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## 1. Abstract

The main goal of this research was to investigate if promoting social diversity, which is among the main objectives of the Bees Coop, is reconcilable with the principle of sustainable food. Although this concept is well known for traditionally reaching wealthier backgrounds, the supermarket installed on purpose its locals in between two neighbourhoods, one more well-off (High Schaerbeek) and therefore supposedly already sensitised, and the other being the poorest commune of Belgium (Saint-Josse). This thesis addressed this question by classifying the so-called 'customer co-operators' regarding the level of difficulty of the sector they are living in. Another relevant question was whether the communication campaigns led by the cooperative in its neighbourhood have had an impact on the profile of co-operators. Finally, a comparative analysis was undertaken to underline sociodemographic differences between the groups of different types of sectors. No such scientific paper previously addressed the profile of members of food cooperatives, or at least recently.

Main results showed that, although the cooperative is increasingly attracting members from lower socioeconomic sectors, its reach remains limited.

## 2. Introduction

Frequently considered to have started in the nineteenth century in England, the cooperative movement has seen many evolutions since then. Food cooperatives emerged at the beginning of the twentieth century, with the aim of providing an opportunity to farmers to sell their food locally and at a decent price. Before the 1960s, the predominant cooperatives were large stores with a professional board of executives, but then emerged the new wave of ‘participative cooperatives’, smaller stores selling organic and natural food and depending mainly on volunteer labour (Streed, Cliquet & Kagan, 2017). The organisation studied in the present research falls within the definition of a participative food cooperative. Though it seemed that participative food cooperatives lost momentum after the 1970s, it appears that they recently came back on the scene, especially in Europe, and more notably in France where, since the setting-up of La Louve in 2010, many other projects have emerged.

Nevertheless, although many studies were conducted about respectively food cooperatives, the consumption of organic, local and environment-friendly food products, it seems that no recent work put the focus on the profile of the members of participative food cooperatives, regarding their socioeconomic and sociodemographic characteristics. Nor was studied the subsequent chronologic evolution of the members in this regard, and the effectiveness of communication campaigns addressed at reaching people from lower socioeconomic status and areas. Indeed, the Bees Coop conducted various communication strategies targeted to inhabitants from deprived neighbourhoods, and it is therefore interesting to elucidate if it ultimately had observable effects. Finally, by involving the members to work in the cooperative, it reduces significantly labour costs, which in turn enables quality, sustainable and organic products to be found at lower price than elsewhere by reducing margins on it. However, the products remain more expensive than those that can be found in discount stores, and it should be noted that the cooperative does not only sell organic products. This alternative supermarket was inspired by a not-so-recent concept, that is the Park Slope Food Coop (PSFC), a cooperative supermarket created in the seventies in New York and that is nowadays a well-functioning institution that counts over 16,000 members. The approach of the Bees Coop is the same as in the United States. The so-called customer co-operator is related to the cooperative in three different ways. Firstly, he is the owner of the cooperative as he is demanded to invest capital in the organisation and detains at least one share of the company. Secondly, he is a worker within the cooperative as he is required to provide at least 2 hours 45 of his time working at the supermarket every

month. Thirdly, he gains the right to be a customer of the supermarket by his investment of money and time granted to the cooperative. Also, governance within the cooperative is very democratic, as every member has the right to involve in the strategic decisional process, and that one member has one vote, whatever the money he invested in the project. Moreover, the cooperative is subdivided in different committees. The social diversity committee is one of them and works at making the supermarket accessible to everyone. The term social diversity could be understood in various ways, but the specific committee of the cooperative dedicated to it is based mainly on three pillars: the social, cultural and intergenerational diversity. Not only is the Bees Coop eager to engage members from different social backgrounds, but it also seeks to become the main supermarket of its co-operators. Indeed, it also offers non-food products such as cleaning products in order to become a ‘one stop shopping’ for the customers.

Therefore, the current research paper aims at addressing this question: Knowing that the Bees Coop implemented itself in a very diverse neighbourhood of Brussels – both from a cultural and from a socioeconomic point of view – can it be concluded that the objective of social diversity among the members of the cooperative was attained? In other words, while the goal of the Bees Coop is to promote sustainable food, by favouring short food circuits, local producers, goods cultivated in an ecological way and fair trade, it also aims at making it available to everyone and not only to better-off individuals and households, presumably already more educated and aware about these concerns than people from lower socioeconomic backgrounds. Furthermore, regarding sociodemographics, it was found in various studies that relatively more women and typically younger individuals were more susceptible to buy organic foods and to carry out environmentally friendly activities. Nevertheless, no study seems to have examined these sociodemographics regarding the broader framework of food cooperatives, while access to quality food for everyone is typically the dedication of that kind of organisation, and therefore if similar conclusions can be drawn about participative food cooperatives.

Consequently, the following study investigates the evolution of new members and characteristics over their age, gender, but also and more importantly over their living area. The last decomposes in different perspectives: the distance to the cooperative, the commune and the level of difficulty found in the sector. The different living sectors ranked by socioeconomic levels were found using the study of Van Hamme, Grippa & Van Criecken (2016) who drew a map about the statistical sectors in Brussels in 2010, classifying them by using a summary index of socioeconomic difficulty (see the components of this index on **Annexes 1.1, 1.2** and

**1.3).** Moreover, the resulting scattered statistical sectors were put together into five groups of similar difficulty index in the research published in 2016 to ease the analysis. In turn, they are reduced to three groups in the current paper, removing the geographical aspect included in the previously mentioned analysis but which is not very relevant for this study. The three remaining are sectors in greatest difficulty, sectors in moderate difficulty, and other sectors which refers to better-off areas in Brussels.

Hence, the next section will start with a brief literature review, even though the studies about the members of food cooperatives were not numerous. Indeed, it will firstly look at what was found more than thirty years ago about food cooperatives, and then focus on more specific aspects, such as the profile of local, organic and environmentally friendly food consumers. Then, it will conclude about what was found in similar cooperatives about the proportion of members benefiting from minimum social benefits. The subsequent section will be dedicated to deal with the information received about the so-called ‘customer co-operators’ of the Bees Coop. The methodology will be explained more in detail, followed by the results effectively obtained, and by a discussion in order to reflect on the implications of these findings. Finally, in the conclusion, the general results will be gathered, and the emphasis will be put on the most relevant ones.

### 3. Literature Review

The supermarket examined in this research paper differentiates itself from other ‘mainstream’ supermarkets in various regards. Firstly, the Bees Coop is owned by its customers under the status of a participative cooperative. Moreover, it favours organic products and local producers. Additionally, and related to the last point, it aims at offering products that respect the environment. Finally, the Bees Coop explicitly puts an emphasis on social diversity and on the access of sustainable food to everyone.

Therefore, in this section, a definition of the wide term ‘cooperative’ is given. Furthermore, a focus on the definition of food cooperatives, specialised in offering organic, local and environment-friendly products is given. The profile of the members of these cooperatives are discussed, as well as simply reduced to the environmental, local or organic aspect of the products. Moreover, previous findings over access to members of lower socioeconomic position to similar food cooperatives are examined.

#### 3.1 Food Cooperatives

Firstly, it is important to give a definition of cooperatives. Novkovic, in a study published in 2008, attributes various roles within market economies to the cooperatives, among which ‘to internalise market externalities, to serve as laboratories for social innovation, to espouse social entrepreneurship, to promote ethical business practices and to aid in development’. The author defines cooperatives as very democratic ‘businesses known to contain a social component, rooted in the cooperative principles and values’.

Nevertheless, no focus on food cooperatives nor to access or social diversity is put in this definition. For their part, Katchova & Woods (2011) define store-based food cooperatives as ‘usually characterised by their strong support for natural and organic foods, community activities, environmental sustainability, and local food systems’, and link it closely to the definition of local food network. Again, no attention is given to social diversity within food cooperatives, and therefore it seems that this aspect falls outside of the specific scope of food cooperatives, or at least that it is not a common principle shared among them.

However, no recent study focusing on social diversity within food cooperatives seems to have been conducted. Yet, in the United States during the 1980s, a study concluded that participatory cooperatives – like the Bees Coop – had significantly fewer minority customers represented than in classical shops and in other types of cooperatives. It also seemed to attract relatively

younger customers. Moreover, college educated people were more familiar with the concept of cooperatives than the others (Sommer *et al.*, 1983). For their part, Murtagh & Ward (2009) highlighted that alternatives to food supply were often accessed by better-off individuals, in terms of education and income, without restricting the statement to food cooperatives.

### 3.2 Organic Food

The objective of the Bees Coop, as previously explained, is to make sustainable and quality food accessible to everyone. By quality food, it does not mean that it exclusively offers organic products, but they represent a sufficient share of the goods available at the supermarket to be studied more in detail. In this regard, Kahl *et al.* (2012) define organic food through the assessment of its quality – both from a process and product-oriented perspective. Therefore, they stipulate that ‘organic food is produced within a regulated and certified production process’. Moreover, they define the product aspect of organic products with respect to different criteria: ‘price, brand/label, safety, nutrition, enjoyment, vital qualities, organic integrity and true nature’. While the first two are extrinsic, the remaining are directly part of the product itself. Finally, the authors stress that purchasers’ trust and perception are decisive in determining organic food quality.

Focusing on purchasers of organic food, Kesse-Guyot *et al.* (2013) found that adult French consumers of such products had higher educational level than the non-consumers, and this for both genders, while differences in incomes were not significant between the consumers and non-consumers. Predictably, those declaring that organic food was too expensive had both lower income and education. Accordingly, Hassan, Monier-Dilhan, Nichele and Simioni (2009) concluded that organic buyers were more related to their educational level than to their income, age or family size. This was confirmed later by Oates, Cohen & Braun (2011) in their study in Australia. In contrast, Hoefkens *et al.* (2010) found that organic vegetables consumers were on average older and more likely to have children at home, while no relationship with income, education nor gender was identified. In this regard, a research that evaluated numerous studies found that the typical organic consumer was older, more likely to have children and to be a woman (Hughner *et al.*, 2007).



