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Consumers and Food miles

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Working Paper N° 3/2007

Consumers and Food miles[1]

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Abstract
Previous research has extensively studied environmental implications of conventional and globalized food supply chain. Local food supply chains are supposed to reduce the environmental impacts of "food miles", the distance that foodstuff travels between the production location and the consumption marketplace. However, if researchers, environmental decision-makers and activists are convinced of the importance of 'food miles', there is a lack of understanding about whether and how end consumers perceive food miles. This paper therefore fills this gap by investigating the perceptions of food miles by French consumers. The first section explores the different types of distances between food and consumers. The second section presents the results of a qualitative study conducted in France. Two sessions of focus groups were held to better understand consumers' perceptions of food miles. Results show that most consumers are not aware of food miles. Focus groups were followed by individual interviews with the particular group of local organic food consumers, supposed to be more environmentally concerned than others. Again, results show that most consumers buy and consume local food for other reasons than reducing food miles. The third section deals with the reasons why consumers do not seem concerned by food miles, and discusses the concepts of "bliss ignorance", perceived efficiency, and social dilemmas.

Keywords : food miles, environmental concern, food consumption, qualitative study

Résumé
Les études sur les conséquences de la globalisation des filières agro-alimentaires sur l'environnement se multiplient, et les réseaux alternatifs locaux ayant pour but de réduire les intermédiaires entre les producteurs et les consommateurs sont présentés comme permettant un retour à une agriculture et un système de consommation durables. Plus précisément ces réseaux ont, entre autres, pour but de réduire l'impact environnemental des «food miles», ou distance parcourue par les produits alimentaires entre le lieu de production et les lieux de consommation. Ce concept de «food miles» est utilisé comme un indicateur de développement durable et de plus en plus comme un outil de communication à destination des consommateurs. Cependant, si les chercheurs, décideurs ou activistes dans le domaine de l'environnement semblent convaincus de l'importance des «food miles», aucune étude n'a été menée afin de savoir si et comment les consommateurs perçoivent les «food miles» et sont susceptibles d'en tenir compte dans leur processus de choix des produits. C'est donc l'objet de cet article, qui s'attache à mettre en évidence les perceptions des food miles par les consommateurs en France grâce à une étude qualitative. La première partie présente les différents types de distance perçue entre les consommateurs et les produits alimentaires. Cette distance perçue peut favoriser un certain désintérêt de la part des consommateurs vis à vis des produits alimentaires et de la façon dont ils sont produits; à l'opposé elle peut être à l'origine de préoccupations croissantes -environnementales, sociales ou plus individuelles telles que les préoccupations santé - et expliquer le besoin de re-créer des liens perdus avec les produits et les producteurs.

Mots-clés : comportement du consommateur, préoccupations environnementales

JEL : D1, D8, M31, Q01

[1] Paper presented to the AIEA2 and SOBER International Conference, *Londrina Parana, Brasil, 22th – 27th July 2007*

AIEA2 and SOBER International Conference

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Abstract

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However, if researchers, environmental decision-makers and activists are convinced of the importance of 'food miles', there is a lack of understanding about whether and how end consumers perceive food miles. This paper therefore fills this gap by investigating the perceptions of food miles by French consumers.
The first section explores the different types of distances between food and consumers.
The second section presents the results of a qualitative study conducted in France. Two sessions of focus groups were held to better understand consumers' perceptions of food miles. Results show that most consumers are not aware of food miles.
Focus groups were followed by individual interviews with the particular group of local organic food consumers, supposed to be more environmentally concerned than others. Again, results show that most consumers buy and consume local food for other reasons than reducing food miles.
The third section deals with the reasons why consumers do not seem concerned by food miles, and discusses the concepts of "bliss ignorance", perceived efficiency, and social dilemmas.

Keywords: food miles, environmental concern, food consumption, qualitative study

JEL subject descriptors :

D1 Household behaviour.

D8. Information and uncertainty.

M31. Marketing.

