



HAL
open science

L'agriculture locale sous contrat direct : une opportunité de développement durable pour les territoires périurbains ?

Douadia Bougherara, Gilles Grolleau, Naoufel Mzoughi, . Association de Science Régionale de Langue Française, . Groupe de Recherche Sur Les Espaces Et Les Réseaux Du Bassin Méditerranéen

► To cite this version:

Douadia Bougherara, Gilles Grolleau, Naoufel Mzoughi, . Association de Science Régionale de Langue Française, . Groupe de Recherche Sur Les Espaces Et Les Réseaux Du Bassin Méditerranéen. L'agriculture locale sous contrat direct : une opportunité de développement durable pour les territoires périurbains?. 42. Colloque de l'ASRDLF: Développement local, compétitivité et attractivité des territoires, Sep 2006, Sfax, Tunisia. 30 p. hal-01939952

HAL Id: hal-01939952

<https://hal.science/hal-01939952>

Submitted on 6 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Intitulé du colloque : XLII^{ème} Colloque de l'ASRDLF – XII^{ème} Colloque du GRERBAM -
« Développement local, compétitivité et attractivité des territoires »

Lieu et date du colloque : Sfax, 4, 5 et 6 Septembre 2006

Auteurs : Douadia Bougherara

INRA ESR

4, Allée Adolphe Bobierre CS 61103

35011 RENNES CEDEX France

Tel: + 33 2 23 48 56 03 - Fax: + 33 2 23 48 53 80

Douadia.Bougherara@rennes.inra.fr

Gilles Grolleau (Corresponding author)

UMR INRA-ENESAD CESAER

26 Bd Dr Petitjean BP 87999 21079 Dijon Cedex France

Tel: + 33 3 80 77 24 43 - Fax: + 33 3 80 77 25 71

grolleau@enesad.inra.fr

Naoufel Mzoughi

UMR INRA-ENESAD CESAER

26 Bd Dr Petitjean BP 87999 21079 DIJON CEDEX France

Tel: + 33 3 80 77 24 39 - Fax: + 33 3 80 77 25 71

mzoughi@enesad.inra.fr

Titre de la communication: L'agriculture locale sous contrat direct : une opportunité de développement durable pour les territoires périurbains ?

Présentation de la communication: L'approvisionnement en denrées agricoles des ménages a considérablement évolué, depuis l'autoproduction jusqu'au développement de filières agro-alimentaires globalisées. Cette globalisation s'est traduite par des échanges dépersonnalisés, où l'identité du producteur compte peu au profit de produits standardisés garantis par un ensemble de dispositifs institutionnels relevant à la fois de l'ordre public et de l'ordre privé. A l'autre extrême et en faisant abstraction des situations de production par les ménages (assimilables à une forme d'intégration), intéressons nous brièvement aux filières courtes. Bien que cela puisse paraître anecdotique (Le Monde, 14-02-2006), le développement récent de filières courtes, comme la production agricole de proximité par contractualisation avec des agriculteurs constitue un élément pertinent de réflexion sur la panoplie des stratégies mises en place par certains agents pour diminuer les coûts de transaction associés à la fourniture d'attributs difficilement mesurables. Ainsi, ces contrats entre agriculteurs et consommateurs localisés à proximité redéfinissent les rapports au sein des filières agro-alimentaires (DeMuth, 1993 ; Farsworth et al., 1996 ; Cooley et Lass, 1996 ; Dubuisson-Quellier et Lamine, 2004). En effet, l'agriculteur cède aux consommateurs le droit de définir les productions et les méthodes de production (incluant de nombreuses dimensions caractérisées par une difficulté de mesure accrue, comme la fraîcheur, l'authenticité, la typicité, le respect de l'environnement lors de la production, mais aussi en diminuant les impacts liés au transport, la rémunération équitable du producteur, etc.) en échange d'un engagement à acheter ses produits pour une durée relativement longue à un prix quasi indépendant des prix pratiqués par les filières plus traditionnelles et des risques liés aux aléas naturels. De plus, les méthodes de production choisies s'apparentent très souvent à celles de l'agriculture biologique, mais les

consommateurs ne requièrent pas une certification formelle au nom du ‘contrat de confiance’ les liant au producteur. Notre objectif est d’analyser ces nouvelles modalités d’organisation des filières agro-alimentaires en mobilisant les deux branches complémentaires (plutôt que concurrentes) de l’économie des coûts de transaction (Williamson, 2005 ; Barzel, 2005). En d’autres termes, nous postulons que les transactions qui diffèrent par leur difficulté de mesure, sont alignées à des structures de gouvernance –marché spot, formes hybrides, intégration – qui diffèrent par leurs coûts afin d’atteindre un résultat qui minimise les coûts de transaction. Ces nouvelles formes d’organisation contractuelle participent à la redéfinition et à une répartition innovante de certains droits de propriété. En effet, la combinaison de ces deux branches de l’économie néo-institutionnelle permet d’expliquer la diversité des Ainsi, les consommateurs s’engagent à acheter à un prix convenu à l’avance sensé garantir une juste rémunération et indépendant des variations quantitatives ou qualitatives liées aux aléas naturels du producteur des denrées, dont le choix et les méthodes de production auront été faits en commun. Pour sa part, l’agriculteur s’engage dans une relation personnalisée, à fournir régulièrement des denrées produites dans le respect des méthodes définies conjointement. Ces nouvelles formes d’agriculture de proximité peuvent constituer des vecteurs de développement durable, notamment au travers des deux dimensions que nous envisageons d’étudier : le maintien d’une activité agricole rentable grâce à une répartition plus équitable des risques et de la valeur créée et la préservation de l’environnement. Par exemple, les denrées agro-alimentaires, y compris celles issues d’exploitations biologiques et consommées dans les villes ont souvent effectué un ‘long voyage’, coûteux en qualité (e.g., perte de fraîcheur, de certaines propriétés nutritives), mais aussi en impacts environnementaux (e.g., émission de gaz à effet de serre) susceptibles de surcompenser les gains environnementaux liés au mode de production biologique (Pirog et Shue, 2000). En d’autres termes, le citoyen consommateur pourrait par sa politique d’achat contribuer à la préservation de son environnement local. La communication vise notamment à présenter les résultats d’une étude plus vaste portant, entre autres sur les questions suivantes : Quels sont les avantages et inconvénients de cette agriculture de proximité pour les différentes catégories d’acteurs ? Quels sont les déterminants de l’adhésion des consommateurs citoyens à ce type d’agriculture ? Ce mode d’organisation peut-il constituer une ‘voie rentable’ de maintien d’une agriculture périurbaine, productrice de denrées et d’aménités consommées localement ?

