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# Online purchase and trip reduction: what effects in urban and peri-urban areas?

Submitted by Forum Vies Mobiles on Fri, 04/22/2016 - 17:42
Mots clés
mobilité virtuelle
Discipline
Sciences sociales
Mode de transport
Tous modes de transport
Visuel

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Fichier vidéo
Transcription écrite

With the development of online sales, one may wonder if households and people are engaged in different mobility practices to do their shopping. As a first step, one could think: "not a lot", referring to the 8% of the non-food turnover that involves online sales. “Non-food” because food is still a case quite apart. On one side, 8%; it represents a lot, but 92% remain conventional purchases. I made the first investigations on online sales and mobility practices in 2007. In 2007, it was not even 8%, it was 4%. So we really had the impression of a marginal practice, but there were

some induced effects. In fact, from the moment people made once a purchase online, they knew that they could do it, and therefore at any time during the classic purchases, they pictured the possibility of buying them elsewhere, and so they entered in a particular geography by potentially being here and elsewhere at the same time. “If what I see here does not suit me, I can look elsewhere”, and from that moment, they went into more reflexive mobility practices, i.e. they imagined making other mobility choices, and it was not just a spontaneous mobility, something obvious, they did not go to the store where they usually went without thinking they could go elsewhere even with practices, once again, that could remain very marginal.

## How did online sales change the mobility practices?

### 1. A substitution effect on scarce goods

The major effect concerned things difficult to find; which means that what online sales offered in the first place was the search engine. Several stories of this kind: "I have very specialised practices, I am a specialist in audio equipment, I am a specialist in fishing", "I am looking for a very special toy for my nephew” etc. In all such moments, one earned a lot of time using search engines allowing to find hard-to-find products. So this had a substitution effect: rather than doing endless trips to find an object, people eventually began to make a few trips to search for the object, and then very quickly gave up and moved on to online sales. There is a very strong substitution effect on these extremely specialised objects that could represent quite rare cases but that could cost a lot of time without the use of search engines.

### 2. A substitution effect on downloadable goods

The second effect on mobility was everything that could be downloaded, i.e. what did not imply a delivery. There was also an important substitution effect there but which had already begun with the Minitel. Train tickets, tickets for shows... could already be bought, but since the Minitel, people have amplified their online sales practices. After that, of course, we talked about downloading music. What people liked was the ability not to be depending on the opening hours, they could buy a ticket at 11 pm, a ticket for a show at any time... Once again time-savings and the gain on the schedules flexibility were enhanced, but as an indirect effect people suddenly did not move to the counter either. So there was here a substitution effect too.

## “Pleasure” vs. “duty” purchases

After that, there were more complicated effects that were perhaps more unexpected. One thing that struck me was that, as a result, people began to talk differently about their purchases, and to make two different lists: there were pleasure and duty purchases. Basically, what could be regarded as a duty purchase was going to potentially be an online purchase. On the other hand, pleasure purchases were certainly not, even if it was possibly more convenient, made online. Pleasure purchases, for example, of people who said: “Personally, I like to wander around the shops, I could not even buy online because I do not know in advance what I want, I need to see things, I need to wander, I need to be tempted, and all of this is the pleasure of shopping, I will not give it up, and buying online would be a loss.” On the other hand, there is a functional aspect in online purchase which may be a possibility for other purchases we do not like to make. And therefore, in fact, things were spontaneously divided that way. So this motive could be observed more or less in everyone practices, and therefore mobility took another sense, I say more reflective in this sense, i.e. we began to have a little more thoughtful look on shopping saying: "so this, I will buy it online, for that, I will continue to go there.”