Q01 Sustainable Development

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Introduction

Previous research has extensively studied environmental implications of conventional and globalized food supply chain. Local food supply chains with less intermediaries between the producer and the end consumer such as CSA (community supported agriculture) is widely described as a way to promote a more sustainable consumption system. More precisely, local food supply chains can reduce the environmental impacts of "food miles", the distance that foodstuff travels between the production location and the consumption marketplace.
However, if researchers, environmental decision-makers and activists are convinced of the importance of 'food miles' and use the "food miles" concept as an indicator of sustainable development (Smith et al., 2005), there is a lack of understanding about whether and how end consumers perceive food miles. This paper therefore fills this gap by investigating the perceptions of food miles by French consumers. The remainder of the contribution is organized as follows.

The first section explores the food miles concept and, the different types of distances between food and consumers. Without purporting to be exhaustive, distance can be spatial, temporal and psychological (Lieblein et al., 2001). This distance may lead to consumers' concern about food miles, or, on the contrary, to a lack of involvement of consumers, who prefer not to know about food and the way it is produced and transported.

The second section presents the results of a qualitative study conducted in France, and using focus groups and individual interviews. Two sessions of focus groups were held to better understand consumers' perceptions of food miles. Two products were chosen for the very long distance they have to travel before being sold in French supermarkets : Fiji water, a bottled water, "located at the very edge of a primitive rainforest, 1,500 miles away from the nearest continent", and salt from Himalaya. The purpose was to analyse people's reactions to these products and more generally to the distance travelled by products.
Focus groups were followed by individual interviews with the particular group of local organic food consumers, supposed to be more environmentally concerned than other consumers, and thus more aware and concerned by food miles.

The third and last section deals with the reasons why consumers do not seem concerned by food miles, and discusses the concepts of "bliss ignorance", perceived efficiency, and social dilemmas.

1 Distance between food and consumers

The problems associated with conventional agriculture have long been aknowledged, and the concept of sustanability of agriculture has become a major issue. To assess this sustainability, researchers and

environmental decision-makers raise the problem of off-farm effects, and more precisely the question of food transportation, or food miles. For consumers, the concept of distance is more ambiguous.

Food miles

To measure the environmental effects of agricultural production, the analysis must take into account off-farm environmental effects, since the distance food travels from producer to consumer, called "food miles", has implications in terms of energy use and pollutants that result.

For example, according to Sustain 2001 data (Rigby and Bown, 2003), a "typical" UK family of four generate the following $C0_2$ emissions :

- 4.2 tonnes from their house
- 4.4 tonnes from their car
- 8 tonnes from the processing, packaging and distribution of their food.

More generally, the direct cost of food transportation has been evaluated in UK over £9 billion each year (Smith et al., 2005).

These large amounts of greenhouse gases are due to both national and international transport. In most countries, local producers'share of domestic markets decreases, while imported food share increases. This "great food swap" (Lucas, 2001, quoted in Rigby and Bown, 2003) means a lot of international movements of food, with important environmental implications above all with air transportation [2].

For example, researchers have calculated the following $C0_2$ emissions for 1 kg pineapple from Ghana sold in UK : 5 kg by air, 50g by boat (Smith et al., 2005).

Thus, despite some questions remaining about how to assess food miles without errors (Blanke and Burdick, 2005), environment decision-makers assume that the "food miles" concept can be used as a communication cue towards the consumer (Smith et al., 2005). But this supposes that consumers are aware of and concerned by food miles. Yet, distance is a more vague concept for consumers.

What distance means to consumers

The increasing distance between food products and consumers has long been aknowledged, both by economists and sociologists. Food now "comes from a global everywhere, yet from nowhere that people know in particular" (Kloppenburg, Hendrickson and Stevenson, 1996).