Transaction Cost Economics and Agricultural Household Supply

Douadia Bougherara
INRA ESR
4, Allée Adolphe Bobierre CS 61103
35011 RENNES CEDEX France
Tel: + 33 2 23 48 56 03 - Fax: + 33 2 23 48 53 80
Douadia.Bougherara@rennes.inra.fr

Gilles Grolleau (Corresponding author)
UMR INRA-ENESAD CESAER
26 Bd Dr Petitjean BP 87999 21079 Dijon Cedex France
Tel: + 33 3 80 77 24 43 - Fax: + 33 3 80 77 25 71
grolleau@enesad.inra.fr

Naoufel Mzoughi
UMR INRA-ENESAD CESAER
26 Bd Dr Petitjean BP 87999 21079 DIJON CEDEX France
Tel: + 33 3 80 77 24 39 - Fax: + 33 3 80 77 25 71
mzoughi@enesad.inra.fr

Abstract: Consumers rely on different channels to supply with agricultural products such as traditional purchase at food stores, contract with local farmers or household production. The primary purpose of this paper is to explain this variety by using the theoretical framework of transaction cost economics *à la* Williamson-Barzel. We emphasize the role of ‘difficultness of measurement’ in selecting a supply mode and draw several testable implications and policy considerations. An empirical test is conducted to determine whether the measurement difficulty explains the commitment of households in long term contracts with farmers.

Key words: Agricultural supply; Contract; Household production; Measurement; Transaction cost economics.

JEL Classification Numbers: D13; D23; Q13.

Transaction Cost Economics and Agricultural Household Supply

'Things are what people think they are.'

Hayek (1948, p. 60)

1. Introductory remarks

The primary purpose of this paper is to understand the reality that households use a variety of means to supply with agricultural products. While some consumers rely on traditional retailers to get agricultural products, others contract directly with local farmers or produce themselves their foodstuff. These different ways of household supply are not mutually exclusive. Nevertheless, such a variety may constitute a puzzle for agricultural economists attempting to explain (and predict) these choices. The paper provides a theoretical rationale to explain the choices made by households. We show that a theoretical framework combining the two branches of transaction cost economics, i.e., the governance perspective (Williamson, 1996) and the measurement perspective (Barzel, 2005) may explain the supply mode of households. Williamson (1996) posits that transactions are aligned with governance structures so as to effect a discriminating alignment that minimizes the sum of production and transaction costs. In the governance branch (Williamson, 1996; Williamson, 2005), the explanatory power comes mainly from asset specificity while in the measurement branch (Barzel, 2005), 'difficultness of measurement' is considered as more general and operational. We combine the both approaches by contending that 'difficultness of measurement' is the primary attribute of agricultural products transactions.

The paper is organized as follows. The following section describes briefly the different modes of supply used by households to buy their agricultural products. Section 3 argues that a

significant number of households in developed countries have secure quantities of food, so they increasingly focus on food safety and food quality, including subjective and ethical issues like animal welfare and environmental protection. The issues at stake, such as food safety, pest management, environmental protection, genetic engineering and animal welfare have frequently credence properties (Darby and Karni, 1973) or in other terms are ‘difficult to measure’ at the consumption stage. Section 4 provides a theoretical sketch of transaction costs economics *à la* Williamson-Barzel in order to decipher the empirical puzzle of household supply with agricultural products. Testable propositions are drawn and policy implications are stressed. An empirical test is conducted to determine whether the measurement difficulty explains the commitment of households in long term contracts with farmers. Section 5 concludes and suggests directions for future research.

2. Agricultural household supply: A diversity of ways

As stated above, households use a variety of ways to their supply with agricultural products. *Consumers of agricultural products can buy them directly in shops.* Ideally, this corresponds to the so-called spot markets. *Households may contract with farmers, such as the so-called community supported agriculture (CSA).* This relatively new way of supply “consists of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community’s farm (...). By direct sales to community members, who have provided the farmer with working capital in advance, growers receive better prices for their crops, gain some financial security, and are relieved of much of the burden of marketing” (DeMuth, 1993). According to the same author, the concept originated in the 1960s in Switzerland and Japan. During these last four decades, this way of supply has become widely practiced. Some data relative to the use of CSA is presented in table 1.

[Insert table 1 around here]

Consumers can finally produce themselves the agricultural food they consume. This corresponds to the food production in private and generally small gardens. In the real world, the spot markets represent the most important ones in terms of ‘market share’. For instance, Pirog (2004) states that “the percentage of fresh produce purchased nationally through direct markets is estimated to be less than two percent”.

Noteworthy, these different modes are not mutually exclusive. Consumers may use simultaneously or over time different channels, a channel can be used for particular product and another channel for another product. Moreover, intermediate forms co-exist with the polar forms described above. Notwithstanding, we focus on the three polar forms. These three modes of supply can be distinguished according to several dimensions, i.e., the product standardization, the way to overcome information asymmetry, the level of personalization, the share of the risks and the price variation.