### 3.3 Environmentally Friendly Products

Tightly linked to organic food but also found in other types of goods, the sustainable approach of production is at the centre of the principles of the alternative supermarket. The 2018 edition of the *Collins English Dictionary* defines environmentally friendly products as goods that ‘have no or the least possible impact on the environment’.

Regarding consumers of environment-friendly goods, Lee, Kang & Shin (2017) found through a cross-country study that people aged 65 and above were less likely to consume green products. However, gross domestic product and pre-primary education were positively correlated with pro-environmental consumption in developed countries. Chen *et al.* (2011), for their part, found that pro-environmental behaviour was more likely to be conducted by female, younger and educated people. This confirms the results of many other previous studies (Zilahy & Huisin, 2009 ; Zsóka *et al.*, 2013 ; Vicente-Molina, Fernández-Sáinz & Izagirre-Olaizola, 2013). Employment status was also found to be predictive for pro-environmental conduct, with unemployment and low employment rank correlated with a lower engagement (Chen *et al.*, 2011).

### 3.4 Local Food

Additionally, closely related to the environment-friendly approach towards food products, local food network is advocated by the Bees Coop and the priority is given to local producers. Indeed, in an increasingly globalised world, local food initiatives are encouraged and promoted as viable sustainable options. However, giving a universal definition to local food and local food networks seems impossible as the ‘local’ dimension is relative, but also as to what it relates is vague (production, consumption, distribution). Seemingly, giving a definition of local food is more ambiguous than defining organic food, which is based on several defined criteria (Lang, Stanton & Qu, 2014). In its review of literature in search of a definition of local food, Eriksen (2013) gives three areas of proximity related to local food. Firstly, geographical proximity is understood in terms of distance of production, sale, and consumption but is also linked to the territorial locality of food. Secondly, relational proximity is related to the relations between market actors. It is the domain where local food is ‘reconnecting’ the relationship between the producer and the consumer. Finally, values of proximity are about values that different key players give to local food. It is more about perceptions, where consumers have an idealised image of local food, in terms of, among others, sustainability, quality and freshness. Moreover,

local food systems are usually defined as systems including no more than one intermediary, by opposition to global food systems (Chaffotte & Chiffolleau, 2007).

In respect of the potential shopper of local food, Nie & Zepeda (2011) found personal characteristics to be decisive in determining knowledge and behaviour concerning local food. They found local food choice to be adopted by typically wealthy, white, middle-aged individuals with children in the household. Blake, Mellor & Crane (2010), for their part, advocate to be cautious about local food, and to avoid positioning it as a social fact. Indeed, the higher price of local food and its 'required cultural capital' is likely to sustain inequalities about health and food decision. On this point, Hinrichs & Kremer (2002) showed that participants of local food systems were ranking on average higher on factors such as household income, education and occupational status.

### 3.5 Access to People of Lower Socioeconomic Position

Many participatory cooperatives defend a right to sustainable, healthy and quality food with sometimes an emphasis put on the accessibility to everyone. In that sense, in La Louve, the Parisian cooperative which also inspired the Bees Coop, the minimum subscription is of 10 shares of 10 euros each, but it can be reduced to only one share for those receiving minimum social benefits. The latter were 3.4% among the 1,456 co-operators on the 24<sup>th</sup> of June 2015 (El Karmouni & Prévot-Carpentier, 2016). At the FSCP in New York, an equivalent system exists. Members, while enrolling, both need to pay a non-refundable 'joining fee' of \$25 but also a 'member investment', which is equivalent to the required investment in the Bees and La Louve. This contribution to the capital of the cooperative amounts at \$100. Both can be reduced (to \$5 and \$10, respectively) if the member can prove that he benefits from an income-based assistance. Nevertheless, no information seems to be available about the share of members benefiting from these reductions. Moreover, the founder of the cooperative Supercoop (in Bordeaux, France) admitted in December 2017 that a few members were under than 25 years and that only 4% of the co-operators were benefiting from minimum social benefits. Oppositely, in the North of France, the cooperative supermarket SuperQuinquin had reached 20% of members assisted by minimum income scheme (Wilcke, 2018).

Nevertheless, it can be affirmed that, in many studies, sociodemographic profiling variables as age, gender or education have led to ambiguous results regarding the consumption of sustainable food, as it was concluded by Verain *et al.* (2012). The authors included new

variables in their studies, especially values and attitudes, in order to establish new groups of sustainable food consumers.

To conclude, it seems that various analyses found that education had a positive effect respectively on the consumption of organic products, on pro-environmental behaviour and on the knowledge of cooperatives. Nevertheless, less explicit links were found with income. Additionally, demographic variables like gender and age resulted in contradictory findings. While participatory cooperatives seemed to attract relatively younger people, organic products consumption was mostly found to be increasing with age. No clear conclusion could be drawn between gender and organic food consumption. However, females were found in many studies to be more susceptible to adopt an environment-friendly conduct. Again, a negative relationship was observed between pro-environmental behaviour and age. Finally, concerning the access to individuals in a lower socioeconomic position, it appeared to be relatively low in La Louve and in Supercoop, while already forty years earlier, minorities were found to be underrepresented among participative food cooperatives.

In this way, while considering the findings of the existing literature on different aspects directly or indirectly related to the cooperative, it is relevant to verify if these apply to its wider framework and if sociodemographic and socioeconomic characteristics lead to more conclusive results in this study.

## 4. Data Analysis

### 4.1 Methodology

The information was collected using the database consisting of the partners of the Bees Coop, up-to-date until January 17, 2018. The total sample contained  $n=2095$  partners from which 1754 ‘customer co-operators’ with at least one A share, thirteen legal entities with at least one B share and 59 support co-operators with at least one C share. The remaining ones had uncompleted information relating to the type of share detained. It resulted in a sample of 1754 members, as were kept only the co-operators that effectively worked at the supermarket and had the right to shop their food there.

The research was mainly based on the map of Brussels of Van Hamme, Grippa & Van Criecken (2016), from which the sector for each customer co-operator of the Bees Coop was found after the information had been anonymised (**Annex 1.4**). The map had been previously designed using information over the statistic sectors in Brussels and by grouping these sectors in five types ranked by the level of difficulty assigned to the area (see **Annexes 1.1, 1.2 & 1.3**).

Among the sectors, four shared very identical characteristics two by two and were only distinguished by their geographical location – which was not especially relevant for this study. Therefore, the number of sectors was reduced from five to three groups of sectors inside Brussels in order to ease and clarify the analysis.

The map was very appropriate for the study as it used different socioeconomic indicators to rank the neighbourhoods by the level of difficulty found within it (see **Annex 1.2**). The socioeconomic indicators were from four types: the origin of the inhabitants in the different sectors, their income, the insecurity on the labour market and finally the insecure households and the transfer income granted to the inhabitants of the sectors. Participants were localised accurately based on their residential address given to the Bees Coop. The Google Maps API was used in order to calculate the driving distance from their home to the cooperative.

A timeline was drawn (**Figure 4**) in order to link events or period of campaigns with the evolution in the number and the type of co-operators. Information used was mainly from the website of the cooperative and from some internal reports received by key members of the cooperative.

Neither of the transfers of shares to another member nor resales of shares to the company were accounted for as there were not numerous (twenty transfers of maximum four A shares to another member) and it was not possible to determine the inner reasons for this decision.

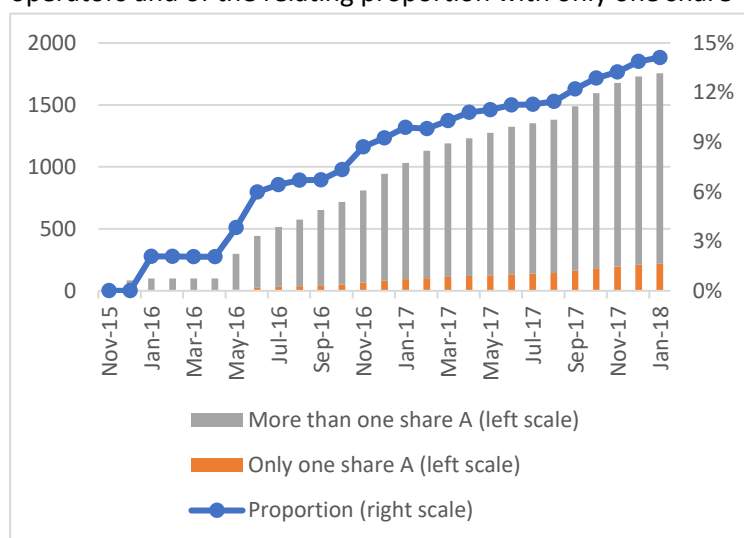
## 4.2 Findings

<b>Table 1</b> Number of A shares bought		As explained before, the study focused only on members possessing A shares, as it gives the power to participate in the decisional process, it requires the co-operator to work on a regular basis (three hours a month), it enables to access to the supermarket, and more importantly as it is the main pillar for the functioning of the cooperative.
Average	6,27	
Median	4	
Standard error	17,35	
Maximum	200	
Minimum	1	
<b>Total available information</b>	<b>1653</b>	From the 1754 co-operators satisfying this definition, three addresses were not complete and were excluded from the sectorial analysis. From all these co-operators, 57.5% were coming from the commune of Schaerbeek and 9.6% from the commune of Saint-Josse.

In total, 95.4 percent of the customer co-operators were living in Brussels: 24% in sectors in greatest difficulty, 45.3% in sectors in moderate difficulty and 25.9% in other sectors, that is, more well-off sectors. The remaining 4.6% were living outside of Brussels. From them, 48 (almost two thirds) were living in the Brabants. Details can be found in **Annex 2**.

The mean age found was 39.02 years (SD 11.72) and the median was 35 years, for the members whom information was available (791). Additional information is contained in **Table 7** and in **Figure 7**. 63.4% of the co-operators with information (766 in total) were women. Data over gender was only available extensively from January 2017, and no trend over time from then was found.