According to Lieblein et al. (2001), distance can be spatial, temporal and psychological. Spatial distance is due to the industrialization and specialization of agriculture, which result in an increasing proportion of

[2] $C0_2$ emissions : Boat : 15 to 30 g/ tonne km, Rail : 30 g/ tonne km, Road by car : 168 to 186 g/ tonne km, Road, by truck : 210 to 1.430 g/tonne km, Air : 570 to 1.580 g/ tonne km (E. Millstone and Tim Lang (2003). The atlas of food : who eats what, where and why.)

food products coming from far away places. Linked with this spatial distance, temporal distance both refers to the length of food chains and the time betwwen production and consumption due to preservation and storage of food. These first two types of distance create psychological distance betwwen food and consumers, who do not really know what they eat (Fischler, 1990).

This distance may lead to growing concerns and the need of re-creating a 'lost' link with food products and producers. This is the assumption of Seyfang (2006), who proposes a New Economics evaluation framework for sustainable consumption, which incorporates five key points: localisation, reducing of ecological footprints, community-building, collective action and new socio-economic institutions. According to Seyfang, the principal rationale for localising food supply chain is to reduce the impact of food miles which are a major concern for both producers and customers in local and organic food networks. Indeed, according to her questionaire survey results, 84% of the 144 respondents specifically aimed to reduce food miles through buying from their alternative food network.

Yet, one may wonder if other consumers share this concern. Distance between food and consumers may also cause a lack of involvement of consumers about food and the way it is produced and transported. In a survey in Norway, 42% of the respondents were not interested in the source of their food (Torjusen, Nyberg and Wandel, 1999).
In order to try to know whether consumers are concerned or not by food mile, we conducted two qualitative surveys, the first one based on focus groups with "ordinary" consumers, the second one based on individual interviews with the particular group of local organic food consumers.

2 Do consumers care about food miles ?

In this second section we present the results of qualitative studies that we realised, in autumn 2006, on consumer level: focus groups and in-depth-interviews.

Focus groups

Two focus group discussions were organized in Montpellier in November 2006. The participants were consumers from the Montpellier region, who volunteered by responding to a regional newspaper announcement. The discussions took about two hours each.

Hypotheses and methodology

Our research objective was to verify or falsify the following hypotheses:

1. The distance (between the place of production and the place of consumption of a food item) is not taken into account by consumers when they are choosing food product.

2. The distance is generally perceived as something negative in a food consumption process.
3. The perception of distance varies according to the products (fresh, dry, of everyday consumption, for festive occasions)
4. The perception of distance varies according to the buying and/or consumption situation (supermarkets, grocery stores, discount, restaurant…)
5. Only the linear distance is being considered, and not whole food chain and the circuit of the product.

Discussion in the focus groups was oriented on two products: Bottled water from the Fiji Islands ("Fiji water"), and Salt from the Himalaya "Sel de l'Himalaya" (see Annex).
These two products were chosen not only for the reason of the huge distance which is separating their places of production and of consumption, but also because of the absence of any seasonal influence or any other influence of availability (water and salt being, at any moment, available at any place in France, in any form and quantity). Furthermore, water and salt present, by their very nature and in comparison to other food products, several methodological advantages, allowing, in our research, to concentrate upon the subject matter of "distance":

- Absence of alimentary intolerance or allergies, thus consumable by anybody;
- Water and salt are products of everyday consumption;
- Absence of the topic of "freshness" (both products can be conserved easily during a long period);
- Absence of variety of production methods (there's nothing like organic water or salt);
- Reduced variability of use and preparation.

Both products were introduced into the focus groups without any preceding information or presentation and their first appreciation by the participants was done by filling in individual questionnaires, the general organization of the focus groups being the following:

- Round table with short personal presentation of each participant
- Introduction of the first product and filling in of individual questionnaire
- Guided discussion about the first product:
    - Habits of consumption (this part had an ice-breaking purpose)
    - Discussion about the questions evoked in the questionnaire
    - Free discussion,
- Introduction of the second product and filling in of individual questionnaire
- Guided discussion about the second product:
    - Habits of consumption
    - Discussion about the questions evoked in the questionnaire
    - Free discussion
- Recapitulative discussion on both products.