In the polar spot markets, products are generic and undifferentiated *i.e.*, products are standardized to contain certain characteristics and at the time and quality specified. By contrast, in the household production the product is highly differentiated to fit the producer requirements. The transacting parties, i.e., the producer and the household are frequently anonymous in spot markets and there is no dependency relation between the buyers and the sellers. However, identity matters much more in hybrid arrangement and is perfectly disclosed in the case of household production. It is often argued in the academic and specialized literature that buying a product from a CSA allows the buyer to put a face back on a person’s

food¹. “Multiple dimensions of interaction and communication are relevant to establishing the trust lost in disembedded markets. And while personal interaction may not be a guarantee for trust, it may fill the vacuum created by the erosion of ‘faceless commitments’ in illusive global markets as ‘face work commitments’ are re-established” (O’Hara and Stagl, 2001). On spot markets, we witness *caveat emptor* transactions. Indeed, no special agreement links producers and households, while in hybrid arrangement, contract clauses, contract duration, risk sharing and so forth are important issues. For example, in the archetypal spot market, risks are incurred by the seller of the product, while with CSAs the risk is shared by all the agents. This means that even if the outcome is less than expected, for example due to climatic conditions, there is no refund of the participants. In parallel, if the outcome is more than the expected one, the production is shared amongst all participants. Moreover, transacting parties are ‘price takers’ in spot markets whereas prices are frequently negotiated in hybrid arrangements, making agents to some extent ‘price makers’. In addition, process attributes, e.g., environmentally friendly process, cruelty free, fair prices, are not (well) taken into account in ideal spot market, only the final outcome matters while in hybrid arrangements these parameters play a significant role. Generally, a third party certifies or attests that the quality of the product corresponds to what consumers look for. On the other side, the relation between producers and consumers in the case of a CSA is supported by trust (Lamine, 2005).

[Insert Table 2]

Of course, this characterization of organizational arrangement is somewhat a caricature and many ‘shades of gray’ co-exist. For example, in Denmark, “packages of meat and poultry carry a bar code that, when scanned by a machine in the store, calls up pictures of the farm

¹ It is precisely the meaning of the word ‘*Tekei*’ in Japanese, corresponding to CSA in the U.S.

where the animal was raised, as well as information about its diet, living conditions, the date of its slaughter and so on” (Pollan, 2001). Another example is whether credible certificates and labels on markets allow consumers to overcome some of the critical issues they may be concerned in, e.g., organic products, GMO free. As argued by Caswell and Modjuszka (1996), such procedures change credence attributes in search attributes if households trust the certificate or the label.

3. Trends in food consumption: An increasing demand for credence attributes

A large literature attests to the importance of ‘food quality’ in households’ decisions (Steenkamp, 1989; Krissoff et al., 2002). Quality is a catch-all term for describing an evolving basis upon which consumers base their choices. In line with Lancaster propositions, consideration of product attributes is a commonly used perspective to increase our understanding of household choice. Not all attributes are used by households, but only salient attributes. Salient attributes may also differ among households. Economists have also drawn a useful distinction among search, experience, and credence attributes according to the ability of the buyer to assess the promised quality (Nelson, 1970; Darby and Karni, 1973). This distinction has been successfully applied to the analysis of food quality (Caswell et Modjuszka, 1996; Caswell, 1998; McCluskey, 2000; Wessels, 2002). Search attributes can be evaluated by consumers at a reasonable cost prior to purchase, e.g. the color of an apple. Experience goods must be consumed before consumers can assess their quality, e.g., determining whether the apple is tasty requires consumption. Credence attributes cannot be judged by the ordinary consumer even after the good is consumed, e.g., determining whether the apple is organic. In developed countries, ‘food quality’ encompasses *more and more* credence attributes, such as food safety (e.g., the absence of chemical or pesticide residue, or harmful pathogens), health (e.g., vitamin and fat content), genetic engineering (e.g., GMO),

environmental conditions (e.g., environmentally friendly production process), geographic affinity (e.g., a preference for locally grown produce), religious (e.g., kosher or halal foods), social affinity (e.g., respect for labor standards, preservation of "small" producers, local employment and rural lifestyle, or "fair trade" considerations) and animal welfare (e.g., cruelty free). As income levels rise and education levels improve, consumers around the world are becoming interested in more than just the price and conventional qualities of the food they eat. A significant part of consumers is willing to pay a premium for food with credence attributes (Department of Primary Industries, 2004). Several other contributions devoted to specific credence attributes attest to the growing importance of credence attributes in household decision making (Moon et al., 2002; Loureiro et al., 2002). ***Without neglecting the importance of search and experience attributes in judging food quality, we contend that the ratio of salient credence attributes over salient search and experience attributes is increasing over time.*** Contrary to the previous literature that has focused to a large extent on the operation of markets for a specific credence attribute considered as a stand-alone attribute, we address the total food product. We consider that the most limiting factor in terms of information asymmetry shapes heavily the overall judgment over the foodstuff quality.

A major implication of the previous insight is that problems of adverse selection and moral hazard can occur where important product attributes are credence in nature. Adverse selection is *ex ante* opportunism due to hidden information (Akerlof, 1970). It could occur, for example, where some producers provide false labeling about environmental attributes and underlying production practices causing consumers to choose products that do not in fact have the attributes they want. Moral hazard is an *ex post* opportunism due to hidden action. In quality assurance, a moral hazard situation arises when the producer is tempted to not carry

out all the practices necessary to achieve a certain quality level because the consumer cannot or finds it difficult to check whether the actions have been taken.