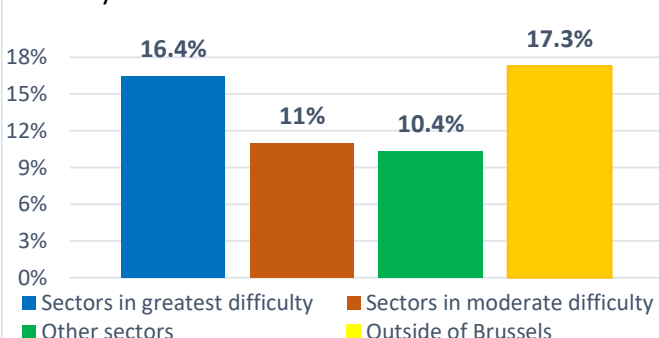
**Figure 1** Evolution of the number of total customer co-operators and of the relating proportion with only one share



There were no new members (1 in March 2016) between February 2016 and April 2016 included. It is explained by the fact that the launching of the shares to the public was initiated in the beginning of May 2016. Before, the customer co-operators were only the core initiators of the project who were mainly members of a citizen's group (called ADES network).

As mentioned above, the cooperative generally encourages the members to invest €100, represented by four A shares. However, in line with its goal of being accessible to everyone, it enables to purchase a minimum of one share at €25, in order to not restrain people with financial difficulties to participate in the project. In this regard, at the date of the 15<sup>th</sup> of January 2018, from the total of 1754 customer co-operators, 14.1% had benefited from the reduction to one share instead of four, considering available information only. Comparatively, in September 2016, that is, 16 months earlier, 6.7% from the 651 members of the cooperative were possessing only one share (**Figure 1**).

**Figure 2** Proportion of co-operators with only one A share by zone

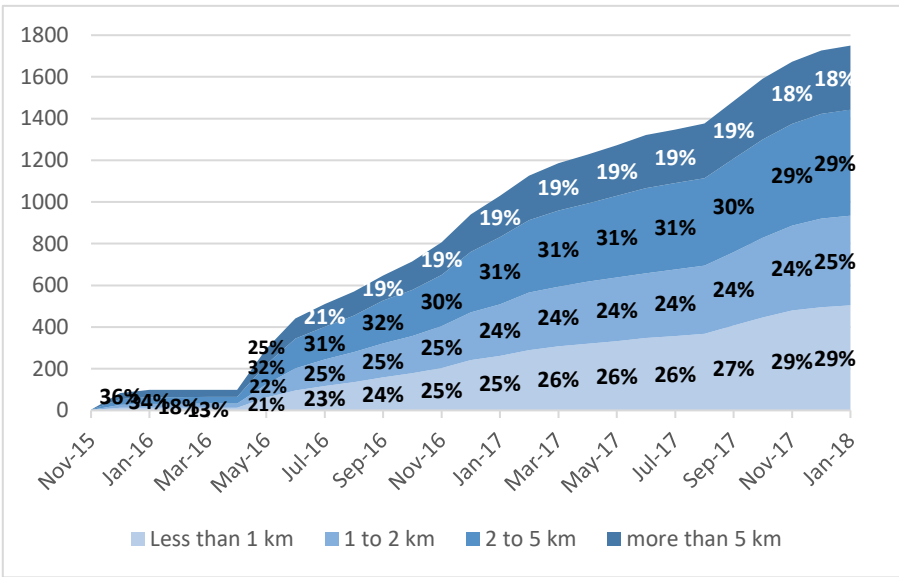


Furthermore, it can be observed in **Figure 2** that the members of sectors in greatest difficulty enjoying the possibility to buy only one share were over-represented (16.4% of members living in this type of sector), whereas in other sectors (more favoured) and in sectors in moderate difficulty they were relatively less numerous (respectively 10.4% and 11%). Members who were legally domiciled outside of Brussels were also benefiting relatively more of the ‘reduction’ to one share than the average (17.3% of the members living outside of Brussels were possessing only one share).

**Figure 3** Timeline of notable events within the cooperative



**Figure 4.1** Evolution of total co-operators by travelled distance



The percentage of the **Figures 4.1, 4.2** and **4.3** were rounded. Therefore, the total could not be of 100 percent for some periods.

Regarding the distance of the members from the

supermarket as shown in **Figure 4.1**, it can be noted that the trend is showing an increasing proportion of people living within less than one kilometre, and a decreasing trend of people living within two kilometres or more. Moreover, analysing relative change over time (**Table 2.1**), the average monthly evolution is found to be inversely proportional to travel distance. That is, the group of customer co-operators living within less than one kilometre has seen the highest growth (+7.1% per month) during the studied period, while the group of members living within 5 km or more has increased at 4.7 percent per month.

**Table 2.1**

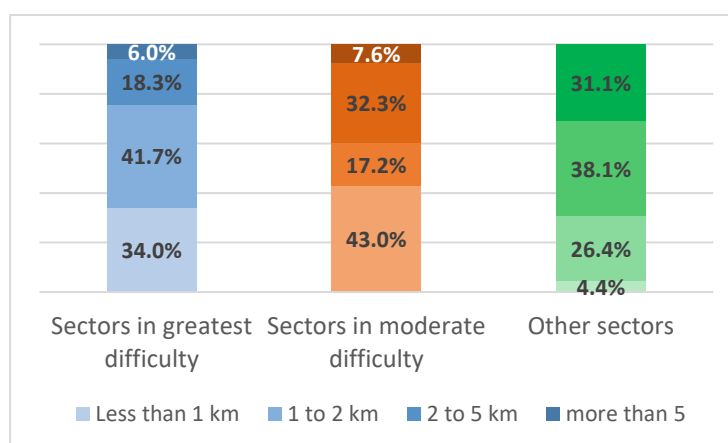
Relative change during the period by travelled distance

	02/16 – 04/16	05/16 – 07/16	08/16 – 10/16	11/16 – 01/17	02/17 – 04/17	05/17 – 07/17	08/17 – 10/17	11/17 – 01/18	AVERAGE MONTHLY CHANGE*
more than 5 km	+0%	+45%	+19%	+26%	+10%	+6%	+11%	+3%	+4.7%
2 to 5 km	+0%	+65%	+26%	+31%	+8%	+6%	+12%	+4%	+5.7%
1 to 2 km	+6%	+98%	+23%	+23%	+8%	+5%	+16%	+6%	+6.6%
Less than 1 km	+0%	+92%	+32%	+29%	+11%	+7%	+22%	+5%	+7.1%

\*For computation, see **Annex 5**

Additionally, it was found that 69.2% of the members living in wealthy sectors needed to ride two or more kilometres to join the cooperative, while more than three fourths (75.7%) of people living in sectors with the greatest difficulty travelled less than two kilometres. Finally, almost the half (43%) of the co-operators living in sectors classified as being in

moderate difficulty only covered less than one kilometre to reach the supermarket (**Figure 5**). Indeed, on average, people living in other (richer) sectors travelled more joining the supermarket. Additionally, the distribution of distance for this type of sector has a higher standard error, meaning that there is a higher variation between the distance from the accommodation of the co-operators to the cooperative than in other groups. It is in sectors experiencing the greatest difficulty that average distance travelled is the lowest, with on average 1.74 km travelled by its inhabitants to the Bees Coop, although median distance travelled in sectors in moderate difficulty is lower. The standard error is also lower in sectors in greatest difficulty, indicating a lower variance between its members, and therefore that, not only were they travelling on average less, but also were they living comparatively more on average within the same distance (**Table 3**).

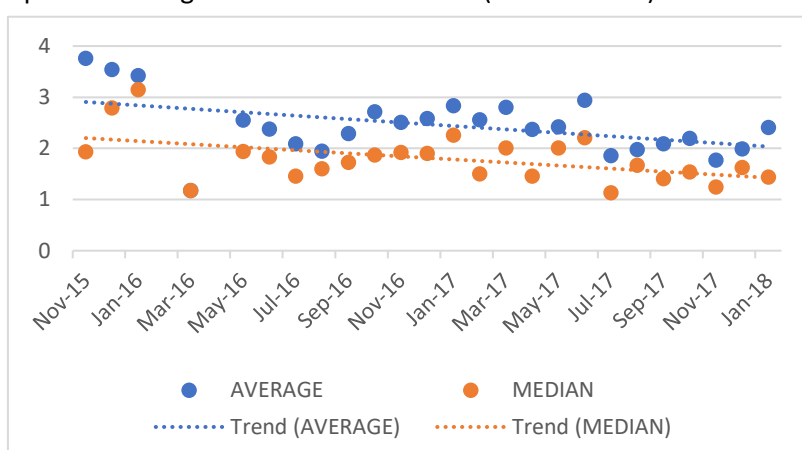
**Figure 5** Proportion of co-operators by distance travelled to the Coop

**Table 3**

Travel distance in Brussels (in kilometres)

	Sectors in greatest difficulty	Sectors in moderate difficulty	Other sectors	Less than 200 inhabitants	BRUSSELS
Average	1.74	1.96	3.91	-	<b>2.44</b>
Median	1.43	1.31	3.01	-	<b>1.78</b>
Standard error	1.37	1.76	2.69	-	<b>2.19</b>
Maximum	10.38	10.39	12.69	-	<b>12.69</b>
Minimum	0.26	0.047	0.82	-	<b>0.047</b>
<b>Total available information</b>	<b>420</b>	<b>793</b>	<b>454</b>	<b>3</b>	<b>1670</b>

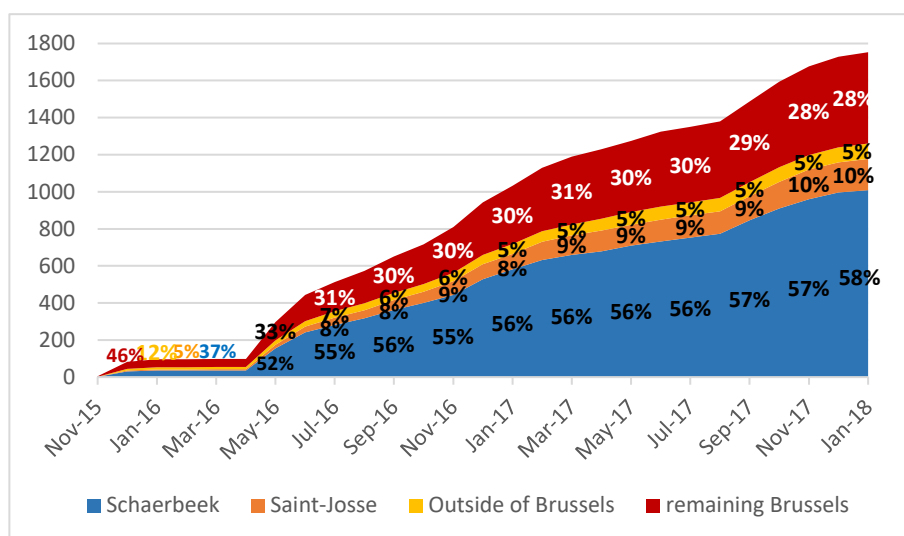
By designing the **Figure 6**, only the members living in Brussels were considered in order to not influence the computations with extreme values, also considering that relatively a few co-operators were living outside of the city. There was a decreasing tendency

**Figure 6** Mean and median distance travelled by new customer co-operators living in Brussels each month (in kilometres)

related to driving distance to the Bees Coop for new members registered, meaning that they were progressively living nearer from the supermarket, even though the trends are not very predictive either for the median or the mean (with respectively a coefficient of determination of 24.81% and of 20.59%).



