

A study of the impact of the Fairtrade eco-label on consumers demand of orange juice

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A study of the impact of the Fairtrade eco-label on consumers' demand of orange juice

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Executive summary

This master thesis discusses the impact of Fairtrade label on consumer demand in Wallonia. Firstly, I make analysis of the market of orange juice from regular market to Fairtrade market – I make overview of Fairtrade label history and structure of organization, philosophy and aims and also some critics. I discuss the impact of orange juice industry on Brazil – the main exporter of orange juice worldwide, the certification FT system and Fairtrade supply chain in Brazil, as well as advantages and disadvantage of Fairtrade in Brazilian economy for producers, workers, customers and government. Second part is dedicated to research methodology. Third part dedicated to literature review of behavioral economic theories, which can help to explain the motives for ethical consumption. Therefore, I analyze methods of estimation of willingness-to-pay based on survey data. In my research, I use the choice-based conjoint analysis approach. In fourth part I discuss the materials and methods used in this study – I discuss the selection of attributes and levels for my choice-based conjoint analysis and develop the experimental design for my survey. Then I talk about the empirical model, which I use in my work, other popular techniques for discrete choice variables evaluation and market segmentation. Fifth part represent the empirical part of my work: analysis of gathered data and estimation of the consumer demand of Fairtrade orange juice with mixed logit model. I perform results for aggregate model, estimation for different socio-economic groups and for different market segments, based on lifestyle and diet preferences segmentation. Last part dedicated to conclusions and recommendations. This thesis is especially relevant in today's consumer society, because the individual consumer is now at the center among all decision-making processes.

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Introduction

Our society shaped by the items we buy, and our preferences are defined, by the way, we see ourselves. We make purchasing decisions based on our personal tastes, which forces us to make trade-offs between different attributes to find the best product that fits our identity. Hence, buying is seen as a way to express social status, values, and goals related to self-image (how we view ourselves) and social image (how others see us).

Many consumers are sensitive to ethical issues and have high moral values, which can therefore be considered a part of their self-image.

The growing demand for more sustainable food by individual consumers as well as private and public sector interests has led to an increase in competition in the global food sector. Currently, there are 463 eco-labels in 199 countries located in 25 different sectors. Nearly 25% of all existing eco-labels are food-related.

However, this thesis focus on particular eco-label - the Fairtrade.

The increasing interest for sustainability has created the fair trade movement, which works on achieving a more sustainable production environment in low wage countries by offering producers more favorable trading conditions. The approach implies that fair trade product prices are higher than world market prices, and that producers receive premium for investing in their families and enterprises.

Investigating orange juice is interesting since it is a classical fair trade product. It is primarily produced by developing nations in the southern hemisphere, but heavily consumed by rich nations. Orange juice is also a well-known food product consumed in Belgium, as well, as in many European countries.

This master thesis analyzes the role of consumer pull in the market for Fairtrade sustainable alternatives and offers market knowledge to the food industry of region Wallonia. Demand information for eco-labeled products might provide retailers in several supply chains with the ability to determine where to invest next, or where to make changes to their actual offerings. By studying consumer attitudes and preferences regarding food products we may be able to improve those products, as well as better understand and enrich consumer choices. It will contribute to increase economic return and business profits by providing insight into ways to change consumer behavior toward more sustainable and responsible consumption options. Fairtrade organizations, better understanding how consumers make purchase decisions, can enlarge the number of Fairtrade product buyers.

One reason for choosing the region of Wallonia for the study is because it has a high multicultural dimension, which is one of the variables that might be related to the effects of Fairtrade label. Its inhabitants are mostly French speaking, with German and Dutch-speaking minorities. Since the 1990s, Wallonia also has a large numbers of Italian, Algerian, Moroccan, Turkish, and Vietnamese immigrants.

The main objective of this research is to:

Analyze the effects that Fairtrade label have on the demand of orange juice, inside the market created by the citizens of region of Wallonia (as consumers) - a higher or lower demand for food products that have Fairtrade label against those, which don't have such certification.

In other words, the effect on Fairtrade (FT) products' demand caused by their labels. If Fairtrade label demonstrate to affect the population's consumption choices, the study seeks to measure the magnitude of this effect. This thesis is relevant in today's context of consumer societies, where the individual consumer is in the center of decision-making processes everywhere.

Part I

Fairtrade

Nowadays consumers are placing a greater value on quality and value-added aspects of products, which is changing consumption patterns on the market - in recent years the organic and healthy industry has seen particularly rapid expansion. Consumers are asking for better quality standards across the food supply chain. They are considering not just what ingredients are in their food, but also how and where it is produced, social and environmental problems, as well as animal welfare issues. The citrus industry is shifting from a producer-driven to a consumer-driven business model. As a result, many citrus producers are pursuing various certification possibilities in order to gain a competitive advantage. There are numerous types of certification available in Brazilian citriculture, including organic, integrated production, and fair trade. (Turra et al. 2014)

Certification eliminates information asymmetry, lowers transaction costs, and opens up new markets for farmers. Another element of certification is that it primarily aids in the reduction of negative externalities like excessive use of agrochemicals and environmental destruction. The certification, on the other hand, creates a barrier to entry, particularly for small-scale production. The capital structure of small manufacturers is insufficient to achieve the needed norms (Sartori et al., 2007). Associations and producer cooperatives are one opportunity to minimize this cost. (Turra et al., 2014)

Fair trade was founded in 1988 by the Dutch development group Solidaridad to help southern nations achieve long-term, democratic development. Fair trade is form of trade between enterprises in rich countries and producers in developing countries in which the producers are paid fair prices. It is a concept agreed by the World Fair Trade Organization (WFTO) and Fairtrade Labelling Organizations International in 2009. Fair Trade is a “a trading partnership, based on dialogue, transparency and respect that seeks greater equity in international trade” (from WFTO official site).

Today, FT is constituted of 1.65 million farmers and employees who are organized into over 1,200 producer groups in 74 countries throughout the world, creating goods that are sold in over 125 countries through various distribution channels. There are more than 30,000 FT certified products on the market internationally, including standards for both food and non-food goods.

It supports to sustainable long-term development by improving trading conditions for marginalized producers and workers and protecting their rights, particularly in the global South. (Global CAD, 2019, p. 8). Thus, fair trade movement generated a moral obligation for consumers to pay a fair price, above the general market price.

Figure1. The Fairtrade international label



Source: fairtrade.net

There are more than 1,400 Fairtrade certified producer organizations in 73 countries, with more than 1.66 million farmers and workers in the Fairtrade umbrella (Fairtrade International, 2018).

Firstly, it campaigns for changes in the conventional international trade system, and it guarantees payment of a higher price premium for producers than the international market prices for commodities. The Fairtrade minimum price is a floor price, which becomes relevant whenever the world market price falls under a certain threshold. This price is defined to cover the average costs of production, as well as to meet a living wage. The buyers agree to buy oranges at least this minimum price, even if the world price is below it. The aim of this price floor is to reduce the risks by guaranteeing minimal revenues to growers. The Fairtrade premium is a sum of money provided to certified farmer organizations as an incentive to keep participating in Fairtrade. This extra premium was of approx. 70 USD per member in 2014 and it is typically reinvested in agricultural capacity development and social community projects in the field of health and education. Secondly, it supports organizational capacity building for the democratic groups that are required to represent small-scale producers (via cooperatives) and workers (via unions). Thirdly, one of the objectives is to offer some stability to farmers. In order to do so, buyers have to agree to long-run contracts - of at least one year - and to finance crop in advance - up to 60% - if required. Fourth, the social premium can be used to finance broader community projects such as health clinics, schools, better roads and sanitation, and other social services. Fairtrade also bans child labor. Finally, environmental protection is an important criteria of the label. The farmers have to work towards environmental-friendly practices by minimizing the use of agro-chemicals. Producers have to submit basic reports referring their environmental impact.

On the demand side, Europe is currently the largest market for FT products, enterprises, and foundations. Fair Trade certified sales reached at \$ 4.6 billion in 2009, with over 1.2 million producers and workers engaged. According to the Fair Trade Labeling Organization International (FLO), direct consumer sales in Brazil raised to US\$ 4.17 billion in 2009. It looks to be a rising market niche, in addition to being a way to contribute to development.

As it's also happens with other eco-labels, studies have shown both positive, negative or any impacts rising from the Fairtrade label, for the environment and the producers. According to one view, it has been stated that Fairtrade labels have a positive impact on smallholder farmers and plantation workers, because they provide opportunities for higher and more stable income and living standards. The extra bonuses and premiums they receive allow for small investments and savings, which makes farmers and

workers less vulnerable to poverty and external factors. The premiums received are also often invested in social projects such as housing, education, and health.

From another point of view, some studies (Claar et al., 2015) have found that Fairtrade labels are not really useful instrument to reduce poverty.

There are 5 main arguments why:

- 1) Once inside the network there is no guaranteed buyer. Fairtrade certified farmers can search up to eight years to find a buyer.
- 2) There is still not sufficient demand. Therefore, a Fairtrade grower might also produce “unfair” products too.
- 3) It can exacerbate income inequalities between already poor regions, because retailers tend to buy products from already established producers.
- 4) It is quite expensive to join the Fairtrade network. To be a member costs initially around 600 USD, plus annual inspection fees of 300-34 4000 USD, depending on how large the production is.
- 5) Results have not always proved to be inspiring.
- 6) Despite the fact that Fairtrade provides an alternative and protects small farmers from the demands of a consolidated market, it has little impact on global trade relations.