The participants were not informed about the research objectives and the topic of "food miles" was only introduced at the end of the discussions.

Results of focus groups

The results of the two focus groups were sufficiently homogenous to be presented conjointly, by organizing them around the initial hypotheses:

> Hypothesis 1: The distance (between the place of production and the place of consumption of a food item) is not taken into account by consumers when they're choosing food product

The results confirm this hypothesis to a large extent. "Distance" as a matter of concern or a motive for food choice is not mentioned spontaneously in our discussions. When actively introduced by the moderator, participants first do not see, any difference with regard to water, salt or any other product category (exotic fruit or seasonal fruit). Secondly, it is not the distance in terms of "transport way" which is discussed. It is the fact that the distance makes invisible the ecological and social conditions of production, which interest most the persons we interviewed. Thus, it is foremost in terms of "familiarity", or on the contrary, in terms of "abstraction" or "alienation" that distance is being perceived and discussed. Once the discussion about distance is engaged, there are, indeed, some consumers who mention that they take this aspect into account, even systematically, when choosing food products. According to them, it is much less the "transport" (costs, emissions, logistic effort), which is a subject of concern than two aspects of the relations between developed and less developed countries:

- First, the fact of exporting those products can lead to undersupply of the local population;
- Second, our participants feared that the conditions of production might be inhumane.

This feeling of uneasiness is, during the discussion, more and more generalized and finally is attributed to any product that is shipped to us from far away places, and make participants consider "fair trade" initiatives. But in the same time, "fair trade" products are being judged to expensive.

> Hypothesis 2: The distance is generally perceived as something negative in a food consumption process.

This hypothesis is not confirmed by our results, since negative and positive perceptions coexist. Negative associations with the term "distance" are, as shown before, "alienation", "injustice" and, of less importance, "costs" and "transport". Consumers' feeling about distance is that it makes invisible and uncontrollable the conditions of production and distribution. According to our participants, this is in favor of the food supply chain actors, who even might willingly reinforce the complexity of logistics and distribution in order to make impossible any insight in their actions. Thus, the biggest part of the "truth about food" can be hidden. Even the labeling of regional origin cannot prevent these products from travelling. Some of our participants even believe, that the opacity of the food market is good for anybody,

even for consumers. It would be far too complicated to understand every detail of production and distribution before deciding upon the purchase.

Economic costs of transport do seem quite unimportant as they are, according to our consumers, indirectly expressed in the products prices (prices being, as everybody's confirming, the most important choice criteria). The ecological aspect of food transport can, when listening to our participants, only be interesting to a small group of consumers, whom they qualify as "ecologically aware". Anybody else, less informed about ecological problems, will simply not take the time to pay attention to such an abstract criteria.

More, even though the negative connotations of "distance" are numerous and are being intensively discussed, the positive aspects overweigh by far, even though they are treated quite superficially. In one word, the positive connotation is the "dream" that far traveled products can evoke. Even consumers who criticize long distance food transports state a generally positive feeling about the "exotic" products, which make them think of places where they actually did or would like to travel to. Far traveled products express the "enjoying life" idea, but, at the same time, make believe that they come from pure, untouched places, undisturbed by any harm from modern civilization. And this is true, as well, for products as banal and as simple as salt and water.
Resuming, one might say that the negative connotations emerge from a complicated moral reasoning, while the positive "dream" aspect is pure sentiment.

> Hypothesis 3: The perception of distance varies according to the products in question (fresh, dry, everyday consumption, for festive occasions)

Our results do not confirm these hypotheses. The problems linked to "distance" are being perceived as identical for products which come "necessarily" from far away (exotic fruits, off-season fruits and vegetables, coffee), as for products which are being only shipped to our markets with the purpose of varying an offer, even rich and varied, of domestic products.