**Figure 4.2** Evolution of total customer co-operators by location



Regarding the evolution of the customer co-operators in the communes and especially in Schaerbeek and Saint-Josse directly neighbouring the Coop (Figure 4.2), a clear tendency can be distinguished, with a

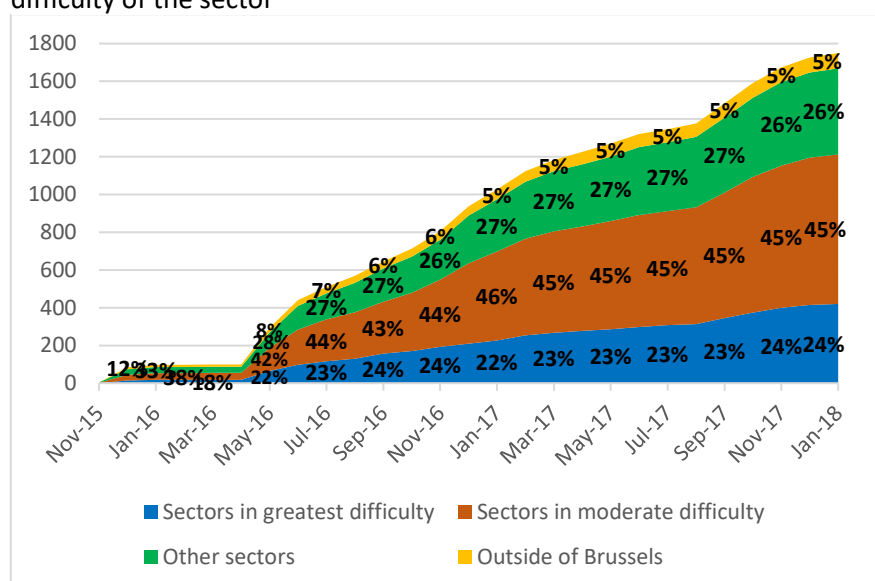
rise in the proportion of co-operators living in Schaerbeek (from 37% in January 2016 to 58% two years later) and Saint-Josse (from 5 percent in January 2016 to almost 10 percent in January 2018). Looking at the **Table 2.2**, the highest monthly average change was observed in Saint-Josse, with an increase of 8 percent per month, followed by Schaerbeek with an average augmentation of 6.3 percent each month.

**Table 2.2**  
Relative change during the period by zone

	02/16 – 04/16	05/16 – 07/16	08/16 – 10/16	11/16 – 01/17	02/17 – 04/17	05/17 – 07/17	08/17 – 10/17	11/17 – 01/18	AVERAGE MONTHLY CHANGE*
Remaining Brussels	+0%	+59%	+23%	+27%	+10%	+6%	+12%	+3%	+5.3%
Outside of Brussels	+0%	+46%	+11%	+15%	+16%	+1%	+8%	+4%	+3.9%
Saint-Josse	+20%	+111%	+39%	+15%	+12%	+8%	+19%	+4%	+8%
Schaerbeek	+0%	+81%	+26%	+31%	+7%	+6%	+18%	+5%	+6.3%

\*For computation, see **Annex 5**

**Figure 4.3** Evolution of total customer co-operators by degree of difficulty of the sector



Nevertheless, globally, no clear tendency was observed regarding the degree of difficulty of the sectors the members were living in. All sectors increased by their number of co-operators in absolute terms, and the share of people living outside of Brussels fell from 12

percent in November 2015 to 5 percent of the total co-operators in January 2018, but the percentage seemed to have stabilised in the last months (**Figure 4.3**). A more interesting analysis was to focus on the average monthly change, showing a monthly average growth of 6.5 percent for sectors in greatest difficulty, of 6.3 percent for sectors in moderate difficulty, higher than in other (wealthier) sectors and outside of Brussels (5.7% and 3.9% respectively). This confirms that the Bees Coop, while having started with more people from better-off sectors, attracted progressively relatively more and more people from less wealthy backgrounds (**Table 2.3**).

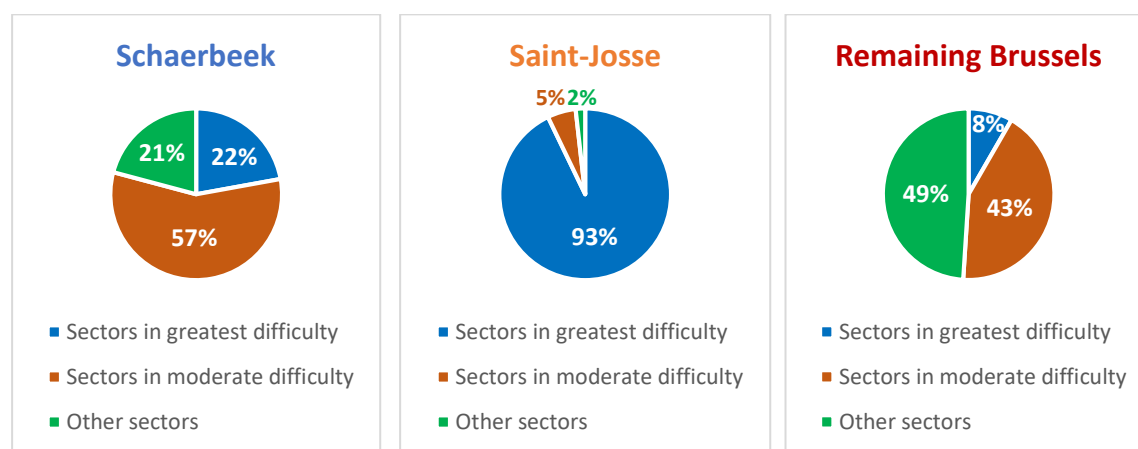
**Table 2.3**  
Relative change during the period by sector

	02/16 – 04/16	05/16 – 07/16	08/16 – 10/16	11/16 – 01/17	02/17 – 04/17	05/17 – 07/17	08/10 – 10/17	11/17 – 01/18	AVERAGE MONTHLY CHANGE*
Outside of Brussels	+0%	+46%	+11%	+15%	+16%	+1%	+8%	+4%	+3.9%
Other sectors	+0%	+67%	+23%	+31%	+9%	+7%	+13%	+3%	+5.7%
Sectors in moderate difficulty	+0%	+79%	+26%	+32%	+8%	+6%	+16%	+5%	+6.3%
Sectors in greatest difficulty	+6%	+78%	+32%	+18%	+9%	+7%	+19%	+5%	+6.5%

\*For computation, see **Annex 5**

At the date of January 15, 2018, a total of 24 percent of the members of the cooperative were from sectors in greatest difficulty. In Schaerbeek, they represented 22 percent – though no clear tendency over time could be drawn, except that the proportion of members coming from wealthier sectors was decreasing in this commune (see **Annex 6**) – meaning mathematically that another commune was raising the global average. In fact, although it only represented about a tenth of the customer co-operator at the beginning of 2018, it is the commune of Saint-Josse that contributed the most to attract people from sectors in difficulty. Indeed, a total of 93 percent of the members in this commune were coming from sectors in greatest difficulty (**Figure 7**).

**Figure 7** Repartition of customers co-operators in different zones



**Table 6**  
Means comparison between types of sector

	Sectors in greatest difficulty	Sectors in moderate difficulty	Other sectors	TOTAL BRUSSELS
<b>Distance (km)</b>	1.74	1.96	<u>3.91</u>	<b>2.44</b>
<b>One share (%)</b>	<u>16.4%</u>	11%	10.4%	<b>12.1%</b>
<b>&gt; 4 shares (%)</b>	9.6%	11%	12.4%	<b>11%</b>
<b>Age</b>	39.9	39.1	38.4	<b>39.1</b>
<b>Women (%)</b>	62.1%	64.7%	62.9%	<b>63.6%</b>
<b>Irregular (%)</b>	24.3%	24.1%	18.9%	<b>22.8%</b>

The differences observed between the areas of residence were as follows: people living in more well-off areas travelled on average significantly (.001) more kilometres than in the two other types of zones.

Regarding the proportion of members with only one share (and not four shares as normally encouraged by the cooperative), the highest proportion observed was in the sectors in greatest difficulty, and this was significantly (.05) greater than in other areas. Moreover, the percentage of members having bought more than four shares was higher in wealthier backgrounds and seemed to be decreasing as the level of difficulty deepened. The differences were found to be

statistically significant at 5% between better-off sectors and areas experiencing the highest difficulty.

Also, it appeared that, the higher the degree of difficulty of the sector, the higher the age of the customer co-operators, though differences between sectors were not found to be statistically significant.

Finally, the proportion of members in irregular work arrangement (which means that they can adapt their schedule and that it is not fixed, an option that was thought for people with unpredictable job conditions such as artists) was also found to be lower in better-off sectors than in other ones. Nonetheless, no significant difference was obtained.