4. A theoretical sketch of transaction costs economics *à la* Williamson-Barzel applied to agricultural household supply

Should a household make its own agricultural inputs, buy them on the spot market, or maintain an ongoing relationship with a particular supplier? In other terms, households face the paradigmatic ‘make or buy’ decision addressed by the transaction cost economics framework. The Coase-Williamson framework helps explain not only the existence of the firm, but also its size and scope. In Coase’s words (1937), “why does the entrepreneur [the household] not organize one less transaction or one more?”. The main conceptual insights provided by TCE are that the governance of exchange agreements between economic agents is costly and that governance structures vary in their ability to facilitate exchange. TCE advocates selecting a governance form that minimizes the sum of total production and transaction costs. Williamson TCE predicts a discriminating alignment between transaction exchange attributes (mainly asset specificity) and organizational mode (Williamson 1985, 1996, 2005). We extend the Williamson proposition by incorporating the Barzel’s insight that measurement issues are ‘more general’, ‘more operational’ and have a higher explanatory power than asset specificity in explaining the organization of exchange (Barzel, 1982, 2004). Without purporting to summarize the Williamson TCE, we provide a theoretical sketch of TCE integrating the contributions of Williamson and Barzel contributions. For clarity of exposition, our reasoning follows the three steps suggested by Williamson (1991), i.e., characterizing the transactions, dimensionalizing the governance structures and aligning the transactions to governance structures in a discriminating way.

(1) Characterizing the transactions

In reference to the seminal contributions of Coase (1960, 1992) and Commons (1931), we consider the transaction as the basic unit of analysis which involves the transfer of property rights. Noteworthy, this definition is less restrictive than that of Williamson (1985) but fits well the implicit definition in Barzel's contributions (1997, p. 4). The transaction costs may be defined as 'the costs associated with the transfer, capture, and protection of rights (Barzel, 1997, p. 4, 2004). According to Williamson, the main attributes of the transaction include the frequency with which transaction recur, the uncertainty to which transactions are subject, and the type and degree of asset specificity involved in supplying the good or service in question (Williamson, 1991). Much of the explanatory power of the theory turns on asset specificity. In line with several authors (Alchian and Demsetz, 1972) and particularly Barzel (1982, 1997, 2000, 2004), we contend that *difficultness of measurement* is the primary transaction attributes before asset specificity. TCE views organizational arrangements mainly as a means of reducing transaction costs, which notably include measuring costs, e.g., costs of searching for information about buyers or sellers in the market, inspecting goods prior to purchase, and assigning a price. These measuring costs may be especially significant when transactions are heterogeneous, or characterized by asymmetric information, such as credence attributes (Darby and Karni, 1973; Barzel, 2000). A major type of asymmetric information in food consumption markets corresponds to the situation where producer has more information than the buyer about a difficult-to-measure quality. The transaction may be organized through different organizational forms in to reduce measuring costs that are associated with assuring a closer correspondence between product value and price (Barzel, 1982).

(2) Dimensionalizing the governance structures

Williamson lists three discrete governance structures, including neoclassical or spot markets (the textbook ideal), hybrid modes (into which private ordering credible commitments have been crafted) and hierarchy (unified ownership) (Williamson, 2002, see Barzel, 2000). Unlike the distinction between market and hierarchy that seems somewhat obvious, hybrid forms encompass a great variety of arrangements. Ménard (2004) has recently undertaken further investigation in order to emphasize regularities in their features. *A minima*, hybrid forms may be conceived as “agreements among legally autonomous entities doing business together, mutually adjusting with little help from the price system, and sharing or exchanging technologies, capital, products, and services, but without a unified ownership” (Ménard, 2004, p.4). The governance structures are distinguished on the basis of three characteristics: instruments (incentive intensity, administrative controls), performance attributes (adaptability) and contract law (dispute settling).

[Insert Table 3]

Transactions costs economies are achieved by assigning transactions that differ in their attributes to governance structures in a discriminating way.

(3) Aligning the transactions to governance structures

Transactions costs economies are achieved by assigning transactions that differ in their attributes to environmental governance structures in a discriminating way. The general argument is as follows: more complex modes of governance are reserved for more hazardous transactions (Williamson, 2002, 2005).

Like Williamson (1991, p. 282-283), we only achieve a truncated analysis. The measuring costs are expressed as a function of the difficulty of measurement and a set of exogenous variables. Let $M = M(m; \theta)$, $H = H(m; \theta)$ and $I = I(m; \theta)$ be reduced form expressions that denote the governance costs of market, hybrid forms and vertical integration as a function of the difficulty of measurement (m) and a vector of shift parameters (θ). Assuming that each mode chooses the same level of difficulty of measurement, the following comparative-cost relations obtain: $M(0) < H(0) < I(0)$ and $M' > H' > I' > 0$. For a minimal level of measurement difficulty, that is to say zero, measuring costs are positive. To achieve such a transaction, the measuring costs of market are lowest and increase respectively with hybrid and hierarchical arrangements. More formally, the first of these two inequalities reflects the fact that the bureaucratic costs (or weaker incentive intensity) of internal organization exceed those of the market because the latter is superior in adaptation (A) respects, which is the only kind that matters when measurement is easy. The intercept for market measuring is thus lower than is the intercept for hierarchy. The second inequality reflects the marginal disability of markets as compared with hierarchies in adaptation (C) respects as difficulty of measurement, hence bilateral dependency, becomes more consequential. Following Williamson's reasoning, we obtain the relations shown in figure 1. Efficient supply implies operating on the envelope, whence, if m^* is the optimal value of m , the rule for efficient supply is as follows: I, use spot markets for $m^* < m_1$; II, use hybrid forms approaches for $m_1 < m^* < m_2$; and III, use hierarchy for $m^* > m_2$. "In a very heuristic way, moreover, one can think of moving along one of these generic curves as moving toward more intrusive controls" (Williamson, 1991, p. 284). If we apply the previous developments to food supply by households, we may explain the co-existence of the large array of channels. In other terms, for easy-to-measure attributes, e.g., well standardized attributes, spot markets may constitute the less costly organizational arrangement. At the other extreme, when attributes are very difficult-to-measure, individuals

can overcome this difficulty by the ‘simple expedient of doing things themselves’ in other words, household production. Between these two extremes, for intermediate level of difficultness to measure, hybrid forms such as long-term relations may constitute the most cost effective method to organize the transaction (Barzel, 2000, 2004).