> Hypothesis 4: The perception of distance varies according to the buying /consumption situation (supermarkets, grocery stores, discount, restaurant…)

This hypothesis is partly confirmed. Products from far away seem to be particularly suited for special consumption occasions. Our participants gave examples, where those products made their entry into our markets by passing at first through the gastronomic sector. This seems to be the case, in France, for the Himalaya salt.
The simple fact that the products have been shipped from far away is underlining its extra value – there must be something special about the product that justifies this special treatment.

Hypothesis 5: Only the linear distance is being considered, and not the food chain and the circuit of the product.

This hypothesis is not confirmed. As a matter of fact, our participants are aware of the complexity of food logistics and it is exactly for that reason that they do not pay any particular attention to "distance" (they think that it is just illusionary to get an exhaustive comprehension of the food markets ways and practices). As already mentioned before, some consumers do even believe that food supply chain actors willingly reinforce the complexity in order to render their work incontrollable.
The general perception of the food industry and grocery retail is quite negative. Consumers feel trapped in a complex system which they cannot understand and which is manipulating them. As a logic consequence of this reasoning, consumers perceive food scandals as moments of catharsis that finally shed light on one aspect of the food business. After the scandal, at least this part of the food market gets more transparent and the quality is being improved.

Finally, our results show that consumers' awareness of food miles is limited. The only distance that some consumers perceive and actually do complain about, is a psychological one, since no reliable information about the social conditions of production in the country of origin is available. For the consumers in our focus groups, distance is generally felt as something positive, because it is associated with a pure and untouched nature or, with a real or dreamlike travel destination.

Individual interviews with local and organic food consumers

Focus groups were followed by 10 individual interviews with the particular group of local organic food consumers. The aim of these interviews was to evaluate whether these consumers - supposed to be more environmentally concerned than other consumers – were more aware and concerned by food miles.

Individual interviews were conducted with consumers who buy organic products from farmers markets or local organic food network in Montpellier, France. Products were selected to cover examples of different choice situations such as imported organic products that compete with comparable products of local origin, or organic local products in supermarkets that compete with similar products from other distribution outlets.

More precisely, interviewees had to compare a local and organic food product, a local and conventionally produced food product, and an imported organic food product. They had to

- (1) answer questions related to their attitudes and consumption intention (related to environment, health, price,..),
- (2) describe the person who typically buys and consumes each type of product

- (3) describe the person who never buys or consumes each type of product,
- (4) react after reading a discussion between three invented consumers (one who buys local or imported organic food, regardless of the mode of distribution or length of the distribution chain, the second one who only buys local and organic products and prefers not to buy them in supermarkets and, the third one who buys conventional local products),
- (5) discuss on the basis of open questions about food miles, mode of distribution, and producers

Local organic food is highly appreciated by respondents; however, the invented consumer who only buys local and organic products and prefers not to buy them in supermarkets is the least appreciated profile by 6 respondents, and nobody chose him as the most appreciated. On the contrary, the invented consumer who prefers organic food, and does not pay attention to the fact that it is local or imported, is the most appreciated profile by 8 consumers, and nobody chose him as the least appreciated.

Most respondents do not see major differences between local and imported organic food as regard to health, quality or environment.

However, two kinds of attitudes are to be noticed within the sample:

- According to some consumers, buying imported organic food is necessary since tropical products such as quinoa, bananas, ...cannot be found in France. (« Yes, the fact that a product travels so many kilometers seems stupid. But do consumers know about that ? do they care ? I think most do not. Personnally, I'd rather buy an organic imported apple than a local conventional one, even if it had to travel. One cannot be always consistent. I will walk rather than take the car, but… and if I want a banana, I have no choice"). Another motive for buying imported organic food is the fact that the products these consumers buy are organic and fair trade products. So they describe consumers who buy imported organic food as environmental-conscious but also concerned by mobilization for development of small producers from poor countries. When we stressed the fact that many of organic imports to France are from the southern hemisphere countries, implying long distance transport and bad environmental effects, they answered that in that case supporting producers from poor countries is more important that supporting environment. ("To me, imported organic food is fair trade food. And buying fair trade products is sharing another vision of the world.").
- On the contrary, others are reluctant. Some do not trust imported organic food since they do not know how organic production is controlled out of France, others think only snobbish persons buy imported organic products.