## When selling online increases trips

And then there were even more paradoxical effects that made us spend more time buying online and move more. It was especially typical among young people who used easily the internet, and also often among people without a lot of money who therefore began to compare prices in a very detailed way, or offerings from stores to stores. They went in store to see the product, they went back online to see it, sometimes they discovered online the existence of another store not far from their homes with better prices, they returned to see it, they went home, they decided to buy a part of the material in store, a part online. And in the case of clothes, it is a young people’s practice which is fairly widespread: some young people for example went in stores to try clothes on, and then, once they had spotted the brand, size, model etc. they wanted, they went back home to buy it online because it was cheaper. There was also many people who went in store to try for example cameras, electronic devices a little difficult to use before coming back home to buy them; or conversely, people who read specification sheets at home, and went after that in store to buy the products whose details they had read on the internet. In fact, we had a huge number of back and forth trips between the physical purchase and online purchase, and when we looked at things all in all, the mobility was increased by online purchasing, and there was a considerable waste of time. From this point of

view, there was a quite paradoxical effect. So this is the investigation I made in 2007.

## Differentiated purchasing practices between urban and peri-urban areas

We did another investigation 5 years later, we were there near the 8% I mentioned at the beginning, asking another question: is this online sales effect differentiated from one territory to another? We observed in peri-urban areas what was happening with online sales because we assumed that we would have different practices in a context where shops are far away and where online purchasing would perhaps be more used. We observed an increased use, but we especially found another kind of use of online sales, and for example, these countless back and forth trips I have described were not observed in peri-urban areas where mobility is much more restricted. Therefore if there is a use of online sales, it is much more functional than in town.

### 1. Peri-urban: optimise travel times

What must be understood in peri-urban areas, is that there is a very strong desire to reduce travel times. It is by the way a permanent feature; households are not so aware of the monetary cost of travels, and in fact, they massively underestimate it. There is often a 1 to 3 ratio in the cost they imagine to pay, and the cost they really pay; so this is not the travel cost which costs them if I may say, it is time. They thus try to gather their trips, they try to find two trip motives at the same time. For example: I come with my children to the gym, and at the same time, I do my shopping, and within this framework, a surprising phenomenon was discovered: some people, as a result, used drive-throughs developed in the cities, not where they lived, but near where they lived, for example where they took their children to the gym, they did not have time to buy everything they needed, and so they bought online from their homes, they took their children to the gym, to sport, or whatsoever, meanwhile, they got back their shopping errands at the drive-through, they came back and picked up their children, and that fitted their timetables. So there was a relatively complex articulation, a linking of trip motives, and online sales were part of these linking calculations. So that concerned the food shopping.

### 2. More radical substitution effects in peri-urban areas

There was indeed the issue of people looking for a specific product. Obviously in peri-urban areas where there is less offer, this search for a specific product developed with deliveries which were facilitated by comparison with city centres.Dedicated

deliveries, like deliveries of frozen food etc. are more complicated in peri-urban areas, theyare fewer and less frequent. But postal deliveries are similar to those in city centres, they are much easier because it is in fact easy in peri-urban areas to come to an arrangement with a neighbour or the postman...So there was also a remedy. Therefore when we tried to measure the substitution effects at that time, I would say that they were much more radical.
We also observed that for example, there was a more developed use of the workplace than in town. It is often imagined that people use their place of work for shopping. It was noted that it is rarely the case, because for people, shopping is a domestic activity, and therefore it is done close to home. This is rarely the case except when shopping close to home is not possible; either because we go home too late or because there is no store. Then, indeed, in peri-urban areas, we realised that people were using their place of work, and sometimes, to save time, bought something online that they collected while they were near their place of work. There was also a link between online sales and the use of another place, typically the workplace. Once again, we can see how the use of online sales implies an increasingly elaborated mobility building, in this case guided by the need for saving time.

### 3. “Duty” purchases more important in peri-urban areas

There was altogether an induced effect quite unexpected when people in peri-urban areas were asked: the range of purchases considered as “duty” was much broader than in city centres. The remoteness of malls implied a kind of distance, also symbolic, from points of sale. Many people said: “personally, I do not like malls.” Therefore people living close to a big mall (like ¼ of an hour by car) were interviewed. Thinking about it, if you live in a city centre and you want to go to a mall; ¼ of an hour is not so much short, but for these people, it was far away, including in their mind. Many people said: “personally, I do not like these big malls, there are too many people”. They often mentioned a relationship with nature, a proximity, a form of ecology, probably not in the carbon footprint but in the proximity with nature, and this proximity with nature is combined with a distance from the city, the consumer society etc. We found out a distance from these quite standard purchasing and consumption practices where people wander in stores, take a walk etc., and discovered that this distance” was reinforced by the use of online sales.