[Insert Figure 1]

5. Some policy considerations

Several policy considerations may be drawn from the preceding analysis. First, the TCE analysis of household supply with food may provide fruitful insights on new relationships between farmers and the society. The spot market may not constitute a panacea when products become highly differentiated on process attributes or on credence qualities. Major concerns such as considerations related to the local environment, preservation of "small" producers, local employment, rural lifestyle, fair prices may be more efficiently achieved through hybrid forms such as ‘community supported agriculture’. *Indeed, such organizational arrangements may be more transaction cost economizing than the classical spot market.* This argument is supported by empirical evidence where the price of CSA products is significantly less than those of groceries (Cooley and Lass, 1996), notably because of lower transaction costs. For example, CSA contract frequently provide ‘organic’ foodstuffs without incurring the transaction costs tied to the full certification process. Anecdotically, an agreement described in Farnsworth et al. (1996, p. 92) defines the farmer’ commitment as follows: “Although not certified organic, the Producer will use organic farming practices. No herbicides, synthetic pesticides or commercial fertilizers will be used”. Indeed, CSA promises rely on trustworthy interpersonal relations and are mainly enforced by proximity and visual inspection.

Second, many attributes on which households judge the overall product quality involve public good, especially when they are local such as local environment, fair revenues for local farmers and so forth. *These public goods may be privately provided and more efficiently by hybrid forms than by anonymous spot markets.* An ‘ideal candidate’ for this rationale is locally grown foods that may attract consumers because of perceived private benefits of freshness, great taste, and high quality. Moreover, “in the case of local versus conventionally-sourced produce, there also may be a perceived benefit in the relatively higher content of certain nutrients such as vitamin C” (Pirog, 2004). This occurs because the local produce is likely to reach the consumer more quickly than the conventional product.” At the same time, the negative impact of polluting transportation is reduced, simply because the products travel less. For example, in the United States, food travels an average of 1300 miles before it lands in the hands of the consumer.

Third, alternative organizational arrangements have major implications on the allocation of created value among agents of the food chain. Policy makers aiming at ensuring fair revenues for farmers may be interested in these hybrid forms that may reshape food chain supply and allow a ‘fairest’ value repartition among agents. According to McCauley (2005), ‘for each dollar you spend on blueberries, only a meager 10 percent of the money returns to the farmer. The remaining 90 percent of your money goes to pay for the food’s transportation, packaging, and marketing’.

6. An empirical test on the determinants of households’ participation in long term contracting with farmers

In July 2006, we conducted a mail survey on 189 households all located in the metropolitan area of Dijon and Dole (Burgundy, France). We selected a sample of 89 households among

people having long term contracts with farmers (≥ 6 months) for vegetables supply. We also administered our questionnaire to 100 households randomly selected from the phone book. Our survey administration procedures are based on a slightly modified Dillman's Tailored Design Method, a high performance survey methodology proven to maximize response rates (Dillman, 2000). We received 113 useable responses, corresponding to an effective response rate of 60%. We asked all respondents to indicate traditional demographic variables (age, sex, income, marital status and so forth), their choice criteria for vegetables and some others questions on their confidence² in organic and fair trade certification schemes, their commitment in associations, the identity of their main suppliers for vegetables. More clearly, people were asked to answer a question formulated as follows: "How important is this variable to you in the choice of your vegetables?" A 5-point Likert scale is used to measure how important these variables, *i.e.*, quality, price, practical aspects, environmental and social consideration. The 100 randomly selected households were also surveyed on their willingness to participate in long term contracts with farmers after they have received clear cut information on the meaning of such participation. The already participating households were surveyed on their perception of long term contracts with farmers compared to more traditional suppliers such as supermarkets, local markets and so on. The survey was administered to collect data to test the following hypothesis drawn from our theoretical discussion: *The more people are concerned with credence properties of agrofood products, the more likely they are to supply by long term contracting (or by self production).*

We operationalize our hypotheses by some variables (ENV, SOCIAL) and also introduce several control variables (UNDER50, OVER3000, ASSO, FRESH, COSMETIC, PRICE,

² A full version of the questionnaire is available in French upon request.

PRACTICAL). The meaning of these variables and the general descriptive statistics are indicated in table 4.

[Insert table 4]

In the sample, 42% of households are participants in long term contracting with farmers. Approximately 69% had a college degree, another 16% had a high school degree, and the remainder had some college or technical courses. Households in the sample are mainly CSA non members, not committed to any association and slightly over 50 years. They have an income lower than €3000 per month. They are mainly interested by freshness and taste, then by social (local farming, personal relation with the farmers and other consumers) and practical aspects (proximity, opening hours, scope) and finally by cosmetic aspects. As for CSA households, as compared to non-CSA households, they are older, have a higher income and are more involved in associations. As for purchase decisions, CSA households care less about cosmetic and practical aspects but more about environmental and social considerations.

These first results are consistent with previous investigations. O'hara and Stagl (2001) conducted a survey of 74 CSA member households in upstate New-York. The survey instrument was a self-administered questionnaire. The 5 top factors motivating CSA membership was freshness, taste and environmental and social considerations (fresh vegetables, organic vegetables, support local farms, concern for the environment and eating vegetables in season). Moreover, Dubuisson-Quellier and Lamine (2004) find that price appears as unimportant for CSA households. However, the authors consider that these consumers are still making choices in the framework of economic theory. The fact is these

consumers have higher income and derive a lot of utility from the attributes of goods from CSA.