But, whatever their attitude towards imported organic food, they do not really take food miles into account.

3 Do consumers' ignorance may be bliss?

'I really don't want to know that my clothes are made under bad working conditions, but once I know, I want conditions improved so I can enjoy consuming again.'

Archetypal consumer

In crude terms, the issue may be stated as follows: why people do not seem to care about food miles? In economics, a more complete information set is generally preferred to a less complete set. Indeed, in such a case, informed consumers make choices in accordance with their preferences.
When promised attributes are credence attributes *e.g.,* food miles or animal welfare considerations, producers may manipulate provided information at their advantage (Akerlof, 1970; Caswell and Modjuszka, 1996). Nevertheless, the main point discussed in this section does not concern producers' opportunism but why consumers may find profitable to remain ignorant about some process attributes, *e.g.,* food miles.

Following the rationale suggested by Frank (2004), let us consider the situation of a food consumer before the food miles controversy became public. The ignorant consumer gets the best of both worlds, enjoying an utility gain U_f from a unit of food consumption while benefiting from lower prices due to global food chains, regardless of any considerations related to food miles. Nevertheless, if the consumer is informed about food miles, he suffers an additional utility loss from this knowledge when consuming the same unit of food. If the cost of using global food chains without taking into account non-economic dimensions of food miles is C_1 and the cost of supplying from geographically closer food sources is C_2 with $C_2 > C_1$, then the consumer has three choices:

- Either the consumer does not change his consumption habits, his utility can be expressed as:
$$U_{net1} = U_f - U_k - U(C_1)$$
- Or the consumer decides to switch to a food that does not take into account food miles then his utility can be written as follows:
$$U_{net2} = U_f - U(C_2)$$
- Or the consumer decides to stop consuming food (which is not really an available option unless we consider a subset of food products concerned by food miles):
$$U_{net3} = 0$$

$U(C_.)$ is the utility of the money spent on food in its next bet use.
The optimal choice for the consumer depends on whether $U(C_2) - U(C_1) > U_k$ and whether U_{net2} and U_{net1} are positive. In other words, $U(C_2) - U(C_1) > U_k$ means that the increased cost is greater than the utility loss from consuming knowingly and it is optimal to keep consuming the same product as before.
If $U(C_2) - U(C_1) < U_k$ the consumer prefers switching to less harmful products from a food miles perspective.

Regardless of which alternative is optimal, the utility of the selected option after gaining knowledge is less than the utility when the consumer was ignorant which can be expressed as :

$$U_{net0} = U_f - U(C_1)$$

The demonstration is intuitively obvious. Concretely, an increase in knowledge led to a decrease in utility. In summary, a change from a situation from a state of ignorance to a state of knowledge about a process attribute leads to a decrease in the overall utility of the consumer. Consequently, consumers may prefer a situation characterised by a willful ignorance to avoid becoming informed about something so as to avoid having to make undesirable decisions that such information might prompt. Applied to our example, a consumer may rationally choose to remain uninformed about food miles in regards with his consumption basket and to some extent implicitly support producers that do not make public such information.
This desire to remain uninformed[3] is likely to be stronger when the perceived dimensions tied with food miles do not overlap his private sphere or do not hurt him personnally e.g. global issues like air pollution rather than local environment. As showed by Frank (2004), the information set desired by a particular agent (the typical consumer) can differ from the information set desired by the society. Indeed, the knowledge of a process attribute may reduce the individual utility but it can also cause the reduction of a negative externality elsewhere. Moreover, do the net benefits, notably in economic terms from using global supply chains (under)compensate the net benefits (maybe of a different nature, *e.g.,* environmental considerations, local economy, fair trade) from using local supply chains? Under some conditions, it can be shown that moving towards the maximum information ideal, even with a part of consumers prefering a willful ignorance is the optimal set (Frank, 2004).

