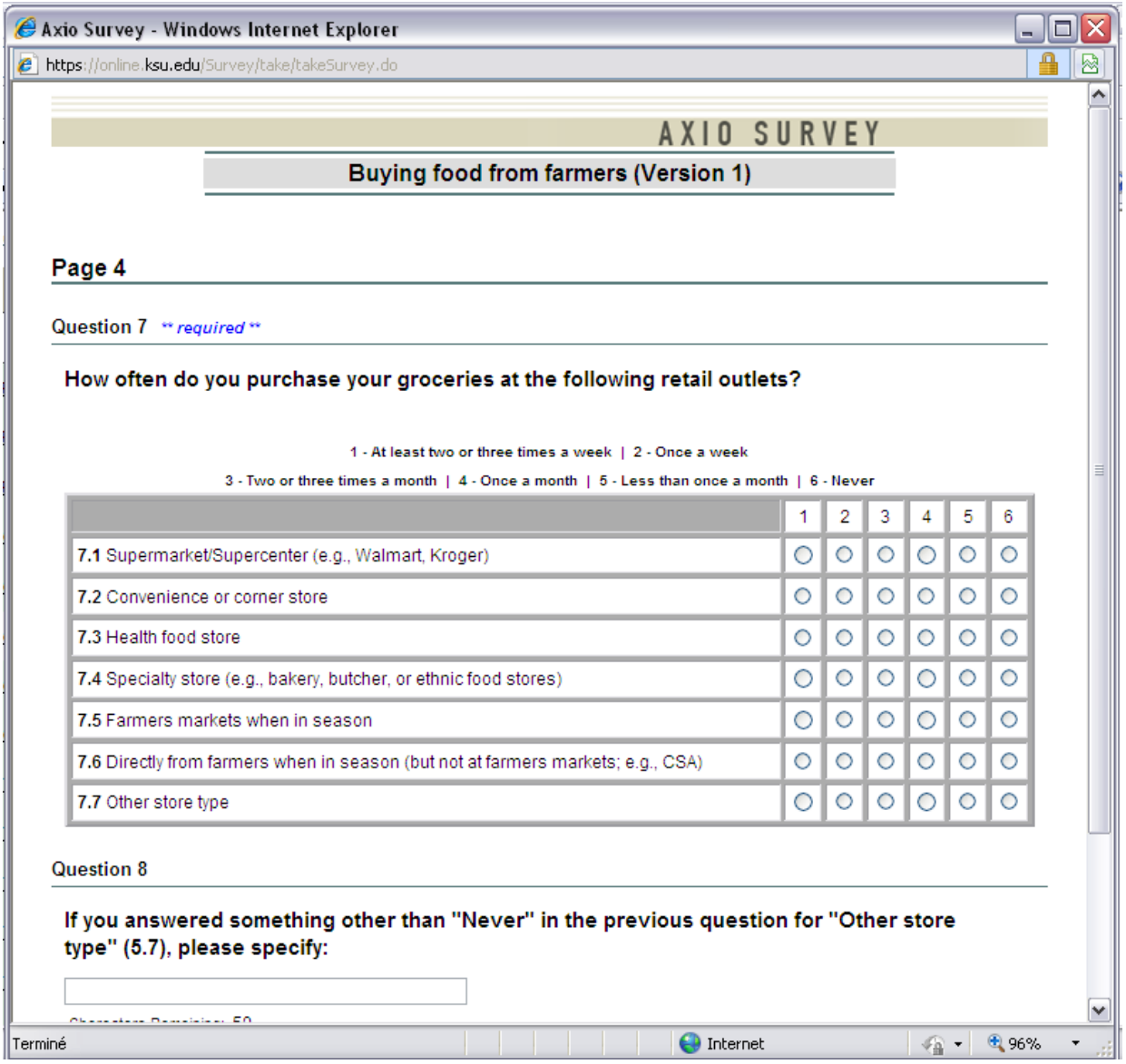
CSA 1: O CSA 2: O None: O

25. Choix 6

	AMAP 1	AMAP 2	
Prix au panier	18€	15€	**Aucune**
Variété	Leg+Oeufs	Leg	
Choix de production	Oui	Non	
Lieu de livraison	Ferme	Domicile	
Disponibilité	Mai-Oct	Avr-Nov	
Engagement associatif	Non	Oui	