To investigate the determinants of households' participation in long term contracting with farmers for vegetables supply, we achieved a logistic regression. The logit model for participation in long term contracts with farmers is specified as follows

$$\text{Log} [P/(1 - P)] = \alpha_0 + \sum \alpha_i X_i + \epsilon$$

where P is the probability of participating in long term contracts with farmers; (1 - P) is the probability of not participating; α_i 's are the parameter estimates for the independent variables, X_i , that influence adoption; and ϵ is the unexplained random component. We test four specifications. In model 1, the benchmark, all the following independent variables are introduced: UNDER50, OVER3000, ASSO, FRESH, COSMETIC, PRICE, PRACTICAL, ENV and SOCIAL. Since these variables are somewhat correlated, we test for 3 other models. In model 2, ASSO is removed because of its correlation with SOCIAL. In model 3, PRACTICAL is removed because of its inverse correlation with ENV. And finally, model 4 adds an interaction variable to account for the link between being under 50 and having higher revenues. The results from the logistic regression are presented in Table 5.

[Insert table 5]

The chi-squared statistics for the hypothesis test of all coefficients being equal to zero are all significant above the 1% level. Both coefficients and probability estimates convey information about the impact of each independent variable on adoption. The sign and

significance of the coefficients is robust across models. The probability of being a CSA household is higher for households under 50, for over €3000 income households and for people involved in associations. This confirms previous results as discussed when describing the sample.

To test for the main hypothesis of the paper that households concerned with credence attributes of goods are more likely to become CSA members, we compare two kinds of attributes. In the model, we introduced a measure of household concerns for attributes that are mainly search or experience attributes (FRESH, COSMETIC, PRICE, PRACTICAL) and for attributes that are mainly credence attributes (ENV, SOCIAL). Results in table 5 indicate that the probability of participating in a CSA is negatively affected when households care for cosmetic aspects of goods (COSMETIC) and practical aspects concerning the point of purchase such as proximity (PRACTICAL). Other search/experience attributes play no significant role in the decision to enroll in CSA. On the other hand, credence attributes are statistically significant drivers of CSA commitment, at the 10% level for social considerations but at the 1% level for environmental aspects. This difference between the two types of credence attributes may be due to the difference between private and public attributes. Whereas our measure of environmental concern included an item related to personnel benefits (less chemical residues), our measure of social aspects was more oriented towards ethical considerations.

As a conclusion, our hypothesis that argues that the more people are concerned with credence properties of agrofood products, the more likely they are to supply by long term contracting is supported by the data analysis.

7. Conclusion and future directions

Transaction cost economics constitutes an ‘empirical success story’³ and has proved helpful in providing guidance to choose between governance structures. This contribution is an attempt to extend Williamson’s analysis in two original dimensions: one theoretical and the other empirical. The theoretical dimension initiated by Barzel is to consider that difficulty of measurement may be the primary transaction attribute explaining the ‘make or buy’ decision, without neglecting the many shades of gray between the two extremes. Integration, i.e., household production may be a response to increasing concerns that spot markets do not address successfully from the household viewpoint.

The empirical dimension is an extension of the Williamson-Barzel transaction cost economics to household supply with food. Food quality is evolving and classification of an attribute as a salient search, experience or credence changes over time. Consequently, the propositions made in our contribution have to take into account this evolution. We showed that people having stronger concerns for credence attributes were more likely to engage in long term contracting with farmers. Nevertheless, our analysis has several limitations that deserve more academic attention. The relationship between measurement difficulty and asset specificity requires further investigations to reach a unified TCE framework. Moreover, we have not sufficiently investigated self production (corresponding to hierarchy) by household, which may constitute a natural extension. Lastly, replications of our analysis on other data are needed to question the empirical evidence found in our study.

³ As of the year 2000, there were over 600 published empirical articles on transaction cost economics with exponential growth therein (...).” (Williamson, 2005).

References

- Akerlof, G.A., 1970, The Market for "Lemons": Quality, Uncertainty and the Market Mechanism, *Quarterly Journal of Economics*, 84 (3): 488-500.
- Alchian, A., Demsetz, H., 1972. Production, information costs, and economic organization. *American Economic Review* 62, 777-795.
- Barzel, Y. 1982. "Measurement Costs and the Organization of Markets." *Journal of Law and Economics* 25(1): 27-48.
- Barzel, Y. 1997. *Economic Analysis of Property Rights*, 2nd ed., Cambridge: Cambridge University Press.
- Barzel. 2000. "Property Rights and the Evolution of the State" *Economics of Governance* 1:25-51
- Barzel, Y., 2004, Standards and the Form of Agreement, *Economic Inquiry* 42(1):1-13.
- Barzel, Y., 2005, Organizational Forms and Measurement Costs, *Journal of Institutional and Theoretical Economics* 161(3), 357-373.
- Caswell, J.A. (2000). Labeling policy for GMOs: To Each his own? *AgBioForum*, 3(1), 305-309. Available on the World Wide Web: <http://www.agbioforum.org>.
- Caswell, J.A., Modjuszka, E.M., 1996, Using Informational Labeling to Influence the Market for Quality in Food Products, *American Journal of Agricultural Economics*, 78: 1248-1253.
- Commons, J.R., 1931. Institutional economics. *American Economic Review*, XXI (4), 648-657.
- Coase, R.H., 1937. The nature of the firm. *Economica* 4, 386-405.
- Coase, R.H. 1960. "The Problem of Social Cost." *Journal of Law and Economics* 3: 1-43.
- Coase, R.H., 1992. The institutional structure of production. *The American Economic Review* 82 (4), 713-719.

Cooley, J.P., Lass, D.A., 1996, Consumer Benefits from Community Supported Agriculture Membership, *Review of agricultural Economics* 20(1), 227-237.