This divergence or dilemna between private and collective interest raises important issues, but this discussion is beyond the scope of this contribution.

However, the "archetypal" consumer hides numerous consumer profiles, with diverse personality traits, values, and attitudes. Within these, skepticism and Perceived Consumer Efficiency may particularly influence the individual's personal readiness to engage into topics such as food miles, as suggested by previous research on environmental concerns (Ellen et al., 1991; Berger and Kanetkar, 1995) or fair trade

[3] Interestingly, it can be considered as a right not to know.

products (Sirieix et al., 2004). Perceived Consumer Effectiveness [4], conviction, and experience were found by Ellen et al. (1991), or Berger and Kanetkar (1995) to increase the willingness of consumers to make individual sacrifices, thus suggesting that desirable consumption behaviours could be promoted by enhancing consumer perceptions that their actions will improve the environment. More precisely, when one believes his/her behavior can be useful, and has had the opportunity to participate personally in environmentally friendly behaviors, he/she is likely to actualize his/her attitudes. Such results are important, since they suggest to identify and enhance facilitators instead of trying to increase levels of concern.

The perceived consumer efficiency may be related to the social dilemma theory (Sirieix, 1999). Wiener and Doescher (1995) define a social dilemma as a situation in which " a person who contributes to the community's good receives fewer personal benefits than one who does not, and all group members receive more personal benefits if all contribute than if all do not ". This theory also identifies the barriers to cooperation. Some consumers may refuse to cooperate because they want to maintain their freedom ; others refuse to make efforts to save a resource and see this resource destroyed, being so a "sucker ". A third reason can be self-interest ; lastly, some consumers may not trust others to cooperate.

This refers to the assurance problem developed in Grolleau (2001). In this case, the consumer does not contribute for the production of a collective good because he believes that the good will not be produced anyway. Indeed, the production of certain collective goods requires a minimum level of contributions. If the contributions are insufficient, the good will not be produced and the individual thinks he squandered his contribution (Schmidtz, 1991). For example, a consumer can renounce purchasing an eco-friendly car because he (or she) is convinced that his (or her) contribution is too weak to induce a perceptible environmental improvement in air quality.
This contribution becomes interesting for the individual if he is convinced that a sufficient number of consumers will contribute by purchasing an eco-friendly car. Of course, this statement is valid in the case where the environmental quality depends on the choice of many agents (e.g. pollution generated by consumers or farmers) and not in the case where the environmental quality depends on a small number of consumers. The assurance problem is especially crucial when environmental quality depends on the environmentally conscious behavior of many consumers. The isolated purchase of an eco-friendly product does not generate tangible benefits for the group or the contributor agent. Consumers are willing to contribute if they are convinced that a sufficient number of contributors will also contribute, which may not be the case for products based on the food miles' argument.

[4] measured by Ellen et al. on the basis on the following two items : "There is not much that any one individual can do about the environment" and "The conservation efforts of one person are useless as long as other people refuse to conserve"

Conclusion

Distance related to food products is a multidimensionnal and fuzzy concept. Using a 'food miles' argument to support certain supply channels may not generate the expected results as shown by our empirical investigation.

In order to explain the relative indifference of French consumers to the food miles arguments, we showed that consumers may prefer ignoring some specific features of food consumption in accordance with the assertion that ignorance may be bliss. Another point that may reinforce the previous effect is the assurance problem, making the consumers reluctant to invest in a desirable effort because his/her individual contribution is not enough without guarantee on the behavior of others.

Nevertheless, our analysis has several limitations that deserve more academic attention. Our hope is that this study will encourage other researchers to conduct similar research in other countries, and determine whether the obtained results are specific to French households or not. Moreover, while the environmental argument behind food miles is intuitively convincing, some recent studies (*e.g.*, Pretty et al., 2005; Schlich et al., 2006) question whether using closer supply channels really contribute to environmental preservation.

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Annex. Products used for focus groups

Himalayan salt

Mineral water Fiji