CSA 1: O CSA 2: O None: O

Appendix 5: Survey design example



Appendix 6: SAS code example to prepare the choice experiment

```
%let var = choice price variety input delivery availability work;
%let class = choice price variety input delivery availability work;
%let factors = choice=18 price=3 variety=3 input=2 delivery=3 availability=2
work=2;
%let levels = choice        cvals=('A' 'B' 'C' 'D' 'E' 'F' 'G' 'H' 'I' 'J' 'K'
'L' 'M' 'N' 'O' 'P' 'Q' 'R')
                    price         nvals=(280 350 420)
                    variety       cvals=('veg' 'veg+eggs' 'veg+eggs+meat')
                    input         cvals=('yes' 'no')
                    delivery      cvals=('farm' 'pick-up' 'home')
                    availability  nvals=(32 24)
                    work          cvals=('yes' 'no');
%let model = choice price variety input delivery availability work;

proc plan ordered;
factors choice=18 price=3 variety=3 input=2 delivery=3 availability=2 work=2;
output out=design1
                  choice         cvals=('A' 'B' 'C' 'D' 'E' 'F' 'G' 'H' 'I' 'J'
'K' 'L' 'M' 'N' 'O' 'P' 'Q' 'R')
                  price         nvals=(280 350 420)
                  variety       cvals=('veg' 'veg+eggs' 'veg+eggs+meat')
                  input         cvals=('yes' 'no')
                  delivery      cvals=('farm' 'pick-up' 'home')
                  availability  nvals=(32 24)
                  work          cvals=('yes' 'no');
run;

proc print data=design1;
run;

data design2;
        set design1;
                  if price =: 420 and variety =:'veg'and input =:'no' and
delivery =:'farm' and availability =: 24 and work =:'yes' then delete;
                  if price =: 280 and variety =:'veg+eggs+meat' and input
=:'yes' and delivery =:'home' and availability =: 32 and work =:'no' then
delete;

proc optex data=design2 coding=orth seed=150;
           class &class;
           model &model;
           generate n=36 method=m_federov;
           output out=design3;
run;

proc print data=design3;
run;

proc freq data=design3;
run;
%mktdups(generic, data=design3,
factors = choice price variety input delivery availability work, nalts=1)
```

Appendix 7: Limdep code example for the tobit model

```
read; nobs=297; nvar=14;
names=price,gender,age,child,edu,inc,directff,famcsa,mindriv,eatfresh,cook,kno
wing,support,apcsa$
```

"DATA"

```
namelist;   x                                                              =
one,gender,age,child,edu,inc,directff,famcsa,mindriv,eatfresh,cook,knowing,apc
sa,support$
tobit;      Lhs=price
            ;     Rhs=x $
matrix;     xb1 = mean(x); xb0 = xb1 $
matrix;     xb1(14) = 1 $
matrix;     xb0(14) = 0 $
calc  ;     v = s $
wald;       labels = b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14
            ;     start = b; var = varb
            ;     Fn1 = 1 - phi((-b1'xb1)/v)
            ;     Fn2 = 1 - phi((-b1'xb0)/v)
            ;     Fn3 = N01((-b1'xb1)/v)
            ;     Fn4 = N01((-b1'xb0)/v)
            ;     Fn5 = Fn1*(b1'xb1 + v*Fn3/Fn1) - Fn2*(b1'xb0 + v*Fn4/Fn2) $
```

Appendix 8: SAS code example to prepare data for Limdep

```
data readylimdepus;
set ussurvey;

array vec1{3} p1-p3;
array vec2{3} veg1-veg3;
array vec3{3} vegegg1-vegegg3;
array vec4{3} wmeat1-wmeat3;
array vec5(3) choicemix1-choicemix3;
array vec6(3) farm1-farm3;
array vec7(3) pickup1-pickup3;
array vec8(3) home1-home3;
array vec9(3) avail1-avail3;
array vec10(3) work1-work3;

do i=1 to 3;
      decision=(choice=i);
      price=vec1{i};
      vegetables=vec2{i};
      vegandeggs=vec3{i};
      withmeat=vec4{i};
      choicemix=vec5(i);
      farm=vec6(i);
      pickup=vec7(i);
      home=vec8(i);
      avail=vec9(i);
      work=vec10(i);
      output;
      end;
run;
```

Appendix 9: Limdep code example for the multinomial logit model

```
read; nobs=5436; nvar=11;
names=alt,choice,price,vegeggs,wmeat,mix,farm,pickup,home,avail,work$
```