## Reduce the carbon footprint related to purchases

### 1. The logistics role

The underlying question concerns the evolution of the carbon footprint related to these specific travel practices. This was one of the questions asked by the 2012 survey on peri-urban areas: is selling online a way to reduce the carbon footprint of travels related to purchases? As far as urban areas are concerned, if we consider the question of the carbon footprint from a logistics and delivery point of view, I think that logistics are largely optimised until the last mile. There remains the big question of the ”last mile” delivery in town where we have on the one hand substantial optimisation losses because of a flows dispersal. In logistics, the basic principle is the flows concentration, i.e. to save money, but also to make savings in carbon footprint. You can image the difficulty that implies the flows concentration on the “last mile”; I think there is significant room for improvement. Today we can see, especially for food, that large distributors quite gave up the “last mile”; they instead focus on drive-throughs and let users do the last mile. This is not necessarily stupid, including from a carbon footprint perspective, because as a result of that, as drive-throughs are a fairly quick process, people do it by chaining, i.e. they do it while returning home from work. The mobility is thus still very weak, and then actually, there is not at all the issue of managing appointments. On the opposite, food cannot be delivered without an appointment, things cannot be left in letterboxes, so making appointments is a major source of degradation of the flows concentration because it would really be a coincidence if two neighbours ask to be delivered exactly at the same time; therefore a lot of energy is lost.

So in fact, today’s idea is rather to focus on drive-throughs. One of the solutions envisaged and a little developed is precisely to have quite intermediate formulas where logistics go up to a point, potentially a relay, a shop, while users take care of the mobility on the other side. Once again, this is not necessarily a bad idea. You must know that the delivery pointnetwork is not good in peri-urban areas, meaning that it does not really solve the problem, because relays are often far from people. From this point of view, another solution must be found because relay networks are finally important in town. So if you try to think in terms of supply chain, this is where you can take action.

### 2. The need for a multifunctional urban planning

From the user’s point of view, can we imagine forms of mobility that cause less carbon footprint? This is rather complex. What you need to know, the first way, is that shopping is an activity that we do near our home, so the only way to decrease mobility related to shopping is to bring places of purchase closer to residences, or

bring them closer to places of activity like leisure activity, places where you bring your children etc. It is another way, but it is clear that all of this is based on a multifunctional urban planning and unfortunately even today a rather monofunctional urban planning is still being developed: shopping malls continue to grow, there are projects of eco-neighbourhoods that developed just after malls still substantial in size were opened, I would say, 2 kms from these neighbourhoods... It makes it impossible to develop businesses in the neighbourhood: people take their car for 2 kms, it is not huge, but it is a complete contradiction. If we really want mobility related to shopping to change dramatically, the only solution is to bring businesses closer to residences. Online sales can play a role in this process. In peri-urban areas, they play a role but even in those areas, there are solutions to bring businesses closer to residences. For example when we did these investigations in peri-urban areas, we discovered that some places were once a week occupied by a greengrocer, a butcher who came to the heart of the village and supplied a significant number of people. This kind of formulas can perfectly be mixed with online sales because we could very well imagine close points of delivery open in relatively closed slots but at times where there is a small business activity in these peri-urban places, and I think that this is the only solution again or the issue of the “last mile” delivery will largely remain detrimental.

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How online purchases differ between urban and peri-urban areas? Do they allow to reduce our movements and their carbon footprint? Frédéric de Coninck, currently Coordinator of the LABEX Urban Futures (Laboratoire d’Excellence Futurs Urbains), uniting the research forces on the city of Paris-Est university exposes the results of two surveys conducted in 2007 and 2012.

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