To end up, regarding the distribution of the members by age (**Figure 8**), it can be noted that more than two thirds of the members (62.3%) were less than 40 years at the date of 15 January 2018. Furthermore, people from 28 to 35 years represented 41.7 percent of the total consumer co-operators, while 8.2 percent only were 60 years or over.

**Figure 8** Distribution by age

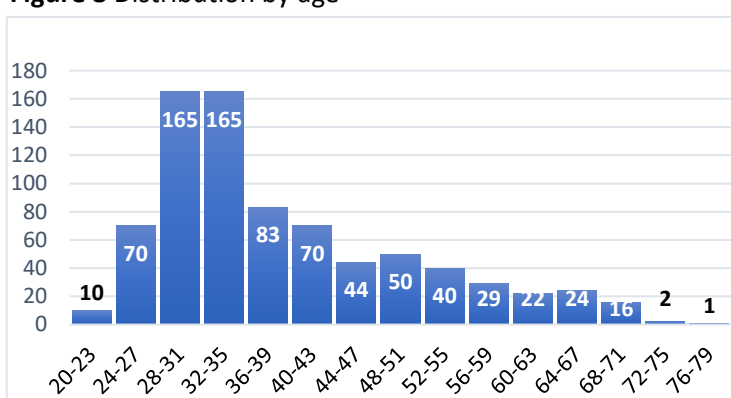


Table 7	
Age of the customer co-operators	
Average	39.02
Median	35
Standard error	11.72
Maximum	76
Minimum	20
<b>Total available information</b>	<b>791</b>

### 4.3 Discussion

Firstly, it was found that the proportion of members benefiting from a reduction to only one share was way higher at the Bees Coop (14.1%) than at its equivalent cooperative in Paris where only 3.4% of the 1456 members had benefited from a similar reduction in June 2015. It was also higher than the 4% found at the cooperative in Bordeaux. It could be explained to some extent by the fact that, in French cooperatives, the individual needs to prove that he is benefiting from minimal social benefits to buy only one share. At the PSFC in New York, documents are also required to prevent abuses, while at the Bees Coop, no proof of the economic situation needs to be provided. Nevertheless, this interpretation should be nuanced, as in Lille-Fives, the cooperative SuperQuinquin attracted 20% of members with minimal social benefits. To reach such an outcome, they operated mainly over social networks with powerful messages targeted to younger and poorer individuals (Wilcke, 2018).

Also, interestingly, we can observe that, from September 2016 (and the beginning of the communication campaign) to April 2017 (the end of it), there was an important increase of the members owning only one share from 6.7% to 10.8%. In absolute terms, the number of members with this reduction nearly tripled during this period, from 41 to 120. Even after this campaign had stopped, the percentage kept growing. Nevertheless, no similar conclusion can be drawn about the evolution sector of origin of the co-operators over the same period. Even, it appears that the share of the members coming from a sector in difficulty fell down from 24% in September 2016 to 22% in January 2017, to finally go up to 23% in April 2017. Therefore, the effectiveness of the communication campaigns conducted by the Bees Coop is far from being confirmed by the observations.

Moreover, on average, the highest travelled distance by the co-operators living in Brussels was in wealthiest sectors. This could be easily explained as most of the green and orange zones on the map of Van Hamme, Grippa & Van Criecken (2016) used to undertake the analysis (**Annex 1.4**) is farther from the cooperative than the other sectors. Also, it was observed in a study of 2012 that richer inhabitants travel on average more distance in order to go food shopping (Chaix *et al.*, 2012). Additionally, they found that as much as 50% and 31% of the participants had their primary food store located further than one kilometre and two kilometres away, respectively, from their residence in Paris and its surroundings. In the case of the Bees Coop, more distance appears to be travelled to the supermarket (72% customer co-operators are living within more than 1 km, 47% within more than 2 km). In fact, the percentage of members

living near the Bees Coop has been increasing, especially for the ones living within one kilometre, whose proportion has known a constant growth since the beginning of the project. Nevertheless, even though it is an objective for the Bees Coop, nothing ensures that the supermarket is the primary food store of its customers.

Additionally, results about the age of the customer co-operators were in line with results of Oates *et al.* (2012) who found younger age (less than 40 years) to be a predictor of positive attitude to organic food and increasing age (more than 60 years) associated with less consumption. More generally, very similar findings were obtained than those from Chen *et al.* (2011), who established that environmentally friendly behaviour was more likely to be conducted by female and younger individuals. In addition, Caraher *et al.* (2010) can add some suitable explanation over the fact that the cooperative attracts younger members. Indeed, some groups, especially older people, rely significantly on local stores for buying food. That means that to travel more distance in order to join the supermarket is less feasible than for younger members. Moreover, it can be an insight about the result that showed that people from worse-off sectors, typically nearer than other sectors, are on average older than elsewhere. Furthermore, the results over the gender of the members of the Bees Coop were found to be in line with the conclusions of Vicente-Molina, Fernández-Sáinz & Izagirre-Olaizola (2013) and of Chen *et al.* (2011) who stated that women were more likely to engage in environment-friendly activities. Indeed, at the Bees Coop, almost two third of the members were women in January 2018.

Nonetheless, as the map of Van Hamme, Grippa & Van Crielingen (2016) – which served as a basis for the sectorial analysis of this study – did not take into account the level of education of the inhabitants within the sectors in Brussels, but rather some indicators like the unemployment rate or income, results regarding the link between the educational level and sustainable food consumption patterns could not be confirmed (Zsóka *et al.*, 2013 ; Chen *et al.*, 2011 ; Vicente-Molina, Fernández-Sáinz & Izagirre-Olaizola, 2013). Contrastingly, findings of Chen *et al.* in 2011 pointing out that employment status was predictive for pro-environmental conduct, while unemployment and low employment were found to be negatively correlated with it, was somehow confirmed by the present study in the frame of a food cooperative. Indeed, even though it is limited to the environmental aspect of the cooperative, still a limited share (24% in January 2018) of the members of the Bees Coop were coming from sectors in great difficulty which rank high in indicators of insecurity on the labour market.

To end up, it should be noted that, according to the review of literature conducted by Verain *et al.* (2012), sustainable consumption was only to a limited extent explained by

sociodemographic factors. Personality characteristics, food-related lifestyles and behaviour were also of relevance to analyse sustainable food consumption but enter outside of the frame of this study.

Concerning the zones of Brussels, the highest relative monthly change was found in Saint-Josse. Knowing that it is the neighbouring commune of the Bees Coop, and that it is mainly constituted by sectors in greatest difficulty (**Table 2.2** and **Figure 7**), and therefore contributing to attracting members from less wealthy sectors, it is quite an encouraging result with respect to the objective of social diversity of the cooperative. In spite of this, while the number of co-operators from less privileged sectors seems to experience the highest growth, the reach of Bees Coop seems to remain limited, and this although it is located a short distance away from this type of area. Indeed, there are finally more people from wealthier sectors, and therefore coming from on average farther than from zones in highest difficulty. This can be explained by various reasons, but firstly, it is important to search for the reasons to actually participate to the cooperative.

### Reasons Behind Participation to the Cooperative

The relevant question we can ask ourselves is what could motivate people to participate to the cooperative, but it is also suited to note that there is a difference between the intention to participate and the actual enrolment to a cooperative. Indeed, focusing on organic products only, it has been studied that a gap exists between the stated ('attitude') and the actual buying behaviour. It is caused by social influences, such as the perceived consumer effectiveness, the perception over the availability of the product and the perceived behavioural control. The latter is defined as the interpreted difficulty to proceed the behaviour (Pearson, Henryks & Jones, 2010 ; Vermeir & Verbeke, 2008). Consequently, there could be a lot of inhabitants of the neighbourhood who are willing to go to the Bees Coop to purchase their food but who did not or will never enrol, or conversely people that are consumer co-operators but that end up not working or not buying much of their food at the supermarket.

Regarding the review undertaken by Sommer *et al.* in 1981 in the United States in the eighties about the motivation behind the participation to a food cooperative, the main reason observed for participation in small food cooperatives was lower prices. Nevertheless, discount stores have emerged since then, and if the main focus of some people is on price only, it can be supposed that they will not privilege the cooperative. Some other reasons need to be found, especially for low-income individuals, whose important share of income is devoted to food.

This was the famous finding of the statistician Ernst Engel in the nineteenth century, who stated that, as income rises, the proportion of income spent on food decreases.

In the above-mentioned study conducted by Sommer *et al.*, other motives to involve in a participatory cooperative were ‘the availability of natural food, a support of the values of the cooperative, freshness and quality of the food, social atmosphere where one can involve in primary relationships, and the ability to buy products that are not available elsewhere.’

On the other hand, Vermeir & Verbeke (2008) found consumer attitude towards organic food to be generally more positive than towards conventional one. This was both valid among organic and non-organic consumers. The better perception was on quality, taste, safety and impact both on health and on the environment whereas price, appearance, availability and conservation generate a more negative attitude. Moreover, a positive perception was also found for regional and local food by the image of quality and freshness, on the one hand, and the contribution to the regional identity and growth, on the other hand. Therefore, it can be supposed that customers privileging quality over price are more disposed to buy organic food, and knowing that the Bees Coop remedies in some way to the problem of availability in the area and enables that kind of food to be less expensive than elsewhere, it seems to be in a good path to attract other potential customers than simply these ‘early adopters’.

Therefore, to summarise, the choice of participating in the cooperative project and to actually go grocery shopping there rather than to go to a classical supermarket can be found in external, ‘altruistic’ reasons, as in order to protect the environment by sustainable agriculture and production, but also to ensure a fair remuneration to the producers and to consume locally. From an economic point of view, it can be concluded that, this way, customers account for their externalities on social welfare while consuming. This reason was not found to be very predictive for the enrolment of members, as underlined by Sauvegrain, Fort & Padilla (2016). The authors stated that the purchase of sustainable products was different from the regular purchase, in the sense that the benefits were not immediate nor only individual but were rather benefiting the society as a whole. Another rationale is more personal, individualistic and is related to the consumption of quality food for health reasons. Both organic food and local food were perceived to be of better quality (Vermeir & Verbeke, 2008) and healthier (Katchova & Woods, 2011) and therefore can be associated with this last explanation. Price can also represent a factor behind the participation, even if, as stated before, it cannot explain the behaviour alone as there are now many discount stores available against which the cooperative cannot compete on price only. In an empirical study undertaken by D’Souza, Taghian & Lamb in 2006, an environmentally aware but price-oriented consumer segment was identified. In fact, this



segment takes the environmental risks factor into account in his buying decision but is also very price sensitive. This might guide targeted communication focusing on prices to address this environmentally conscious segment. Other explanations to participation in the project found in their study were a feeling of social belonging by participating in a citizen movement, the good atmosphere found in the supermarket and social distinction by consuming organic food, though the list is not exhaustive.