"DATA"

```
nlogit;Lhs=choice;choices=1,2,3;Rhs=price,vegeggs,wmeat,mix,farm,pickup,home,a
vail,work;print VCV;$
```

Appendix 10: Limdep code example for the mixed logit model without demographic variables

```
read; nobs=5436; nvar=11;
names=alt,choice,price,vegeggs,wmeat,mix,farm,pickup,home,avail,work$
```

"DATA"

```
nlogit;Lhs=choice;choices=1,2,3;Rhs=price,vegeggs,wmeat,mix,farm,pickup,home,a
vail,work;print VCV;

RPL;
FCN=vegeggs(n),wmeat(n),mix(n),farm(n),pickup(n),home(n),avail(n),work(n);Halt
on;PTS=100;$
```

Appendix 11: Limdep code example for the mixed logit model with demographic variables

```
read; nobs=5436; nvar=16;
names=gender,age,size,edu,inc,alt,choice,price,vegeggs,wmeat,mix,farm,pickup,h
ome,avail,work$
```

"DATA"

```
nlogit;Lhs=choice;choices=1,2,3;Rhs=price,vegeggs,wmeat,mix,farm,pickup,home,a
vail,work;print VCV;
RPL=age,edu,inc;
FCN=vegeggs(n),wmeat(n),mix(n),farm(n),pickup(n),home(n),avail(n),work(n);Halt
on;PTS=100;$
```

Appendix 12: Limdep code example for the latent class model

```
read; nobs=5436; nvar=16;
names=gender,age,size,edu,inc,alt,choice,price,vegeggs,wmeat,mix,farm,pickup,h
ome,avail,work$
```

"DATA"

```
nlogit;Lhs=choice;choices=1,2,3;Rhs=price,vegeggs,wmeat,mix,farm,pickup,home,a
vail,work;print VCV;
Lcm=one,age,edu,inc;Pts:2$
```

Appendix 13: Limdep code example to compute the WTP using the WALD procedure

```
READ; Nobs=9; Nvar=9; Matrix=VX$
```
"Covariance Matrix"

```
READ; Nobs=9; Nvar=1; Matrix=bX $
.47349499
.91273237
.79102408
2.54269455
2.83542948
3.14783785
-.01082703
-1.14101933
-.01264032

WALD;
Labels=E, M, I, F, K, H, A, W, p
;start=bX
;Var=VX
;Fn1=-(E/p)
;Fn2=-(M/p)
;Fn3=-(I/p)
;Fn4=-(F/p)
;Fn5=-(K/p)
;Fn6=-(H/p)
;Fn7=-(A/p)
;Fn8=-(W/p) $
```

Appendix 14: Correlation Matrix (Pearson) for question 6 (US)

Variables	Variety	Appearance	Taste	Nutrition	Certified organic	Third-party verified	Pesticide use	Risk of food-borne illnesses	Brand	Convenient packaging	Where it was produced	Where it is sold	Environmental impact	Price
Variety	**1**	**0,409**	**0,341**	**0,399**	**0,167**	**0,129**	**0,269**	**0,162**	**0,210**	**0,223**	**0,317**	**0,257**	**0,275**	0,110
Appearance	**0,409**	**1**	**0,631**	**0,407**	0,026	0,015	**0,181**	**0,348**	**0,150**	0,043	**0,158**	**0,222**	**0,181**	**0,319**
Taste	**0,341**	**0,631**	**1**	**0,580**	0,020	0,040	**0,201**	**0,407**	**0,193**	0,041	**0,157**	**0,190**	**0,174**	**0,417**
Nutrition	**0,399**	**0,407**	**0,580**	**1**	**0,264**	**0,322**	**0,402**	**0,403**	**0,228**	**0,160**	**0,289**	**0,301**	**0,379**	**0,265**
Certified organic	**0,167**	0,026	0,020	**0,264**	**1**	**0,773**	**0,581**	**0,296**	**0,192**	**0,198**	**0,528**	**0,357**	**0,614**	-0,051
Third-party verified	**0,129**	0,015	0,040	**0,322**	**0,773**	**1**	**0,633**	**0,338**	**0,291**	**0,148**	**0,520**	**0,393**	**0,560**	-0,015
Pesticide use	**0,269**	**0,181**	**0,201**	**0,402**	**0,581**	**0,633**	**1**	**0,548**	**0,257**	**0,182**	**0,528**	**0,437**	**0,557**	0,093
Risk of food-borne illnesses	**0,162**	**0,348**	**0,407**	**0,403**	**0,296**	**0,338**	**0,548**	**1**	**0,194**	0,084	**0,336**	**0,300**	**0,430**	**0,139**
Brand	**0,210**	**0,150**	**0,193**	**0,228**	**0,192**	**0,291**	**0,257**	**0,194**	**1**	**0,399**	**0,296**	**0,471**	**0,290**	0,099
Convenient packaging	**0,223**	0,043	0,041	**0,160**	**0,198**	**0,148**	**0,182**	0,084	**0,399**	**1**	**0,213**	**0,255**	**0,262**	**0,159**
Where it was produced	**0,317**	**0,158**	**0,157**	**0,289**	**0,528**	**0,520**	**0,528**	**0,336**	**0,296**	**0,213**	**1**	**0,596**	**0,606**	0,046
Where it is sold	**0,257**	**0,222**	**0,190**	**0,301**	**0,357**	**0,393**	**0,437**	**0,300**	**0,471**	**0,255**	**0,596**	**1**	**0,501**	**0,124**
Environmental impact	**0,275**	**0,181**	**0,174**	**0,379**	**0,614**	**0,560**	**0,557**	**0,430**	**0,290**	**0,262**	**0,606**	**0,501**	**1**	0,053
Price	0,110	**0,319**	**0,417**	**0,265**	-0,051	-0,015	0,093	**0,139**	0,099	**0,159**	0,046	**0,124**	0,053	**1**