Critics contend that sometimes certification is not enough and that prices for certified products are insufficient to compensate for low productivity, land restrictions, and labor shortages. A study (Beuchelt et al, 2011) with certified Fairtrade coffee cooperatives in Nicaragua found that over a period of ten years, certified producers are more often found below the absolute poverty line than conventional producers, and that net coffee incomes are insufficient to cover the basic needs of these households.

The Fair Trade movement is encompassed of a set of groups, which are linked through their membership associations – the Fairtrade Labelling Organizations International (FLO), the International Federation of Alternative Trade (IFAT), the Network of European Worldshops (NEWS!), the European Fair Trade Association (EFTA).

The European Fair Trade Association (EFTA) was founded in 1987 and is constituted of the eleven largest importing Fairtrade European organizations.

The World Fair Trade Organization (WFTO), formerly a International Federation of Alternative Trade (IFAT), was founded in the Netherlands two years later, in 1989, to operate as a voice for the global Fair Trade movement.

The Network of European World Shops (NEWS!) was founded in 1994 and today represents over 3,000 World Shops in 20 European nations.

Together all these organizations are defined as the FINE network, a name formed from the first letter from each of the four association’s names (World Fair Trade Organization, 2015).

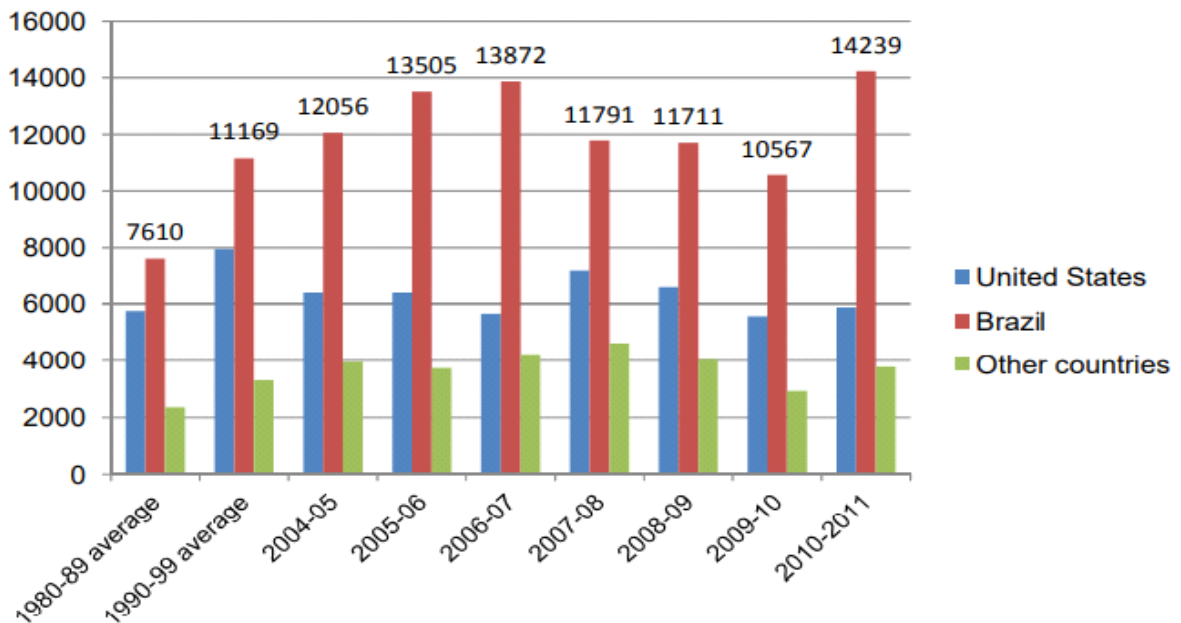
Fairtrade International, originally the Fairtrade Labelling Organization and still known as FLO, is a non-profit organization dedicated to promoting fairer international trade by benefiting marginalized farmers and encouraging the development of long-term revenue sources. Since its founding in 1997, it has developed and enforced internationally recognized Fairtrade Standards.

Market of orange juice

The production of citrus fruit for industrial processing accounts for around a third of all citrus fruit production worldwide. Orange processing accounts for more than 80% of citrus processing, mostly for the production of orange juice. After World War II, in the 1940s, when citrus processing technology were established and improved, the international trade in orange juice began to grow.

The geographical concentration of orange juice production is one of the most notable features of the global market for orange juice. The United States and Brazil are definitely the two major players.

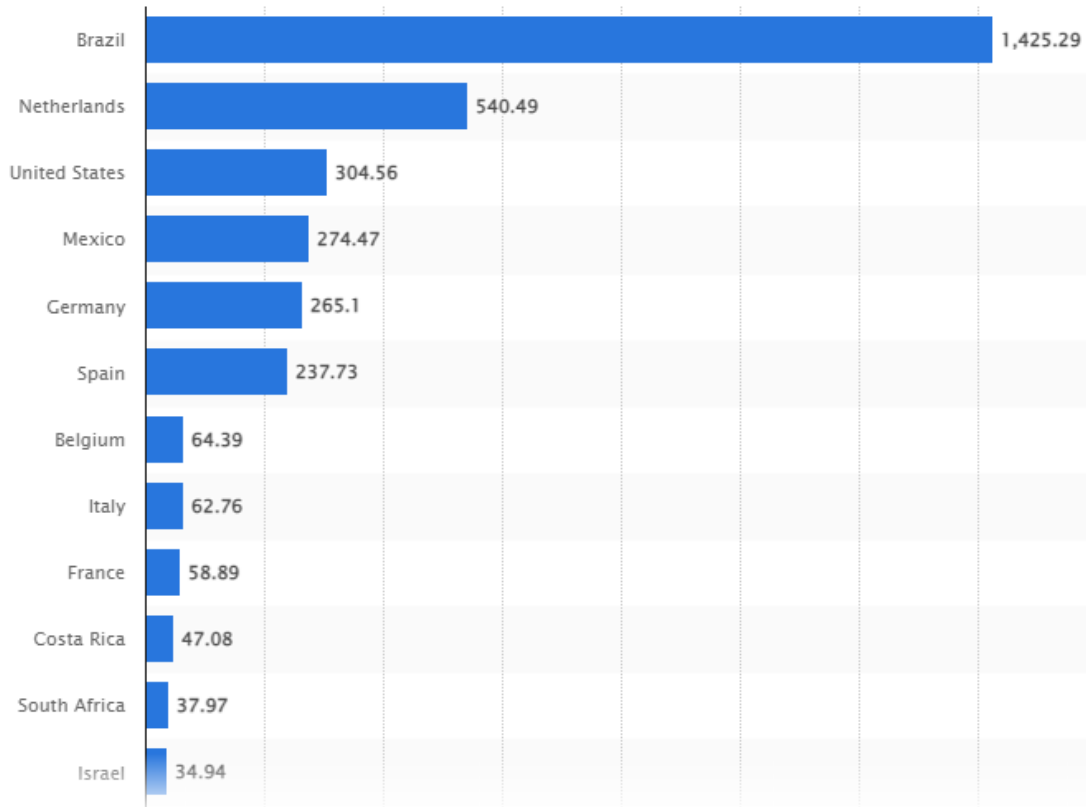
Figure 2. World orange production for processing – in thousands of tons



Source: FAO Annual Statistics 2012

Brazil is the world's biggest supplier of orange juice and the main exporter of frozen concentrated orange juice (FCOJ). Brazil produces half of the world's orange juice, exports 98 percent of what it produced, and has a market share of 85 percent internationally. Brazilian industries produced three out of every five glasses drunk worldwide (M. F. Neves et al., 2012).

Figure 3. Leading orange juice exporting countries worldwide in 2020 (in million U.S. dollars)



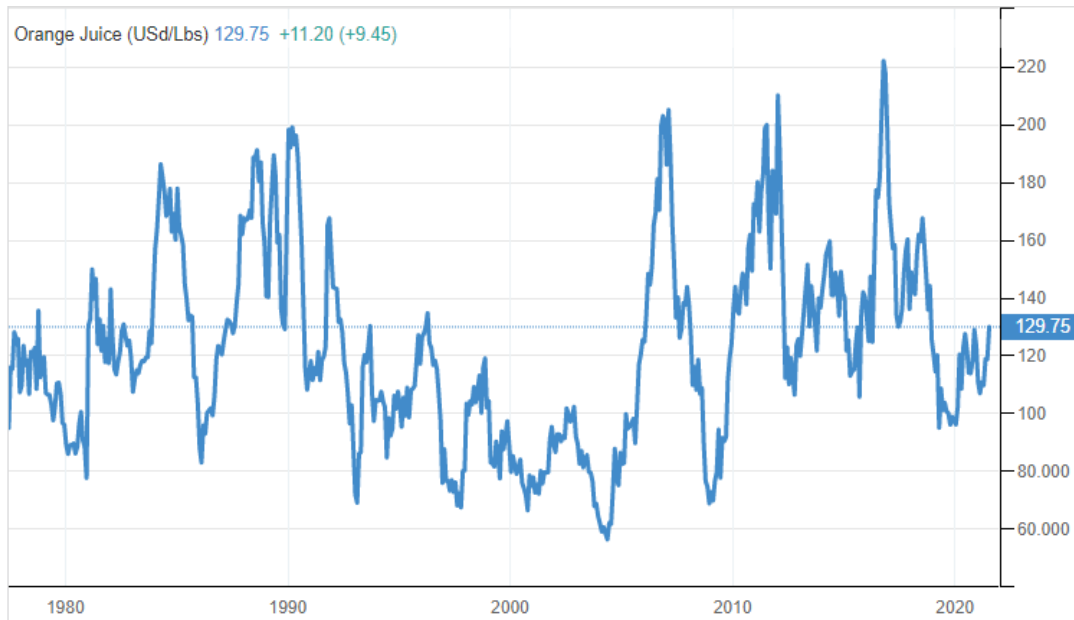
Source: UN Comtrade

Since 1962, when the first citrus exports began, citrus production is a major factor in the development of Brazil. During this period the sector has generated US\$60 billion in exports. In 2020 Brazil has been the leading exporter of orange juice internationally, exporting 1.4 billion U.S. dollars' worth.