Additionally, about the engagement of new co-operators, Turrell (1998) found that people from high socioeconomic groups tended to prefer healthy food and they appeared to be more receptive to health promotion messages when it was about the recommended dietary practices. This could explain why actually it is easier to reach people from more privileged backgrounds, and could indicate that communication campaign, if focused on the healthy aspect only, has less chance to be striking for less wealthy people. Moreover, Lawrence & Barker (2009) found for their part that to believe that health is a result of chance was consistently related to belonging to a lower socioeconomic group. Finally, and still according to Lawrence & Barker (2009), it is important to note that most of women take the health of their children very seriously, regardless their socioeconomic status group. They believe in the importance of a healthy diet for them, although they do not always feel able to provide it to them. Therefore, it was found that mothers sometimes sacrificed their own food diet to offer good quality food to their children.

### **Barriers to Participation**

Nonetheless, the health perspective alone cannot explain a lower participation of people living in worse socioeconomic sectors. Indeed, Rémy (2007) explains that responsible consumption is demanding on three levels: financially, as the sustainable products are typically more expensive, socially, as there is a risk of isolation and the need to convince one's family, but also as it is time-consuming, for example in order to find alternative distribution channels. Finally, economic theory supposes that when financial resources are scarce, consumers of low-income groups try to maximise food choice utility through the buying of the most calories for their dollar (Burns, Cook & Mavoa, 2013).

The current section will therefore be dedicated at trying to find out the reasons that could prevent the participation to the food cooperative, especially for people from lower socioeconomic backgrounds.

The potential barriers to participation are numerous. Firstly, one could explain the non-participation to the organisation by the simple fact that not everybody is aware of its existence

(low perceived availability). Moreover, once this information has been transmitted, there is still no guarantee that an action will be taken. Certainly, information only is not useful to change behaviour if it is not correctly interpreted or if it does not catch the interest. Finally, the low perceived and actual accessibility and affordability of sustainable food can hamper the potential customers to act on their awareness of this question. Regarding affordability, a study of Barosh, Friel, Engelhardt & Chan (2014) found a typical healthy and sustainable food basket to be of higher price in all types of socioeconomic neighbourhoods. Furthermore, the most deprived groups, both at the household and neighbourhood level, were suffering from the greatest inequalities to afford this type of diet relative to their disposable income compared to a classic one. Nevertheless, overall food prices tended to be higher in more advantaged neighbourhoods. Therefore, even though the Bees Coop offers products that are comparatively of lower price for the category of products available (sustainable and healthy), people from lower income neighbourhoods might be reluctant for the price they are used to observe with that kind of food compared to their regular purchases, particularly in their neighbourhood, and therefore never consider it as a viable alternative. That is, especially if the Bees Coop is competing in the neighbourhood with overall low food prices, and consequently that a significant gap exists with its own prices. Moreover, in the research of Kesse-Guyot *et al.* (2013), they observed that it was typically people with lower income and education were stating that organic food was too expensive.

Another element could prevent the cooperative to reach new customer co-operators, or, more problematically, could impede the objective of 'one stop shopping' advocated by the Bees Coop for the existing members. Indeed, it is possible that the latter can only go food shopping at this alternative supermarket occasionally and keep their extensive purchase of food at their usual affiliated supermarket. As a matter of fact, Rhee & Bell (2002) found that, although shoppers often go food shopping in different stores, they typically have an affiliation to a 'main store' where they purchase most of their food. Nevertheless, when customers change their store, it occurs most of the time across competing shops of the same 'price format' (or pricing strategy). The last finding indicates that, since there is no type of strategy on pricing at the Bees Coop – fixed twenty percent margin on food excepted for fresh products to compensate for losses, but seemingly no type of discounts – it appears that the typical customer enrolled at the cooperative and that actually purchases his food at the supermarket would already be used to this kind of price format.

For their part, Chaix *et al.* (2012) noted that a non-negligible part of the participants in their survey did not buy their food primarily within their municipality of residence. A higher

socioeconomic level in a neighbourhood was associated with a higher proportion of participants shopping in their own area. Interestingly, the average network street distance to the primary supermarket was also directly proportionate to a higher socioeconomic status. In the case of the Bees Coop, this could be interpreted as explaining partially the high proportion of members living in sectors of medium to high socioeconomic status, even though they travel on average more than the members from sectors of low socioeconomic level to join the supermarket. Moreover, it could also be worrying as it indicates that people living in a higher socioeconomic level neighbourhood – most of the current customer co-operators – have more chance to shop most of their food in their own neighbourhood, and then seldom come to the cooperative to purchase it. Nonetheless, it should be nuanced given that the members of a cooperative are especially involved by working in it, having ownership and membership and therefore have a special emotional connection with it. This is called ‘emotional loyalty’ by Mazzarol, Soutar & Limnios (2012) and it was confirmed in their study that it is this emotional connection that is among the key drivers for loyalty of customers in a cooperative. Indeed, as they embrace the organisation’s mission and values, we could suppose that they are therefore willing to ride more distance or, likewise, to switch from their regular supermarket to the cooperative more easily than they would have done otherwise. Therefore, the cooperative needs to attract members beyond the simple good value for money concept and engage them in a valued community is also important, and one could conclude that the Bees Coop is already doing it by, for example, involving the members in the decision process and organising some activities that are not focusing on the supermarket only.

Finally, Vermeir & Verbeke (2008) used the theory of planned behaviour in their analysis which is relevant for this discussion. This framework states that when people perceive they lack resources or opportunities to perform a given behaviour, it is unlikely for them to initiate strong intention to act on. The authors applied it to organic food consumption: since food purchase frequently occurs, it is unlikely for customers to be highly involved in each food purchase. After he deliberates and purchases sustainable food, the consumer needs ‘heuristics’ – they would be defined in this case as behavioural rules used to ease the understanding of complex ecological themes, such as brands, quality marks or labels – in order to develop a new usual practice of buying this type of product. We could conclude that the cooperative did it by implementing consumer-friendly labels over social norms, the distance travelled by the products, and other aspects to facilitate understanding and buying decision.

Another interesting view is to focus on the origin of the potential co-operators. Indeed, it was already broached that Saint-Josse, the neighbouring commune of the Bees Coop, is the poorest of the country. It is also among the most allochthone communes of Belgium, with 41.13% of foreigners registered in the Census of 2011. In this regard, Sauvegrain *et al.* (2016) found with their qualitative study that, by effect of ethnocentrism, people tend more easily to buy products coming from their country of origin. This is both valid for foreigners and for autochthons. In fact, a factor predicting the actual participation in the cooperative is to consume local. Knowing that the supermarket aims at reaching people from less wealthy backgrounds and that the commune of Saint-Josse is its principal base of members from sectors in difficulty, it could guide some decision in order to attract and satisfy co-operators from this sector.

Besides, in a wide report conducted by Ohls, Ponza, Moreno, Zambrowski & Cohen for the U.S. Department of Agriculture (1999), low-income households were found to be more likely to compare prices across different supermarkets in most of their shopping trips. Moreover, most of them reported only shopping at one store in a month. Additionally, their first means of going to the shop was by using their own car, while the second mean was to get a ride with a friend or relative. Indeed, the last alternative represented 31% of low-income households, which was significantly higher than in other households. This means that car ownership can also make a difference in the choice of participating to the cooperative, especially if the distance to travel is large. Moreover, for food shopping decision in general, that is for low and high socioeconomic positions, Caraher *et al.* (2010) found cost to be primarily important and determining. Nevertheless, culture and family food preferences were also seen as relevant. The derived recommendation the authors gave was that it is meaningful to represent the cultural needs of groups when offering healthy food opportunities.

Finally, Rhee & Bell (2002), after founding that the customers had a relatively small mobility between supermarkets over time, took this as a lesson for the retail management and made a recommendation: first, to prioritise existing loyal customers, then the new entrants and finally the potential customers “switchable” from competition. This can be interpreted by the cooperative as to keep the focus on active current members and maybe less on attracting new customers, what the Bees Coop seem to have done as it stopped its communication campaign in the spring of 2017.

## Limitations

These findings need to be considered with respect to some limitations. Firstly, the database used in order to undertake the analysis was not totally complete, with some missing information, and consequently some results were not possible to link with each other nor was it feasible to draw a chronological analysis to some aspects of the study. Moreover, the database was not set up-to-date during all the period of the research and therefore the analysis was limited to the members registered at the Bees Coop until the 15<sup>th</sup> of January 2018. Additionally, as previously explained, the map of Brussels of Van Hamme, Grippa & Van Crieckingen (2016) used as a basis for the sectorial analysis of the co-operators did not include in its indicators the educational aspect of the inhabitants of the sectors in Brussels. It would have been interesting to investigate the members in this perspective, given that it was underlined by many previous studies that the education was more relevant in determining sustainable goods consumption than income or other sociodemographic variables as gender or age (Sommer *et al.*, 1983 ; Kesse-Guyot *et al.*, 2013 ; Hassan, Monier-Dilhan, Nichele & Simioni, 2009 ; Oates, Cohen & Braun, 2011). Furthermore, the literature research indicated results about separated aspects of the cooperative, while almost never considering them together (environmentally friendly, local, organic food consumption). Also, the review included some results in urban Asia (Chen *et al.*, 2011) which may not be valid for Western countries. Another important drawback of this research concerns the sectorial analysis of the co-operators. As a matter of fact, the members were studied with respect to the degree of difficulty of their living area. However, is it important to note that it is not necessarily because a member of the Bees Coop lives in a sector – ‘on average’ – in great difficulty that it means that he is necessarily in a low socioeconomic position. In this regard, a study conducted by Van Hamme & Marissal in 2017 about social diversity in Brussels showed that in the poorest neighbourhood of Brussels, almost 40% of the inhabitants did not belong to the poorest quarter of the population. It should be nuanced, as, while social diversity was shown to be relatively high in all types of neighbourhoods of the Region, it was also observed to be the lowest in the poorest and in the richest neighbourhoods.