Values in bold are different from 0 with a significance level alpha=0,05

Appendix 15: Correlation Matrix (Pearson) for question 6 (France)

Variables	Variety	Appearance	Taste	Nutrition	Certified organic	Third-party verified claims	Pesticide use	Risk of food-borne illnesses	Brand	Convenient packaging	Where it was produced	Where it is sold	Environmental impact	Price
Variety	**1**	**0,228**	**0,279**	**0,244**	**0,217**	**0,246**	**0,215**	**0,203**	**0,153**	**0,282**	**0,214**	**0,220**	**0,222**	0,069
Appearance	**0,228**	**1**	**0,279**	0,057	-0,038	0,034	0,064	0,056	**0,226**	**0,209**	0,063	0,052	-0,034	**0,159**
Taste	**0,279**	**0,279**	**1**	**0,344**	0,108	**0,268**	**0,248**	**0,286**	0,059	**0,116**	**0,262**	**0,244**	**0,209**	**0,256**
Nutrition	**0,244**	0,057	**0,344**	**1**	**0,521**	**0,414**	**0,454**	**0,341**	**0,182**	**0,224**	**0,412**	**0,374**	**0,482**	**0,119**
Certified organic	**0,217**	-0,038	0,108	**0,521**	**1**	**0,662**	**0,620**	**0,295**	**0,170**	**0,278**	**0,552**	**0,383**	**0,675**	-0,069
Third-party verified claims	**0,246**	0,034	**0,268**	**0,414**	**0,662**	**1**	**0,579**	**0,383**	**0,244**	**0,214**	**0,586**	**0,458**	**0,545**	-0,008
Pesticide use	**0,215**	0,064	**0,248**	**0,454**	**0,620**	**0,579**	**1**	**0,578**	**0,155**	**0,266**	**0,602**	**0,415**	**0,642**	0,035
Risk of food-borne illnesses	**0,203**	0,056	**0,286**	**0,341**	**0,295**	**0,383**	**0,578**	**1**	0,066	**0,166**	**0,434**	**0,253**	**0,445**	0,104
Brand	**0,153**	**0,226**	0,059	**0,182**	**0,170**	**0,244**	**0,155**	0,066	**1**	**0,389**	**0,175**	**0,309**	**0,156**	0,016
Convenient packaging	**0,282**	**0,209**	**0,116**	**0,224**	**0,278**	**0,214**	**0,266**	**0,166**	**0,389**	**1**	**0,313**	**0,400**	**0,386**	0,102
Where it was produced	**0,214**	0,063	**0,262**	**0,412**	**0,552**	**0,586**	**0,602**	**0,434**	**0,175**	**0,313**	**1**	**0,584**	**0,658**	0,039
Where it is sold	**0,220**	0,052	**0,244**	**0,374**	**0,383**	**0,458**	**0,415**	**0,253**	**0,309**	**0,400**	**0,584**	**1**	**0,532**	0,043
Environmental impact	**0,222**	-0,034	**0,209**	**0,482**	**0,675**	**0,545**	**0,642**	**0,445**	**0,156**	**0,386**	**0,658**	**0,532**	**1**	0,040
Price	0,069	**0,159**	**0,256**	**0,119**	-0,069	-0,008	0,035	0,104	0,016	0,102	0,039	0,043	0,040	**1**