There are several types of orange juice in the Brazilian retail market as: FCOJ, not from concentrated (NFC), nectar and reconstituted. Orange juice is usually traded in the form of frozen concentrated orange juice in order to reduce the volume.

International orange juice prices suffer from very big volatility, capable of fluctuating between US\$700 and US\$2,600 per ton within a short period of time.

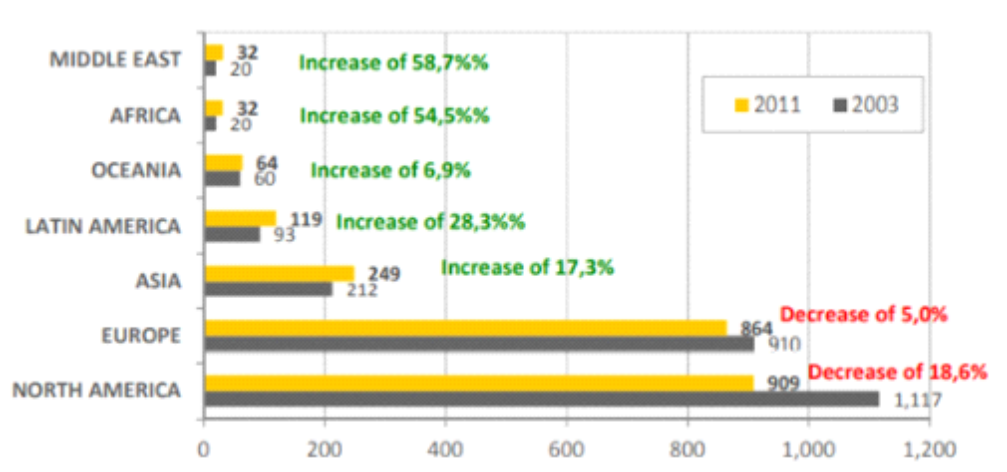
Figure 4. International orange juice prices (USd/Lbs)



Source: Trading Economics

Orange juice consumption

Figure 5. Orange flavour beverage consumption evolution per region (in thousands tonnes)



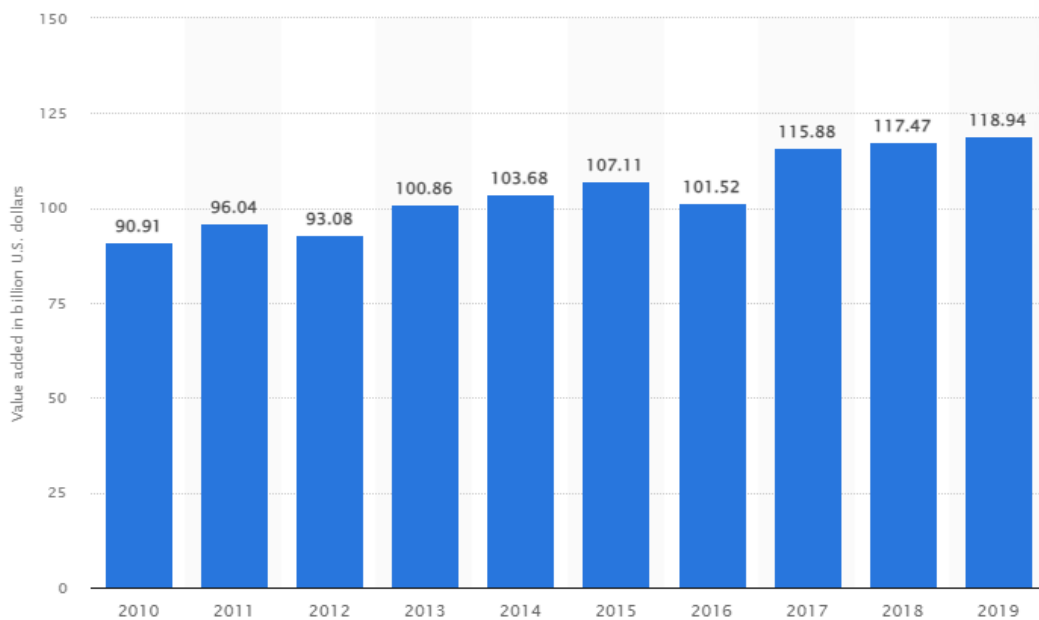
Source: Markestrat

Orange juice is the most consumed beverage in the world based on fruits - it represents 34% of the juice market and on the global beverage market, orange juice represents 0.91%.

Impact on Brazil

Based on constant prices, the Brazilian agriculture, forestry, and fishing sectors contributed roughly 119 billion dollars to the country's gross domestic product (GDP) in 2019. This accounted for 4.4 percent of Brazil's GDP. Since 2012, the value added by the country's agricultural sector has been gradually growing.

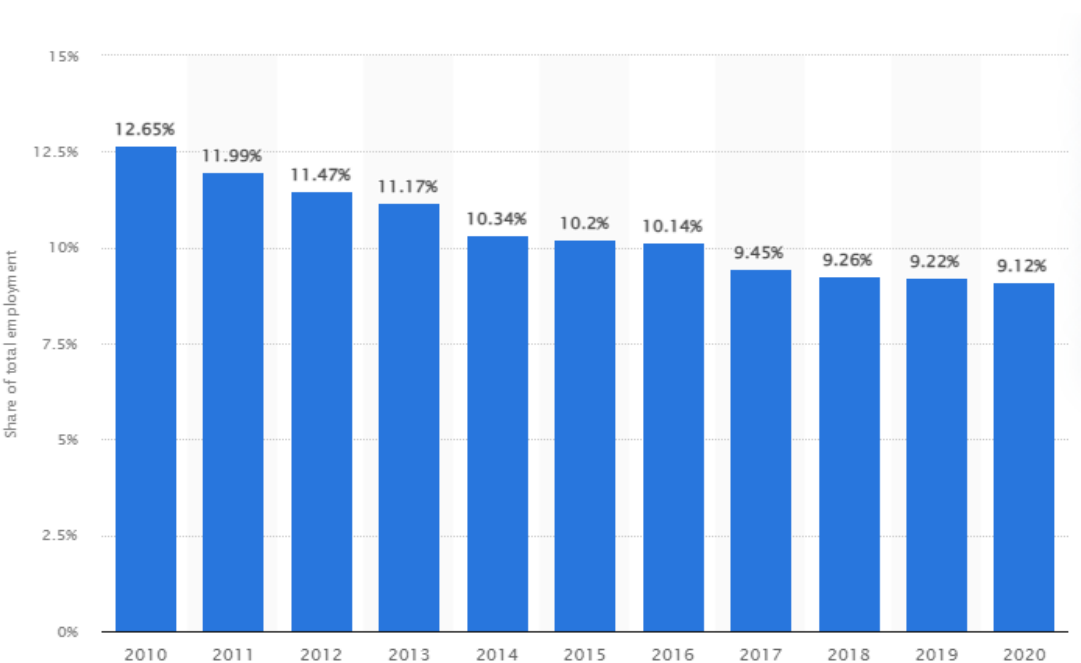
Figure 6. Value added by the agriculture, forestry, and fishing sector to the gross domestic product (GDP) in Brazil from 2010 to 2019 (in billion U.S. dollars)



Source: OECD; World Bank

Between direct and indirect employment, the citrus industry generated roughly 230,000 jobs. The citrus chain brings also in around US\$ 189 million in taxes to Brazil.

Figure 7. Employment in the agricultural sector in Brazil from 2010 to 2020, as share of total employment

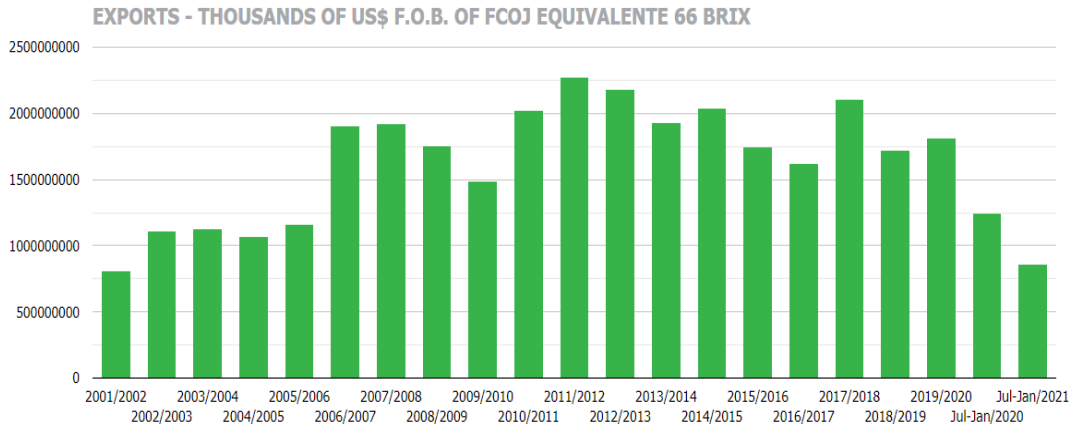


Source: World Bank; ILO

Exports

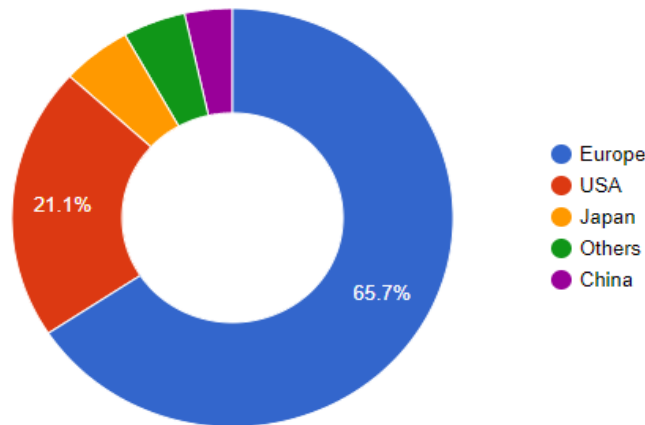
In the orange juice exports Brazil demonstrates leadership. Three of every five glasses of orange juice which will be consumed in the world, was produced in Brazil (M. F. Neves et al.,2012).