Darby, M. and E. Karni. (1973). Free Competition and the Optimal Amount of Fraud, *Journal of Law and Economics*, 16, pp. 67-88.

DeMuth, S., 1993, Defining Community Supported Agriculture (CSA), Alternative Farming Systems Information center (<http://www.nal.usda.gov/afsic/csa/csadef.htm>).

Department of Primary Industries, 2004, Beyond Price and Quality. Understanding Credence Attributes of Food Products in Victoria's Priority Markets.

Dubuisson-Quellier, S., Lamine, C., 2004, Faire le marché autrement, *Sciences de la Société*, 62:145-167.

Farnsworth, R.L., Thompson, S.R.T., Drury, K.A., Warner, R.E., 1996, Community Supported Agriculture: Filling a Niche Market, *Journal of Food Distribution Research* 27(1), 90-98.

Krissoff B., Bohman M., Caswell J. A., 2002, *Global Food Trade and Consumer Demand for Quality*, Kluwer Academic/Plenum Publishers, New York.

McCauley, M.A., 2005, Buying Local Food: The Smart Alternative, Oxfam America (<http://www.oxfamamerica.org/>).

Lamine, C., 2005, Settling the Shared Uncertainties: Local Partnerships Between Producers and Consumers, *Sociologia Ruralis*, 45(4):324-345.

Loureiro, ML.,; McCluskey, JJ. and Mittelhammer, RC., 2002, Will Consumers Pay a Premium for Eco-labeled Apples?, *Journal of Consumer Affairs*, 36(2): 203-219.

McCluskey, J., 2000, A Game Theoretic Approach to Organic Foods: An Analysis of Asymmetric Information and Policy, *Agricultural and Resource Economics*, 29:1-9.

Moon W., Florkowski W.J., Brückner B. and Schonhof I., 2002, Willingness to Pay for Environmental Practices: Implications for Eco-Labeling, *Land Economics*, 78(1): 88-102.

Nelson, Ph. 1970. "Information and consumer behavior." *Journal of Political Economy* , 78: 311-329.

O'Hara, S.U., Stagl, S., 2001, Global Food Markets and Their Local Alternatives: A Socio-Ecological Economic Perspective, *Population and Environment: A Journal of Interdisciplinary Studies*, 22(6):533-552.

Pirog, R., 2004, Food Miles: A Simple Metaphor to Contrast Local and Global Food Systems, Newsletter of the Hunger and Environmental Nutrition (HEN) Dietetic Practice Group of the American Dietetic Association.

Pollan, M., 2001, Produce politics, *The Way we Live Now*, New York Times Magazine, 01-14-2001, Academic Research Library.

Steenkamp, J-B.E.M. (1989). *Product Quality*. Assen: Van Gorcum, The Netherlands.

Wessels, C.R., 2002, The Economics of Information: Markets for Seafood Attributes, *Marine Resource Economics* 17(2): 153-162.

Williamson, Oliver E., 1985, *The economic institutions of capitalism: firms, markets, relational contracting*, New York, The Free Press.

Williamson, O.E. 1991. "Comparative economic organization: the Analysis of Discrete Structural Alternatives." *Administrative Science Quarterly* 36: 269-296.

Williamson, O. E. (1996). *The Mechanisms of Governance*, New York: Oxford University Press.

Williamson, O.E., 2002. Examining economic organization through the lens of contract. ISNIE 2002 (<http://www.isnie.org/>), visited March, 9, 2005.

Williamson, O.E., 2005. The Economics of Governance, *American Economic Review*, 95(2), 1-18.

Table 1: Number of CSA in some developed countries in 2004

Country	Number of CSAs
United States	1700
Japan	Between 500 and 1000
France	50
England	90
Québec	60

Source: <http://alliancepec.free.fr/Webamap/index.php> (visited on November, 3, 2005)

Table 2: Distinctive criteria between spot market for food production, CSAs and household production

Criteria	Spot market	CSAs	Household production
Product standardization	+++	+	0
Overcoming IA	Third-party certification	Trust	Integration
Level of personalization	0	++	+++
Who incurs the risk	The producer	Shared	Producer consumer
Price fluctuation	+++	+	0

**Table 3: Distinguishing attributes of spot market, hybrid forms and hierarchy
(Inspired from Williamson, 1991, p. 281)**

Attributes	Organizational arrangement		
	Spot Market	Hybrid forms	Hierarchy
Instruments			
- Incentive intensity	++	+	0
- Administrative controls	0	+	++
Performance attributes			
- Adaptation (A)	++	+	0
- Adaptation (C)	0	+	++
Contract law	++	+	0
++ = strong; + = semi-strong; 0 = weak			

Figure 1: Aligning transaction structure with governance structure in the context of household agricultural supply