Values in bold are different from 0 with a significance level alpha=0,05

Appendix 16: Correlation Matrix (Pearson) for question 14 (US)

Variables	Eating fresh food	Eating healthy food	Cooking from scratch	Discovering what crops are in season	Knowing where the food comes from	Respecting the environment	Supporting a local farmer	Working on a farm	Learning about how food is grown	Bringing children to a farm
Eating fresh food	**1**	**0,648**	**0,361**	**0,355**	**0,362**	**0,374**	**0,406**	**0,190**	**0,239**	**0,126**
Eating healthy food	**0,648**	**1**	**0,329**	**0,369**	**0,451**	**0,431**	**0,342**	**0,257**	**0,348**	**0,151**
Cooking from scratch	**0,361**	**0,329**	**1**	**0,322**	**0,365**	**0,192**	**0,237**	**0,224**	**0,291**	**0,153**
Discovering what crops are in season	**0,355**	**0,369**	**0,322**	**1**	**0,690**	**0,449**	**0,479**	**0,383**	**0,599**	**0,301**
Knowing where the food comes from	**0,362**	**0,451**	**0,365**	**0,690**	**1**	**0,574**	**0,550**	**0,361**	**0,561**	**0,242**
Respecting the environment	**0,374**	**0,431**	**0,192**	**0,449**	**0,574**	**1**	**0,595**	**0,247**	**0,430**	**0,198**
Supporting a local farmer	**0,406**	**0,342**	**0,237**	**0,479**	**0,550**	**0,595**	**1**	**0,350**	**0,458**	**0,297**
Working on a farm	**0,190**	**0,257**	**0,224**	**0,383**	**0,361**	**0,247**	**0,350**	**1**	**0,569**	**0,293**
Learning about how food is grown	**0,239**	**0,348**	**0,291**	**0,599**	**0,561**	**0,430**	**0,458**	**0,569**	**1**	**0,361**
Bringing children to a farm (3 if not applicable)	**0,126**	**0,151**	**0,153**	**0,301**	**0,242**	**0,198**	**0,297**	**0,293**	**0,361**	**1**

Values in bold are different from 0 with a significance level alpha=0,05

Appendix 17: Correlation Matrix (Pearson) for question 14 (France)

Variables	Eating fresh food	Eating healthy food	Cooking from scratch	Discovering what crops are in season	Knowing where the food comes from	Respecting the environment	Supporting a local farmer	Working on a farm	Learning about how food is grown	Bringing children to a farm
Eating fresh food	**1**	**0,666**	**0,483**	**0,578**	**0,458**	**0,444**	**0,434**	**0,243**	**0,247**	**0,219**
Eating healthy food	**0,666**	**1**	**0,483**	**0,512**	**0,550**	**0,564**	**0,491**	**0,227**	**0,254**	**0,205**
Cooking from scratch	**0,483**	**0,483**	**1**	**0,557**	**0,374**	**0,413**	**0,480**	**0,279**	**0,274**	**0,317**
Discovering what crops are in season	**0,578**	**0,512**	**0,557**	**1**	**0,533**	**0,486**	**0,551**	**0,332**	**0,330**	**0,369**
Knowing where the food comes from	**0,458**	**0,550**	**0,374**	**0,533**	**1**	**0,703**	**0,611**	**0,308**	**0,353**	**0,320**
Respecting the environment	**0,444**	**0,564**	**0,413**	**0,486**	**0,703**	**1**	**0,648**	**0,356**	**0,402**	**0,299**
Supporting a local farmer	**0,434**	**0,491**	**0,480**	**0,551**	**0,611**	**0,648**	**1**	**0,423**	**0,415**	**0,358**
Working on a farm	**0,243**	**0,227**	**0,279**	**0,332**	**0,308**	**0,356**	**0,423**	**1**	**0,726**	**0,435**
Learning about how food is grown	**0,247**	**0,254**	**0,274**	**0,330**	**0,353**	**0,402**	**0,415**	**0,726**	**1**	**0,465**
Bringing children to a farm (3 if not applicable)	**0,219**	**0,205**	**0,317**	**0,369**	**0,320**	**0,299**	**0,358**	**0,435**	**0,465**	**1**

Values in bold are different from 0 with a significance level alpha=0,05