Figure 8. Brazilian orange juice exports



Source:
Brazilian association of citrus exporters

Figure 9. Market share of Brazilian exports of orange juice 2019 / 2020 harvest (in tonnes of FCOJ Equivalent 66° Brix)



Source: Brazilian association of citrus exporter

The Netherlands is the leading country of destination of non-frozen orange juice exports, and Belgium is the leading country of destination of frozen orange juice exported from Brazil. In 2020, frozen orange juice exports from Brazil to Belgium accounted for over 30% of the total value of Brazilian frozen orange juice exports that year.

According to Citrus BR, 87% of all orange producers are small farmers that each own less than 20,000 trees, the medium producers with farms that contain between 20,000 and 199,000 plants hold 32% of the total of producing trees and the remaining 47% is in the hands of big farmers or industries that own properties with more than 200,000 plants.

The number of small farmers has reduced significantly during the last decade. In the last ten years, the total number of individual small and medium size farmers has been decreased from 29,000 to 17,000

according to Associtrus, the Brazilian association of citrus farmer, small farmers have continuously left the production - they were marginalized by the industries, which can have most of their raw material from their own plantations and some selected bigger producers.

Fair trade orange juice market

Fairtrade certified orange juice is offered to consumers since 15 years.

The certification of the Brazilian FT system has been discussed since 2004. As a result of changes in production, the agricultural sector was the first to be included in organic – primarily in coffee, cocoa, and orange juice. Due to the FT expansion, two years later, the Brazilian Fair Trade Work Group was introduced, composed by government and civil society representatives, which had aim to develop a proposal for national Fair Trade system establishing (V. G.H.Schmitt., 2010).

From those efforts the National System of Solidary and Fair Trade – or Sistema Nacional de Comércio Justo e Solidário (SCJS) – was officially founded in 2008. According to the National Bureau of Economic Solidarity in 2010 in Brazil there are about 23,000 enterprises engaged either to Fair Trade or Solidarity Economy or to both. These enterprises generate 2 million jobs and they are presented in 51% of Brazilian municipalities. The National Fair Commerce System (SCJS), as suggested, should be a planning system of factors that determine trade, rules, and Fair Trade system participants in Brazil. It is also the duty of the state, according to Rosemary Gomes, state secretary of the Rio de Janeiro Solidarity Economy, to "...control, supervise, and create public policies encouraging solidarity economy" (SEBRAE, 2010). In November 2010, within the Ministry of Labor was established the National System of Fair Trade, which is in charge of coordinating the Federal Government's actions to the recognition of Fair Trade practices and its promotion. States, municipalities, and the Federal District, as well as economic businesses and accreditation agencies, may voluntarily join the system under the proposal. (V. G.H.Schmitt., 2010)

In Brazil there are four fair trade certified citrus producers: Cooperativa dos Agropecuaristas Solidários de Itápolis - COAGROSOL, Central de Associações do Litoral Norte - CEALNOR, Associação dos Citricultores do Paraná - ACIPAR, and Cooperativa dos Citricultores Ecológicos do Vale do Caí - ECOCITRUS (Turra et al., 2011). Coagrosol is a Fairtrade certified company located in the Brazil's most productive zone, in the state of Sao Paulo, in the southeast of the country. It was one of Brazil's first Fairtrade certified corporations. Although these products may be also offered in the Brazilian market, all fair trade orange juice produced in Brazil is produced for the European market.

After a considerable drop in 2010 due to declining markets, the total sale of Fairtrade certified fruit juices has recovered in the last two years.

Figure 10. World estimated sales volumes for FT Fruit juices (in thousands liters)



Source: FI Annual Reports

Fairtrade supply chain

To process large amounts of oranges and generate frozen concentrate, a capital-intensive technology is required, and only a few companies have it. This decreases the possibilities for the producers to choose with whom they would like to work to process their oranges and export the juice concentrate.

In order to export their own FCOJ, cooperatives obliged to collaborate with processing industries in their region, so having a good relationship with these industries is highly important. In Brazil, most of the processing plants are owned by one of the big three orange juice companies - Citrusuco, Cutrale and Louis Dreyfus Commodities.

All participants in the supply chain need an official registration or Fairtrade certification and afterwards they are controlled by FLO Cert auditors. Important is to understand that the criteria of Fairtrade are influencing the practices at the producer level. The producer supplies his fruits to the factory following the conditions and prices that the cooperative has negotiated and which comply with Fairtrade standards (BSD consulting 2014)

The cooperative organizes the sale of orange concentrate processed from the supplied volume of fresh fruit - 250-280 boxes of fresh fruit are required to produce one MT of juice concentrate, directly with the importers under Fairtrade terms (BSD consulting 2014).

Producers can also supply the local market with fresh fruit. Although cooperatives expect loyalty, they cannot oblige their members to sell all their fruit to the cooperative for processing. It is can explain the problems sometimes encountered in Fairtrade chains, when local fresh fruit prices are very high and turn into local competition for the Fairtrade market. (BSD consulting 2014).

Small-scale orange growers benefit from Fairtrade certification in the following ways:

1. Increased income the majority of producers and promoting economic growth
2. Having a positive impact on the producers' and their families' quality of life, the ability to put money into education and health and housing
3. Offering a better price, less volatility as a result of the minimum price, and ensuring sales to the small farmers who are involved
4. Supporting small producers to survive in a competitive market
5. Providing possibilities for producers' children to stay in the company rather than immigrate to another regions or countries
6. Increasing the trust of producers in their organizations - transparency and good governance
7. Promoting transparent pricing calculations and payments
8. Assisting in the enforcement of labor laws and safety rules, as well as lowering the risk of non-compliance
9. Increasing the value of small-scale manufacturers' products by enhancing quality assistance
10. Contributing to initiatives to restore biodiversity in orange plantations
11. Investing a significant amount of money in group activities which enhance environmental awareness and, in some circumstances, enhance access to health services.

Nevertheless, regardless of the fact that Fairtrade improves economic stability and company continuity, producers do not currently have enough resources to make all of the necessary investments in order to sustain considerable growth.

(BSD consulting 2014)

The Potential Advantages and Disadvantages of Fair Trade in Brazilian Economy

a) Producers

It is projected that this group will profit more than the other groups. Amongst the key benefits to be mentioned on this group are the opportunity to sell for higher and standardized minimum prices, the exclusion of intermediaries (profits are now straightforwardly transmitted to producers), greater market differentiation, new customer perception about products as well as consumer willingness to pay higher prices, resulting from conformity either with ecological and social standards. The use of FT certification as a justification to charge increased prices without offering additional social or environmental benefits, unequal profit distribution, differentiated forms of production company control, new entry barriers for specific markets, limited market size, and incentives to cheat on FT ethics are just a few of the disadvantages. Certifications, such as FT, help enterprises and producers to differentiate themselves in the industry and become more competitive because they are strong indications of complying with recognizable standards. These standards reduce transaction costs and complexities in internal and international trade, permitting a strategy change away from price competitiveness, thus FT has become a market opportunity for large corporations (V. G. H.Schmitt, 2010).

b) Workers

Workers benefit from higher salaries, formal employment, improved safety and working conditions, gender equality, and the eradication of child labor. Some of the drawbacks of FT for workers include payments of salaries for other workers in the FT certification system, reliance on the government's ability to transform social security into a real benefit, elevated short-term productive costs, conflicts with local culture, and an emphasis on current incomes instead of future possible improvements.

Because FT requires companies and workers to be legally registered, workers have the option to be introduced into official jobs, to have access to social security and, potentially, better social chances in the future. Furthermore, as a result of the necessity for gender equality, women are gradually becoming involved in economic activities - some of which are essentially established to meet the requirement for participation.

The FT certification's requirement that children be held out of employment and productive activities is also an advantage, because children cannot work and then be expected to go to school and increase their chances for a better future (V. G. H.Schmitt, 2010).

c) Consumers

The ability to choose products that conform to their personal views, quality standards, and willingness to pay would be the most significant gain for customers.

d) Government

Two key advantages are the increased quantity of taxes collected and the increased inclusion of workers in social security. From the disadvantages, are the necessities for regulatory efforts depending on the degree of direct involvement with Fair Trade (V. G. H.Schmitt, 2010).

Part II

Research Methodology

Methodology focuses on the question how to collect data and analyze it. The methods of quantitative and qualitative research can be incorporated with a variety of different research approaches. Quantitative methods use numbers and mathematic calculations in order to simplify findings. The qualitative method, on the other hand, focuses on words and uses observation and fieldwork to examine the object. In terms of the relationship between theory and research approach, it can be divided into two streams: deductive theory and inductive theory. Theories produced from the deductive theory approach guide the data collection procedure. By contrast, the inductive theory approach: researchers infer the theory based on implications and results of the research. The purpose of deductive research is to test theory while the purpose of inductive research is to build theory. Deductive methods are often considered the nature view of quantitative methods, whereas inductive methods are classified as qualitative methods.