## 5. Conclusion

This paper enabled to conduct a more comprehensive analysis regarding the characteristics of the members of a participative food cooperative than simply restricted to its bare bones, like the offering of organic, local, environmentally friendly food as it was the case in previous research. Firstly, the customer co-operators of the alternative supermarket were found to be typically women, younger individuals (with a median of 35 years) and living in higher socioeconomic status sectors, which was in line with many studies over purchasers of pro-environmental and organic products. Additionally, young adults (less than 25 years) and elderly people (over 60 years) were underrepresented in the cooperative. Furthermore, and although they were little by little relatively more new members coming from worse-off sectors, as well as an increasing share of co-operators possessing only one share – and therefore presumably in a low socioeconomic situation, the scope of the supermarket seems to have remained limited. Indeed, most of the individuals studied came from sectors ranking better on socioeconomic indicators, and that even though the supermarket had set up in a very diverse neighbourhood. Accordingly, the communication campaigns conducted by the organisation, while seemingly successful at attracting people living increasingly closer, appear to have had a limited reach at engaging the poorer.

This could be the result of various factors, which were examined in the discussion section. Not only have the richer more motivations to actually participate to the cooperative, but they are also more aware of such initiatives and of the values it represents. Additionally, diverse barriers – financial, psychological, social, material, informational, cultural – effectively prevent the poorer to involve in such projects and to proceed to sustainable food consumption.

However, some findings are encouraging. Indeed, the highest monthly growth found in membership over the studied period was simultaneously in sectors experiencing the highest difficulty, in Saint-Josse (the poorest commune in Belgium) and within a one-kilometre distance of the cooperative. It means that, having started with members living fairer and in better-off neighbourhoods, the cooperative successfully attracted people from its own quarter. Additionally, one could expect that, in a near future, the share of members in a lower socioeconomic position keeps growing to finally balance the ratio.

By way of conclusion, after having undertaken this research, one should deduce that the Bees Coop has got contrasting results relating to its objective of social diversity among its members, whether for the intergenerational, social or cultural diversity. While the intergenerational

diversity is far from being reached, the social diversity objective – reduced to its ‘social’ facet only – although not attained for the moment, could have good prospects.

Further studies are therefore necessary to determine more precisely the determinants of participation in a food cooperative, especially about the influence of the educational dimension. Finally, a more detailed research at the individual level over the socioeconomic characteristics such as income, origin but also education of the members of such an organisation is also desirable, as well as including other factors, given the fact that some research found that socioeconomic and sociodemographic variables alone were insufficient to predict the consumption of sustainable food.

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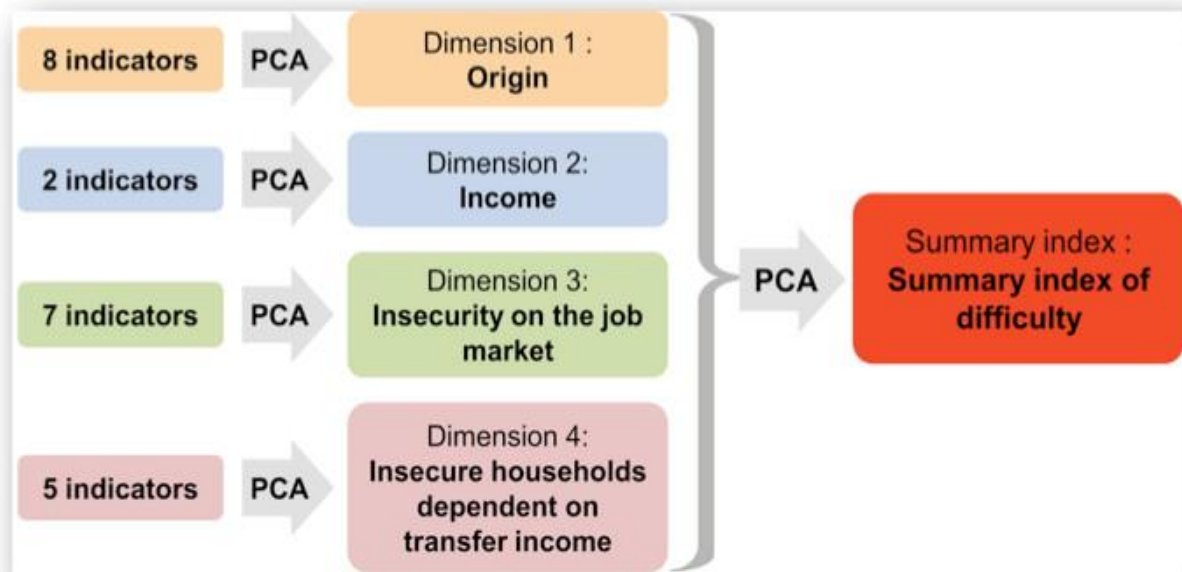
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## 7. Appendix

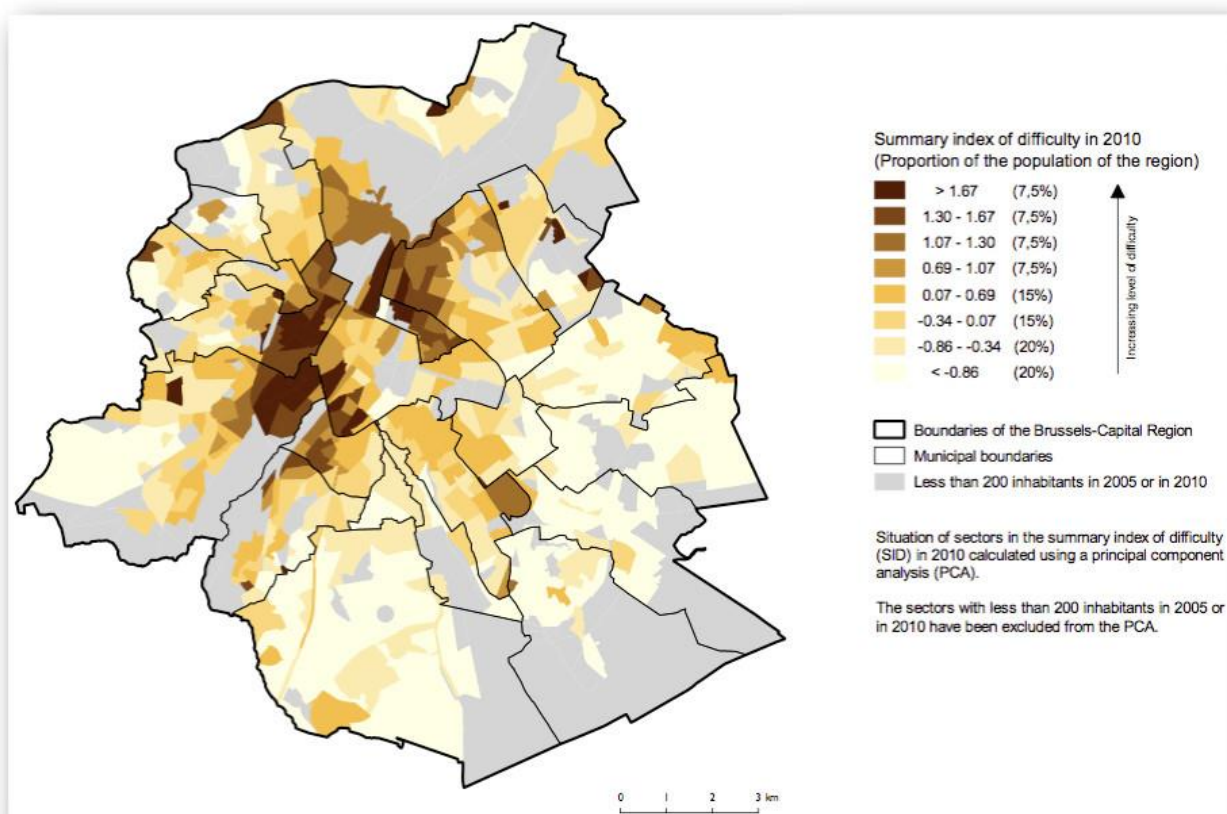
**Annex 1.1** Elaboration of the summary index of the level of socioeconomic difficulty of the statistical sectors (Van Hamme, Grippa & Van Crielingen, 2016)



**Annex 1.2** List of socioeconomic indicators, and share of the variance taken from the 4-dimensional synthesis index (Van Hamme, Grippa and Van Crieelingen, 2016)