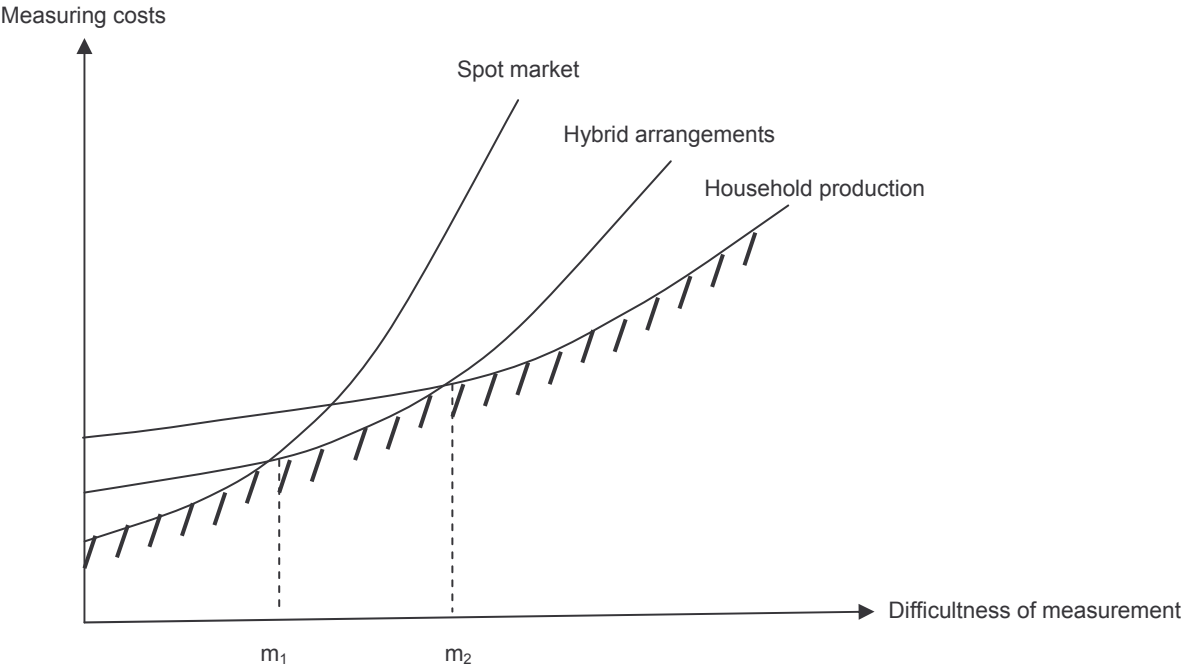


Table 4: Description of the main variables and descriptive statistics

Variable	Definition	All households			CSA households			Non-CSA households			χ^2 test ^a
		Non-missing observations	Mean	SD	Non-missing observations	Mean	SD	Non-missing observations	Mean	SD	
<i>Dependent variable</i>											
CSA	Household's commitment to CSA Dummy variable (=1 if CSA household)	113	0.425	0.497	48	1	0	65	0	0	-
<i>Independent variables</i>											
UNDER50	Respondent's age lower than 50 years Dummy variable (=1 if under 50)	113	0.540	0.501	48	0.688	0.468	65	0.431	0.499	***
OVER3000	Household's income lower than €3000/month Dummy variable (=1 if over €3000/month)	113	0.336	0.475	48	0.458	0.504	65	0.246	0.434	**
ASSO	Household committed in associations Dummy variable (=1 if committed)	112	0.348	0.479	48	0.542	0.504	64	0.203	0.406	***
FRESH	Freshness and taste of vegetables as an important choice criterion Dummy variable (=1 if important criterion)	113	0.982	0.132	48	0.979	0.144	65	0.985	0.124	ns
COSMETIC	Cosmetic aspect as an important choice criterion Dummy variable (=1 if important criterion)	113	0.637	0.483	48	0.438	0.501	65	0.785	0.414	***
PRICE	Price as an important choice criterion Dummy variable (=1 if important criterion)	113	0.416	0.495	48	0.333	0.476	65	0.477	0.503	ns
PRACTICAL	Practical aspects (proximity, opening hours, scope) as an important choice criterion Dummy variable (=1 if important criterion)	113	0.814	0.391	48	0.667	0.476	65	0.923	0.269	***
ENV	Environmental considerations (less chemical residues, less transports) as an important choice criterion Dummy variable (=1 if important criterion)	113	0.796	0.404	48	0.958	0.202	65	0.677	0.471	***
SOCIAL	Social considerations (local farming, personal relation with the farmers and other consumers) as an important choice criterion Dummy variable (=1 if important criterion)	113	0.823	0.383	48	0.958	0.202	65	0.723	0.451	***

^a The test compares CSA and non CSA households: ns means not significant, ** means 5% significant, and *** means 1% significant.

Table 5: Logit model of households' participation in long term contracting for vegetables supply

	Model 1		Model 2		Model 3		Model 4	
	Parameter Estimate	SD	Parameter Estimate	SD	Parameter Estimate	SD	Parameter Estimate	SD
INTERCEPT	-2.3508	4.4111	-1.3731	3.6109	-3.9178	4.2039	-2.0205	4.5482
UNDER50	2.1013***	0.6614	1.6671***	0.5682	1.7079***	0.5694	—	—
OVER3000	1.2312**	0.6076	1.3796**	0.5902	1.3387**	0.5584	—	—
ASSO	1.7107***	0.6537	—	—	1.4644**	0.5800	1.3787**	0.5711
FRESH	-1.4609	4.2955	-2.0637	3.5053	-1.0515	4.0999	-2.5047	4.5087
COSMETIC	-1.3026**	0.6010	-1.6758***	0.5690	-1.5393***	0.5707	-1.2568**	0.5573
PRICE	0.5901	0.6060	0.6100	0.5863	0.3252	0.5442	0.00502	0.5318
PRACTICAL	-2.5578***	0.8637	-2.2968***	0.7850	—	—	-2.1742***	0.7628
ENV	2.7785***	0.9624	3.3467***	0.9800	2.4054***	0.8943	2.9220***	0.9911
SOCIAL	1.8378*	0.9733	1.7247*	0.9532	1.7639*	0.9359	1.7006*	0.9679
UNDER50 * OVER3000	—	—	—	—	—	—	2.1404***	0.7178
R square	0.4594		0.4248		0.4006		0.4188	
-2 log L	84.077		91.597		95.645		92.195	
-2 log L (Intercept only)	152.971		154.084		152.971		152.971	
Likelihood ratio	68.8942*** (DF=9)		62.4868*** (DF=8)		57.3263*** (DF=8)		60.77761*** (DF=8)	
Percent concordant	90.7		89.1		87.3		86.3	
Number of observations	112		113		112		112	
Number of household committed to long term contracting with farmers	48		48		48		48	

Notes. (*), (**), (***) indicate parameter significance at the 10, 5 and 1 percent level respectively.