Quantitative research aims to explain, predict, or to control phenomena. The objective of qualitative research is, however, to describe and understand some complex phenomena from the participants' perspective.

For this research, I followed a quantitative method with deductive approach since the purpose of the study is to test theory, instead of inferring and building theory. Our research purpose is to analyze the effect on Fairtrade (FT) products' demand caused by their labels and to measure the magnitude of this effect. It is not important to understand consumers' meaning behind their behavior in detail - information from a small number of consumers cannot be useful for our research. I need hard reliable data rather than rich deep data to get an objective result.

Part III

From neoclassical to behavioral economic theory

The theories and findings of previous studies that constitute the basis for this analysis are presented in this section. We will start with neoclassical economic theory, and then proceed to theories in behavioral economics that may help explain the motives for ethical consumption and function as support for the hypotheses.

Neoclassical theory

Neoclassical economics explains individual choice in terms of individual preferences within a particular budget constraint. We assume that these preferences are rational, which means that three criteria are considered: transitivity, completeness, and reflexivity. (Wilkinson et al, 2012). By using these criteria, consumers maximize their individual utility. Additionally, consumers have full information so they can make optimal purchasing decisions.

As fair trade implies the consumer pays a premium for the benefit of a third part, not for increasing own welfare, the neoclassical assumption cannot fully explain the demand for fair trade products.

Behavioral economics

A typical simplifying assumption is that people simply care about their own monetary or product rewards. Economists are skeptical that people will make expenditures to show sympathy for others' payoffs. Stigler wrote, "when self-interest and ethical values with wide verbal allegiance are in conflict, much of the time, most if the time in fact, self-interest theory...will win" (Stigler., 1981).

Consumer behavior is based on the assumption that consumers make decisions based on contexts of their beliefs, societal contexts, and situational factors, and that the decision-making process is often more complex than what neoclassical theories suggest. Behavioral economics is the inevitable consequence of relaxing the hypothesis of perfect rationality.

The field of behavioral economics aims to explain consumer behavior through psychological mechanisms (C. F. Camerer, 2006)

- **Consumer altruism**

The ethical concerns that some people today have imply that economic decisions are made using an altruistic motive. The virtue of altruism is to act in a way that benefits others rather than yourself,

without expecting recompense. Personal values may have an impact on customers' fair trade decisions, according to several studies (De Pelsmacker et al., 2005). Fair trade products are viewed as a deal that includes both a base product and a charitable action (i.e. a donation). According to Littrell and Dickson (1999), consumers who frequently purchase ethical goods have values that are more altruistic than the average consumer - ethical purchasing should be more visible in the behavior of altruistic shoppers than in the behavior of egoistic buyers.

According to one study, charity has an impact on consumer preferences for fair trade fish goods (Brecard, 2011). This study looked at the sociological and socio-demographic distinctions between customers who preferred health, eco-, and fair trade seafood items, as well as the impact of a multiplicity of labels on consumer views.

The fact that some consumers are willing to spend more on ethical products indicates that there is an additional altruistic component to the consumer's utility that is not directly related to rational and self-interested goals. This concept can be simplified by arguing that consumer utility can be split into two parts: a functional utility that refers to the products' qualities, like taste, and one that is supplementary and relates to the "cultural" benefits of purchasing the product, such as fair trade (Raynolds al., 2007). The consumer's altruistic values may be explained by their motive to purchase fair trade, however the supplementary value may also increase due to enhancements in self-image and social status. In order to explain the economic decisions of participants in the study, altruistic values should be considered since they might influence their WTP for fair trade (Bénabou et al., 2006).

- **Bounded rationality**

A well-known concept that contradicts neoclassical theory is bounded rationality, which explains why individuals are not fully rational under certain circumstances. The limitation of rationality prevents consumers from making optimal purchase decisions and acting opportunistically. According to the theory of bounded rationality, the general consumer lacks both cognitive ability and time, and is therefore incapable of gathering and processing all the information needed to make the most self-satisfying economic decision. Instead of searching for relevant information, the decision-making process becomes a process of information overload, which creates a distortion in the process of decision making (Weyland, 2007). Even though the consumer is aware of the value he receives from his purchase of an ethical product, he might not be aware of how much value the ethical cause receives from it. Moreover, many consumers do not know what fair trade stands for, its benefits and its purpose. Insufficient information may also cause a lack of trust in labels of ethical produce and transparency issues, and the extent to which firms can solve the asymmetric information problem by putting an ethically produced label on their products depends on the credibility of these labels.

- **Self- & social image**

Ethical consumption and the concerns relating to consumer image may be major factors that influence WTP for ethical products. Unlike altruism, self-image is concerned with the identity of the consumer that can direct behavior towards some moral standard, such as the pro-social values of society. A moral standard is formed by observing others act in a certain manner that is derived from law or from some

social norm that motivates others to conform. As an example, if the majority of consumers would purchase ethical products, then others are likely to follow, which can account for consumer trends. The recent study (Ariely et al., 2009) of the influence of self-image on conformity found that people tend to change their economic behavior if they see others doing the same, even when others do not observe their actions. Fair trade consumption can result in consumer motives obtained from intrinsic values that enhance self-image and expectations about other consumers' behavior.

According to most empirical studies concerning social image, consumers can choose options that are more expensive in order to portray a social image of high socioeconomic status and prestige. Fair trade consumption can be seen as a way, to enhance self- and social-image (Bénabou et al., 2006; Bénabou et al., 2010)

Willingness to pay

Willingness to pay (WTP) is the maximum price at or below which, consumer will definitely buy a product. The most used techniques to obtain willingness to pay estimates are conjoint analysis, contingent valuation, and experimental auctions. Conjoint analysis and contingent valuation are hypothetical valuation methods, and use survey responses to obtain consumers' willingness to pay. Experimental auctions can also be used to determine how much consumers will pay for a good or service, but this technique is expensive, because it consist of respondent's interactions with real goods, and using actual money.

Types of methods estimating WTP based on survey data

Conjoint analysis

The interest lies in disclosing compromises made between different product attributes, including price. A WTP is derived from the evaluation of alternatives: ranking or rating, expressing a preference or choice. WTP can be defined as the amount of money that leaves respondents indifferent between the product and the money offered. WTP is calculated using a simulation of a real market that allows each individual to determine the price at which the product is no longer preferred over a competitor, based on the utility function of the consumer, which take different forms depending on the hypotheses that the researcher formulated. Conjoint analysis, however, is susceptible to hypothetical bias. It occurs when, in a hypothetical situation, specifically a questionnaire, the respondent does not fully consider the conditions that would govern his choice in a real situation (budget available, potential financial consequences, availability of competitor's products...). Accordingly, there is a difference between what the respondent says and what he would accept to pay in a real situation. Consumer products account for approximately 60% of all conjoint research (Cattin et al, 1982) (Ben-Akiva et al., 1985), (Le Gall-Ely et al., 2009).

Contingent valuation

The contingent valuation method developed in economics can also be used to calculate WTP and price elasticity. A respondent must either directly express his WTP for a product - open-ended contingent valuation - or answer several questions about whether he would buy the product at a given price - closed-ended contingent valuation. In spite of its easiness of using, this method does not encourage respondents to reveal their true WTP. Without real purchase of the product, like conjoint analysis, it can suffer from hypothetical bias (Werthenbroch et al., 2002;). As consumers set their own prices, open-ended questions are even further from reality. It is also possible for respondents to create a strategic bias, which arises when they intentionally define their responses in a way that influences the survey in their favor. Respondents overestimate WTP for influencing the launch of the product or service, or to please the interviewer or can underestimate WTP – in order to drive the price down. (Le Gall-Ely et al., 2009)

Psychological price methods

Similar to contingent valuation and highly popular in the past in marketing, these methods can be used to evaluate price elasticities. A direct approach involves asking the respondent for the highest price he would accept considering his income and the lowest price he would accept without fear of a significant drop in quality. Using the indirect approach, respondents are asked if they will accept to pay a given price for a given product as long as quality and income constraints are the same. While they are simple, easy to understand, and inexpensive, they also suffer from hypothetical and strategic bias. (Le Gall-Ely et al., 2009)

Simulated purchase tests

A frequent pricing research technique is monadic testing. It is one of the least biased and most reasonable methods of determining price sensitivity. There are several methodology approaches of the monadic design: sequential monadic design, paired- comparison design; which generally deal with the quantity of products respondents are exposed to. In a market research interview, respondents are asked to examine a wide range of items and select the one good that best satisfies their needs. One of the factors to take in account is the product's price. This method is monadic because each respondent is assigned to only one price scenario in the study. (Le Gall-Ely et al., 2009)

Vickrey or second-price sealed-bid auctions

Participant's bids are collected at the same time and the highest bidder must buy the product for the sum of the second-highest bidder. We should remark that Vickrey auctions are different from traditional

English or first-price sealed-bid auctions. In this case, the highest bidder purchases the product at the price he offers. Therefore, to influence the sale price, participants interested to underestimate their offer (Hoffman et al., 1993), (Le Gall-Ely et al., 2009).

Becker, DeGroot and Marschak lotteries

Participants set a maximum price for the product offered, and the final sale price determined randomly. The participant should buy the product at the randomly determined price if it is lower or equal to his WTP expressed, in another case the participant cannot purchase the product.