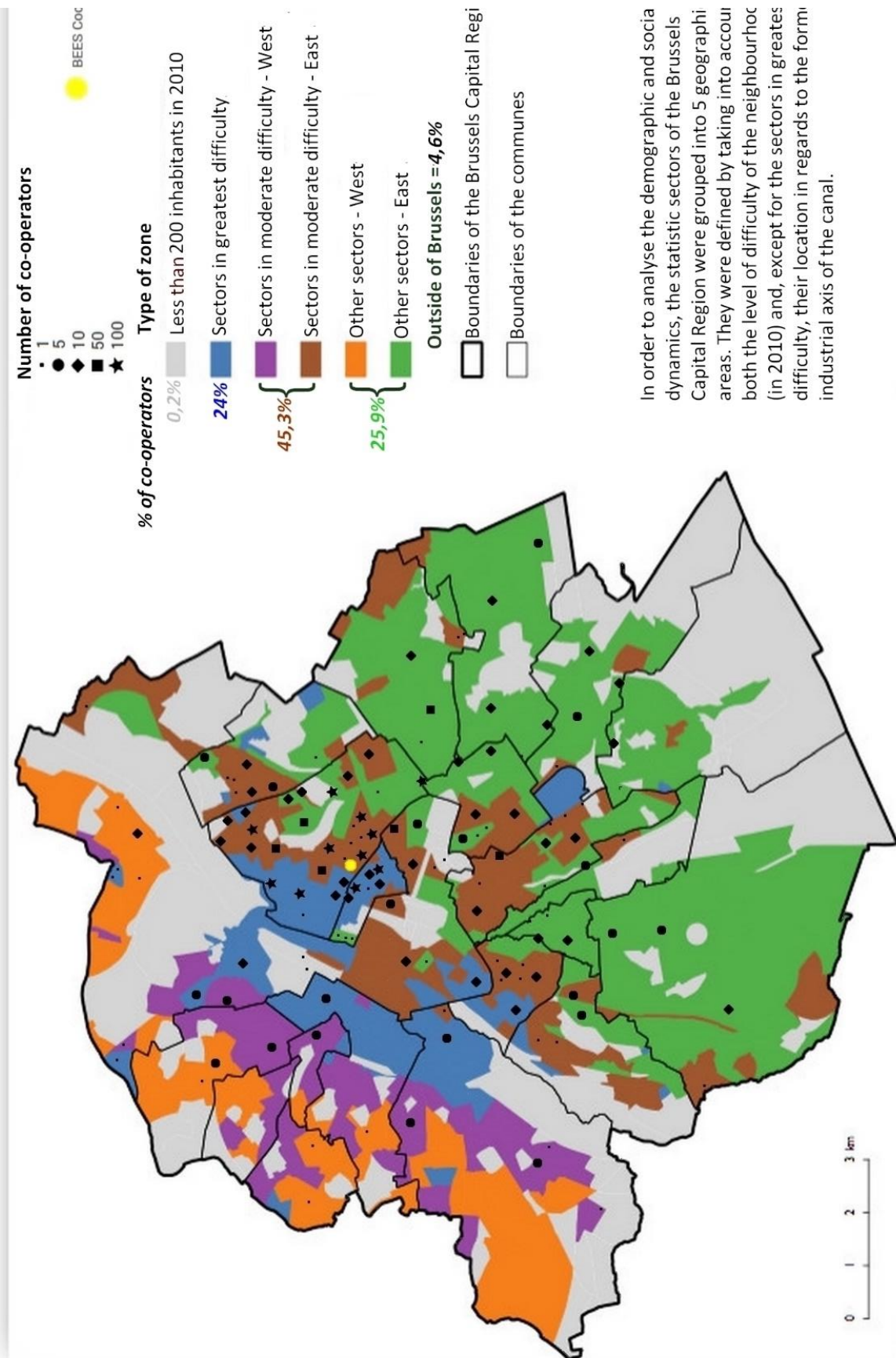
Indicator	Intermediate dimensions			
	Origin	Income	Insecurity on the job market	Insecure households and transfer income
Proportion of inhabitants born in Belgium or in a rich country	X			
Proportion of inhabitants born in a European Mediterranean country	X			
Proportion of inhabitants born in intermediate or poor countries	X			
Proportion of inhabitants whose parents were both born in Belgium or in a rich country	X			
Proportion of inhabitants with a parent whose birthplace is unknown and another parent born in Belgium or in a rich country	X			
Proportion of inhabitants whose parents were not born in Belgium or in a rich country	X			
Proportion of inhabitants with a parent whose birthplace is unknown and another parent who was not born in Belgium or in a rich country	X			
Proportion of inhabitants whose parents' birthplaces are known, with one parent born in Belgium or in a rich country	X			
Proportion of low-income households		X		
Median equivalised income		X		
Rate of incapacity for work			X	
Employment rate			X	
Unemployment rate			X	
Long-term unemployment rate			X	
Proportion of workers in the working population			X	
Proportion of temporary workers in the working population			X	
Proportion of part-time workers in the working population			X	
Proportion of households with low work intensity				X
Rate of people dependent on CPAS				X
Proportion of single-parent households with no income from work				X
Proportion of one-person households with no income from work				X
Rate of GRAPA recipients				X
Eigenvalue 1st main component (percentage of total variance)	5.34 (66.7%)	1.93 (96.3%)	4.90 (70.0%)	3.37 (67.3%)
Eigenvalue 2nd main component (percentage of total variance)	1.06 (13.2%)	0.07 (3.6%)	0.95 (13.6%)	0.89 (17.8%)

**Annex 1.3** Level of socioeconomic difficulty of statistical sectors in the Brussels-Capital Region (Van Hamme, Grippa & Van Crieckingen, 2010)





**Annex 1.4** Map of sectors by difficulty of Van Hamme, Grippa & Van Crielingen, translated (2016) and location of the co-operators added



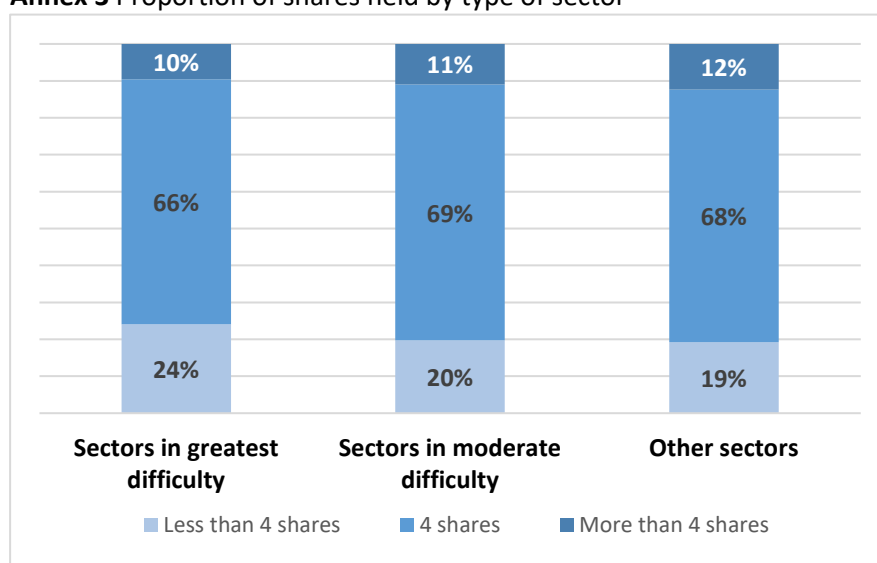


## Annex 2

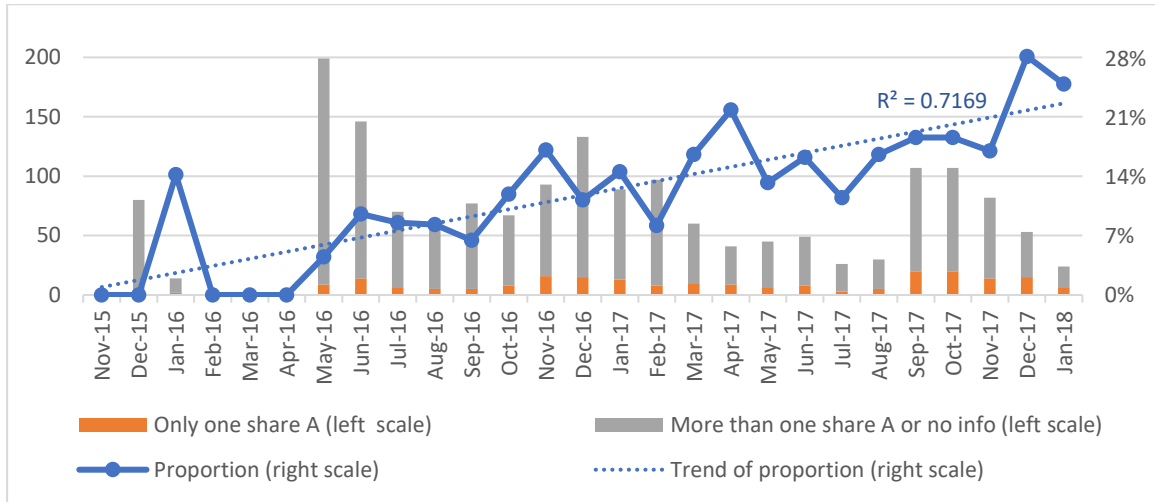
Repartition of the customer co-operators regarding their sector by level of difficulty (based on the map of Van Hamme, Grippa and Van Crieckingen, 2016)

Zones	Number of members	Percentage (%)
<b>Total Brussels</b>	<b>1,670</b>	<b>95.4%</b>
Less than 200 inhabitants in 2010	3	0.2%
<b>Sectors in greatest difficulty</b>	<b>420</b>	<b>24%</b>
<b>Sectors in moderate difficulty</b>	<b>793</b>	<b>45.3%</b>
East (brown)	772	44.1%
West (purple)	21	1.2%
<b>Other sectors</b>	<b>454</b>	<b>25.9%</b>
East (green)	437	24.9%
West (orange)	17	1%
<b>Outside of Brussels</b>	<b>81</b>	<b>4.6%</b>
Flemish and Walloon Brabants	48	2.7%
Flemish Region (without Brabant)	1	0.1%
Walloon Region (without Brabant)	30	1.7%
France	2	0.1%
<b>TOTAL AVAILABLE INFORMATION</b>	<b>1,751</b>	

## Annex 3 Proportion of shares held by type of sector



#### Annex 4 Number of new co-operators and proportion with one share for each month



#### Annex 5 Computation of the average monthly evolution in Table 2.1, 2.2 & 2.3

1. We need to compute the trimester average evolution, as follows:

$$\text{Trimester average evolution} = \sqrt[7.8]{\left\{ (1 + \text{evolution Feb16 to Apr16}) \times \dots \times (1 + \text{evolution Nov17 to Jan18}) \right\}} - 1$$

Where 7.8 is for eight trimesters from February 2016 to January 2018 but the information available stops in mid-January (16 days missing representing approximately a fifth of a trimester).

2. Then, from it we can find the average evolution per month:

$$\text{Monthly average evolution} = \sqrt[3]{1 + \text{trimester average evolution}} - 1$$

Where 3 is for three months contained in a trimester. Both formulas are based on compound interest formulas.

## Annex 6 Evolution of total customers co-operators in Schaerbeek by type of sector