In Vickrey auctions and BDM lotteries participants in a situation where their bids cannot influence the final sale price. A rational bidder is then encouraged to disclose his real WTP, thus the possibility of strategic bias is limited (McAfee and McMillan, 1987). They differ from the way a consumer makes a decision of purchase in a store, however (Hoffman et al., 1993). In this situation participants are competing to buy a limited quantity of a product, whereas in a store the offer is almost unlimited. Therefore, these methods can be used to a specific market situations. (Le Gall-Ely et al., 2009)

Conjoint analysis

There are three conjoint methodologies available: traditional, adaptive and choice-based. Based on the amount of attributes, level of analysis, choice task, and model formulation, the researcher chooses the most fitting methodology. A traditional conjoint analysis have nine or less attributes, it is known as a full profile (Hair et al., 2006). The adaptive conjoint technique needs computer-based interviews and include up to thirty attributes. Last methodology is the choice based method. The number of attributes this approach can be six or less. Respondents are presented different goods and they should to choose one of the good they would buy, with given the attributes and descriptions of the competitive propositions (Lusk et al., 2004).

Choice - based conjoint analysis was selected for use in this study because it mimics the typical shopping experience, and also has a low cost.

One of the assumptions in conjoint analysis is that respondents will react differently to varying combinations of attribute levels - such as different features, prices, or quality claims. The respondent is asked to evaluate product profiles composed of multiple characteristics - attributes of interest at different levels. This evaluation mean that the respondent considers all the attributes simultaneously and makes trade-offs between the different characteristics of the products in order to how his preference. Generally, we assume that respondents will choose the alternative that offers the greatest utility.

Using conjoint analysis, it is possible to identify the changes in consumer preferences caused by changes in a single product characteristic. Conjoint analysis is used in indirect customer surveys, in which questions are asked regarding pricing in connection with the product characteristics. Therefore, price is

no longer the main determinant, but only one of several characteristics. In indirect customer surveys, conjoint analysis is quite close to reality, so the survey requires balance between price and perceived utility (Homburg et al., 2006).

WTP measures for choice analysis

Willingness-to-pay measurements are grounded in utility theory. The consumer chooses the level of the good X that maximizes utility, producing the traditional Marshallian demand curve $X(p, y, q)$, where p is a market price, y is income and q , is the quality of good, fixed exogenously. the resulting indirect utility function is $V(p, y, q)$. Identifying a change in a goods' quality from q_0 to q_1 , the measurement of value is

$$V(p, y - WTP, q_1) = V(p, y, q_0).$$

where WTP is the amount the consumer would be willing to pay for the improved quality, maintain constant utility.

The estimate can be seen more directly using a dual problem: expenditure minimization constrained by a given utility level. This produces the Hicksian demand curve $X(p, U, q)$ and indirect expenditure function $M(p, U, q)$ so that

$$WTP = M(p, U, q_0) - M(p, U, q_1)$$

where U is a constant utility level.

Random utility model

Choice experiments are based on Lancaster's consumer behavior theory and McFadden's random utility theory. Lancaster proposed that the consumer derives the utility of goods or services from their properties or characteristics. Lancaster builds the conceptual framework for conjoint analysis by explaining that utility is obtained from the characteristics or properties of a good rather than the good itself.

Assume that the decision makers are numbered $i = 1, 2, \dots, N$, each facing a choice among $a = 1, 2, \dots, A$ alternatives. Each feasible choice provides a specific utility (such as a profit or other gain) to the decision makers.

The utility can be represented in the following way:

$$U_{ia} = V_{ia} + \epsilon_{ia}$$

where U_{ia} represents the utility of alternative a for the i th decision maker and V_{ia} represents the observed component of the utility, which is a linear function of observed data vectors. The term ϵ_{ia} is the unobserved components of the utility and have a random distribution.

The probability that the i th decision maker chooses alternative a in a discrete choice model is:

$$\begin{aligned} P_{ia} &= \Pr(U_{ia} > U_{ib} \text{ for all } b \neq a) \\ &= \Pr(V_{ia} + \epsilon_{ia} > V_{ib} + \epsilon_{ib} \text{ for all } b \neq a) \\ &= \Pr(\epsilon_{ia} - \epsilon_{ib} > V_{ib} - V_{ia} \text{ for all } b \neq a) \end{aligned}$$

With the distribution of ϵ_i the given by $f(\epsilon_i)$, the probability can be expressed as:

$$P_{ia} = \int I(\epsilon_{ia} - \epsilon_{ib} > V_{ib} - V_{ia} \text{ for all } a \neq b) f(\epsilon_i) d\epsilon_i$$

where $I(\cdot)$ is the indicator function that returns 1 when the expression inside of the parentheses is true and 0 if it's not.

Part IV

Materials and methods

Selection of Product Attributes and Levels

The first step in conjoint study is to define the attributes and levels.

Table 1. shows a summary of attribute and levels of orange juice used in the choice experiment. I included such packaging materials options as can, tetra pack and pet bottle choice. For health and nutritional claims I choose such labels as Fairtrade label and bio label, as well as “With added vitamin C”, “No sugar added” and “With pulp” claims. Price is a necessary part of an experiment to determine willingness to pay. Present market prices for fruit juice available currently on the market were used to determine the price levels. The attributes included in this study were determined by analyzing already existing fruit juice products in the market.

Table 1. Summary of attributes and levels and how they were described in the survey

Packaging Material	
Can	
Tetra-pack	
PET bottles	
Health / Nutritional Claims	
No information (Base)	
With added vitamin C	
No sugar added	
With pulp	
Labels	
Fairtrade	Orange juice bearing this label.
Non-Fairtrade (Base)	Produced the normal way (Base)
Bio	Orange juice produced without the aid of artificial chemical substances.
Non-Bio	Orange juice produced the conventional way (Base)
Price	
0.7€	(Base Price)
1 €	almost 50% more than the 0.7€ (Base Price)
1.25€	80% more than the 0.7€ (Base Price)

Experimental Design

With five attributes associated with (3 x 4 x 2 x 2 x 3) levels respectively I have 144 possible product combinations. I minimized the number of choices using an orthogonal fractional factorial design.

Using Adobe Photoshop CS4, eighteen fruit juice products were made. Five variables were manipulated: package material, nutritional and health benefits, bio and Fairtrade labels and price. In order to simulate a true shopping experience, the decision sets were presented via graphics, the brand was from the products and replaced with the word "orange juice." Survey questions is available in Appendix A.

Fractional factorial designs are sample treatments chosen from a complete/full factorial design of combinations of attribute and attribute levels of a good or service. In order to evaluate customer preferences, full factorial designs combine all of a product's alternatives and features into choice cards at random. A fractional factorial design selects a subset of profiles from the total set that efficiently represents the total and combines them in an orthogonal array. The orthogonal array allows for the captioning of the primary effects for each attribute and its levels, but it is a more simpler design because the number of profiles that the respondent must evaluate is reduced significantly and so respondents don't have fatigue to finish survey, which can be a problem with big number of choices.

The 18 alternatives were randomly ordered to create nine pairs of alternatives. The respondent was presented with three alternatives, two alternatives refer to product profiles with varying label claims and package, and the third option - "I would not buy either product".

The choice modeling literature recommends to have at least 500 choices for valid maximum likelihood estimations (Long, 1997). Therefore, 285 respondents evaluating 9 choices result in 2565 choices for analysis, a 5,13 times of the minimum required for valid maximum likelihood.

The response variable, either an alternative is chosen or not, is coded with 1 when chosen, and 0 otherwise. For each choice task there are three alternatives. For each of the product attributes categories, one of the attributes levels is dropped and the others are assigned a value of 1 if chosen, and 0 otherwise.

Data

As first step I will use the primary data collection method - gathering the data via an online survey. I used the social network. The second step is to handle the data and define the sample. Then, an econometric model will be built and estimated in order to quantify the impact of different variables on the consumer demand due to a Fairtrade label.

The online survey has been shared to participants via social networks. Each individual has been encouraged to share the link in order to enlarge the audience through a snowball effect. The initial targeted population was the people living in Wallonia.

Empirical Model

The conditional logit, multinomial logit, and nested logit models are the most popular techniques for analyzing discrete choice variables. The mixed logit and conditional logit models are quite similar, but the mixed logit employs individual-specific explanatory variables, whereas the conditional logit model focus on the alternative-specific aspects of each decision and uses these as explanatory variables. The multinomial logit, for example, uses the attributes of the chooser (such as age, gender, and income) to forecast the fruit juice choice. The conditional logit, on the other hand, predicts the fruit juice decision based on characteristics of the alternatives (such as nutritional information and package material).

Some drawbacks of utilizing these models include the fact that they do not allow for consumer preference heterogeneity, which implies that all respondents' coefficients for the variables in the models are presumed to be the same. These models are based on the concept of independent irrelevant alternative (IIA), which states that an individual's probability ratio after choosing between two alternatives is unaffected by the presence of other options or attributes (Louviere et. al, 2000). The IIA is based on the assumption that the model's error is distributed independently across all alternatives. This assumption is very restrictive, especially when the decision set contains a high number of alternatives. Alternative models are proposed if the IIA assumption is not met (Louviere et. al, 2000).

Alternative models, such as the nested logit, mixed logit, multinomial probit, and heteroscedastic extreme value models, have been created to relax this assumption.

A mixed logit model was used in my work.

For McFadden's choice model, the utility can be expressed as:

$$U_{ia} = V_{ia} + \epsilon_{ia} = w_{ia}\alpha + z_i\delta_a + c_a + \epsilon_{ia},$$

where α are coefficients for the alternative-specific variables w_{ia} ; δ_a - coefficients for the case-specific variables z_i ; c_a stands for intercepts; and ϵ_{ia} - unobserved random variables, modeled as independent type I extreme-value random variables.

In the mixed logit model the utility can be modeled as:

$$U_{ia} = V_{ia} + \epsilon_{ia} = x_{ia}\beta_i + w_{ia}\alpha + z_i\delta_a + c_a + \epsilon_{ia},$$

where β_i - random coefficients varying over individuals in the population and $x_{i\alpha}$ - vector of alternative-specific variables. The other terms are the same as in McFadden's choice model.

In this study, I used the software package STATA 17.0 to run the mixed logit model for the entire sample and the subgroups.

Market Segmentation

Understanding how customers perceive a product, how they make decisions, and how they build purchasing intentions is critical. Consumer food choices can be seen as result of a complex relationship between personal preferences, socio demographic factors, psychological, social and environmental factors (Trudeau et al., 1998).

With that many brands on the market, it's critical to figure out who your target audience before introducing a new product. It will be easier to choose which information to include on the label, if the researcher considers the target market. In marketing research, market segmentation is widely used (Wedel et al., 2000). It is used to distinguish a target population by segments of customers with shared needs, lifestyles, values and behavior.

The first phase in market segmentation is to determine which variables will be used to categorize customers into groups. Frequently, researchers use more than one variable to construct a thorough summary of the segments. Demographic, geographical, psychographic, and behavioral characteristics are the most widely used variables.

Lifestyle segmentation has been utilized in marketing and advertising for a variety of purposes (Wells et al., 1977). Also many studies (Kvaavik et al., 2005) have highlighted the links between beliefs, attitudes, motivations and product familiarity when it comes to a healthy diet with fruit intake.

I group consumers into homogeneous groups. As previous research showed that the willingness to pay for a product might be influenced by individual lifestyles rather than by usual socioeconomic characteristics (Hartman and New Hope, 1997), I segment consumers according their lifestyles: ecology-conscious consumers, which give high importance to ecological problems, weight-conscious consumers, which give high attention to weight, health-conscious consumers-consumers for whom it is important to control the state of health, price-conscious consumers – the ones, which give attention to price changes, consumers which like read content of product, diet user – consumers with high proportion of fruits and vegetables in diet and risk seeker – consumers which like to try new things.

I included the health and the weight variables, as they can impact on choosing product with the added vitamin C and No sugar added claims. Another individual lifestyle characteristics evaluate attitude and behavior toward healthy diet, price, environmental issues (the environment conscious people can have preferences for bio and Fairtrade products), acceptance of new products and attention to labels (content of product).

One of the most popular scale response format questions in today questionnaires is the Likert scale. It was created by Rensis Likert in 1932. A four-point, five-point, six-point, and so on Likert scale can be used. The most commonly used scale is one to five. 1 means strongly disagree, 2 means disagree, 3 means not sure, 4 means agree, and 5 means completely agree. I asked to evaluate respondents from 1

to 5 different aspects of lifestyle and diet, and to give points from 1 to 5 as not important aspect for them to very important.

Part V

Results and discussion

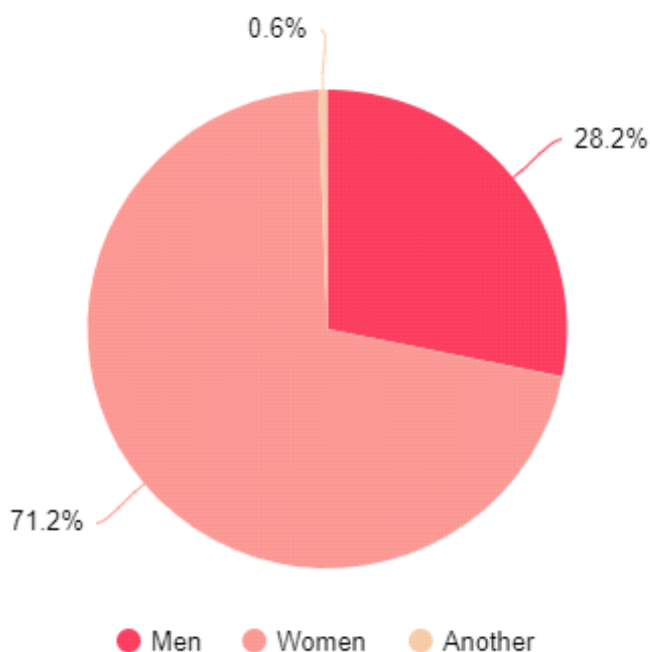
In this part presented analysis of data and empirical estimation.

Data analysis

The survey allowed to gather 340 answers. We keep only 285 observations, dropping missing values and studying only people who completed the survey until the end.

The 71.2% of the respondents are women. This can be explained by the fact that women are more likely to spend time for answering surveys [Moore et al., 2002].

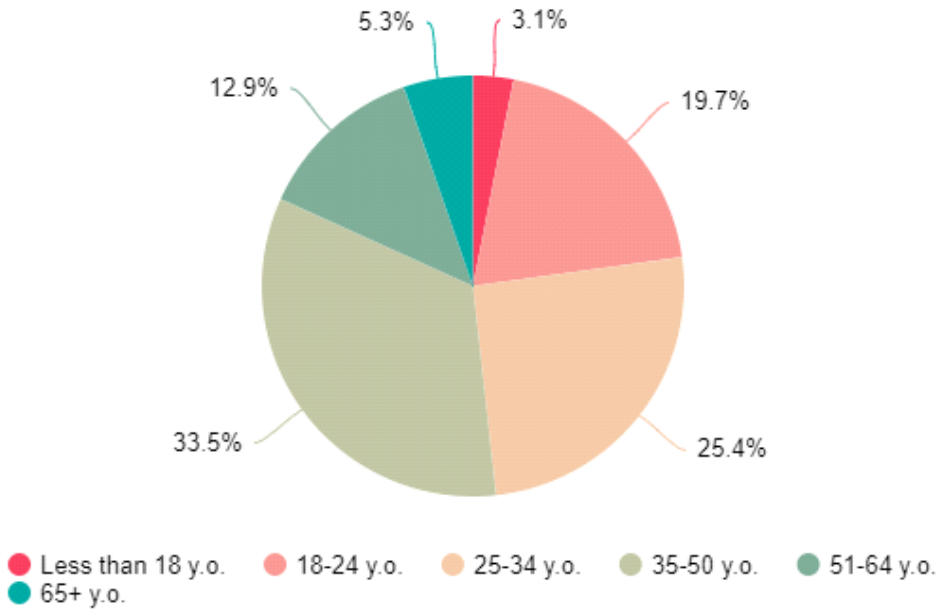
Figure 11. Proportion of individuals by sex



Source: own survey

As we can see, the 33,5 % of respondents are between from 35 to 50 years, 25,4 % - from 25 to 34 years, 19,7 % - have age between 18 and 24 years, 12,9 % - age from 51 to 64 years and 5,3 % people more than 65 years and 3,1 % less than 18 years.

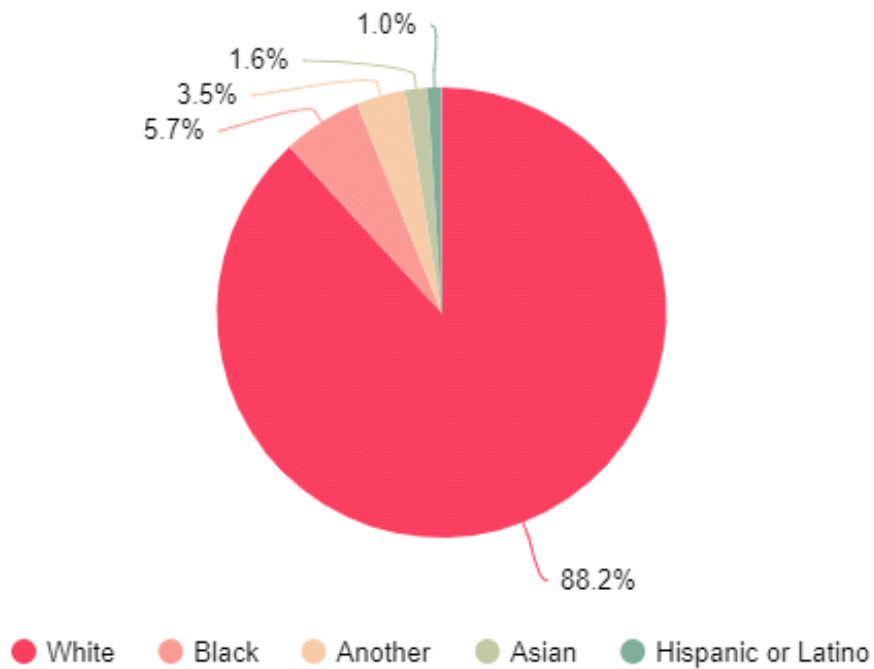
Figure 12. Proportion of individuals by age



Source: own survey

We can see on the graph that, the majority of respondents are white race - nearly 89 %, respondents of black, asiatic and hispanic or latino races are presented in survey in 5,7%, 1,6% and 1% correspondingly.

Figure 13. Proportion of individuals by race

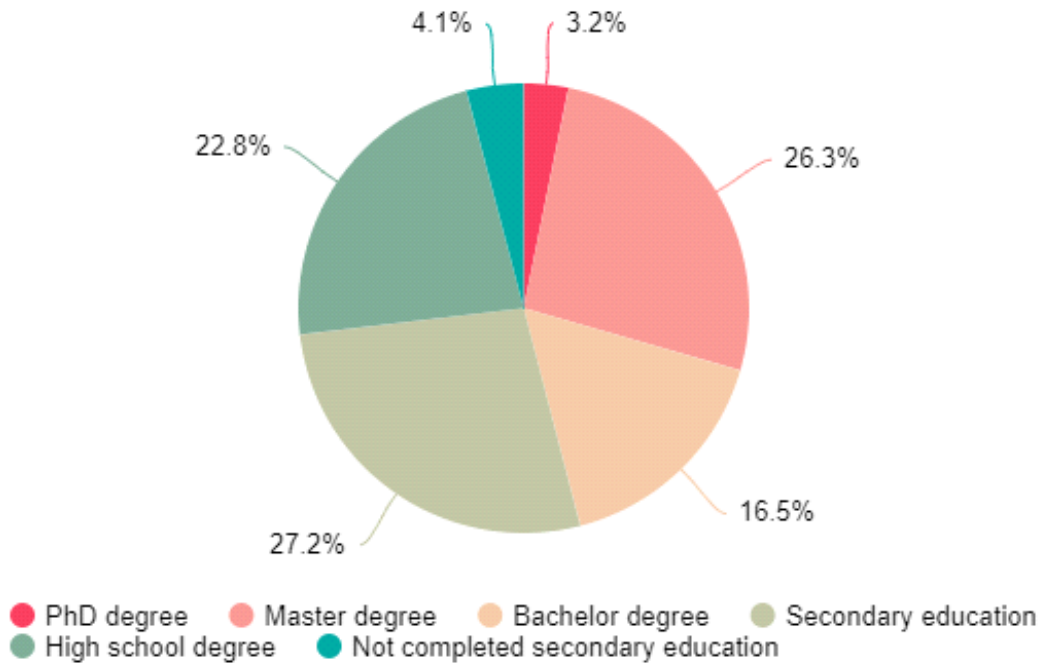


Source: own survey

Over 45% of the respondents achieved a university degree and nearly 23% a higher non-university degree. That leaves about 28% of the sample with a secondary educational level and 4,1% respondents with not finished secondary education, as we can on Figure 14.

People with different educational degrees are proportionally represented in my survey.

Figure 14. Proportion of individuals by educational level



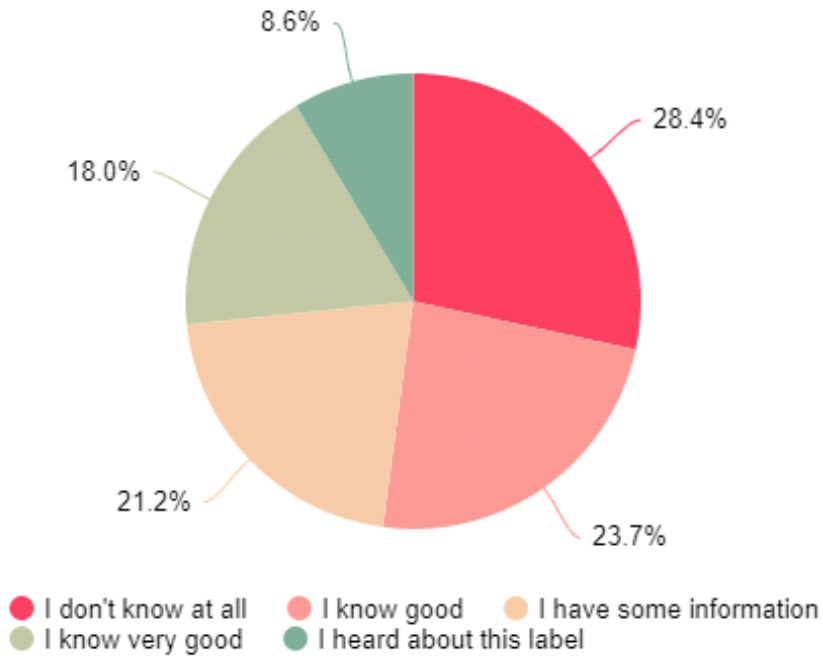
Source: own survey

Often pay attention to labels during shopping nearly 33% of respondents, sometimes - 23,3%, always - 19,6, almost never - 13,2%, and never pay attention to labels during shopping - 10,8% of respondents respectively.

Nearly 55 % of respondents understand what mean the Fairtrade label (against 45,7 % of respondents which don't have information about this label), 64 % of respondents never buy Fairtrade orange juice, nearly 25,8% buy less than one time by month, 8,4% - 1-3 times by month and 1,8 % - 2-3 times by week.

As we can see on graph the 28,4% of respondents don't have any information about Fairtrade label, nearly 24% answered that know good the meaning of this label, 21,2 % - have some information, 18,5 - know the meaning of Fairtrade label very good and 8,6 % - heard about this label.

Figure 15. Awareness about Fairtrade label



Source: own survey

One of the part of survey was dedicated to lifestyle and food habits questions - it was asked to give points from 1 to 5 (from absolutely not important to very important) to different aspects of everyday dietary and shopping habits as: looking after content of products, giving attention to price changement, giving importance to health and weight, buying products for ecological reasons, high proportion of fruits and vegetables in diet and taste to try new things. Questions possible to see in Appendix A.

Table 2. Market segmentation

<i>Lifestyle and diet aspects</i>	1	2	3	4	5
Take care about content of products	2,1 %	6,6 %	21 %	26,9%	43,4%
Give attention to price changement	9,8 %	17,5 %	29,0 %	24,1 %	19,6 %
Give importance to health	4,2%	14,5%	26,9%	30,7%	23,7%
Give attention to weight	24,0%	20,1 %	31,8%	14,5%	9,5%
Buy products for ecological reasons	12,7%	15,9%	26,5 %	25,4%	19,4 %
High proportion of fruits and vegetables in diet	2,8 %	5,3 %	21,8 %	24,6 %	45,6 %
Like to try new things (risk seeker)	5,7%	12,1%	25,7%	34,6%	21,8%

As we can see for group, which take care about content of products, the 43.4% of respondents reported that content of product is very important to them, which is very high proportion, the 26.9% of respondents from this group gave 4 points as important aspect for them, 21% of respondents answered that content of product is not very important for them, 6.6% of respondents don't take care about content of product and 2.1% give any importance to this aspect.

For price conscious group the 19.6% of respondents reported that price changes is very important to them, the 24.1% of respondents from this group gave 4 points as important aspect for them, 29% of respondents answered that price changes is not very important for them, 17.5% of respondents don't take care about price changes and 9.8% give any importance to this aspect.

For health conscious group the 23.7% of respondents reported that health is very important to them, the 30.7% of respondents from this group gave 4 points as important aspect for them, which is high proportion of respondents, 26.9% of respondents answered that health aspects is not very important for them, 14.5% of respondents don't take care about this aspect and 4.2% of respondents don't give any importance to this aspect.

For weight conscious group the 9.5% of respondents reported that weight questions is very important to them, the 14.5% of respondents from this group gave 4 points as important aspect for them, 31.8% of respondents answered weight questions is not very important for them, 20.1% of respondents don't take care about this and 24% give any importance to this aspect.

For ecology conscious group the 19.4% of respondents reported that ecological problems is very important to them, the 25.4% of respondents from this group gave 4 points as important aspect for them, 26.5% of respondents answered that ecological problems not very important for them, 15.9% of respondents don't take care about ecological problems and 12.7% give any importance to this aspect.

For group which have respondents with high proportion of fruits and vegetables in diet the 45.6% of respondents reported that it's is very important to them, the 24.6% of respondents from this group gave 4 points as important aspect for them, 21.8% of respondents answered that this is not very important for them, 5.3% of respondents don't take care about diet and 2.8% give any importance to this aspect.

For people who like to try new things – risk seeker group the 21.8% of respondents reported that they very much like to try new things, the 34.6% of respondents from this group gave 4 points as important aspect for them, 25.7% of respondents answered that it's is not very important for them, 12.1% of respondents don't like to try new products and 5.7% of respondents don't like to try new things at all.

We can conclude that respondents of my survey have high proportion of people with preferences towards fruit and vegetable diet, and for many of them is very important content of product.

Aggregate model

The sample consisted of 7693 observations. The results of Mixed logit model are presented in Table 3. The associated p-value of a likelihood-ratio test for the joint significance of the standard deviations is small – less than 0,0001 which lead to reject the null hypothesis which states that all of the regression coefficients in the model are equal to zero, meaning that the probability of an individual choosing a fruit juice is independent of the attributes presented on the label or package. In our model at least one of the predictor coefficients is not equal to 0.

Mixed logit model will have to be estimated through a Maximum Likelihood Estimation.

Under very general conditions (random sampling and no perfect collinearity) the MLE is consistent, asymptotically normal and efficient. [Wooldridge, 2012].

As alternative-specific variables in my model I used the package characteristics of product, Fairtrade and bio labels, “no added sugar”, “with pulp” and “added vitamin C” claims and price.

As case-specific variables i used such socio-demographic characteristics as age, sex, race, marital status, education and profession. To control for awareness of Fairtrade label i used the variables Seenlogo – dummy variable, taking 1 if respondent seen logo before or taking 0 otherwise, Logosignificance – dummy variable taking 1 if respondents understand what does it logo mean or zero otherwise and variable Fairtradesignificance – how much the respondent aware about Fairtrade label. I included as well variable Buybio – dummy variable taking 1 if respondent buy bio products or 0 otherwise, Frequencybuyorangejuice and Frequencybuyfairtrade to capture frequency of buying orange juice and fair trade orange juice . For variable altruism i used the proxy-variable Benevolat – dummy variable which takes 1 if person did benevolat already in life and 0 otherwise.

There are no exact linear relationships among the explanatory variables. Some correlation between the regressors is, nevertheless, expected and permitted. A correlation matrix of all the independent variables, shown in figure 21 in appendix B, has been used to verify the likelihood of this occurring, and none of them takes the value 1.

I will suppose that the model controlling for enough variables that the ones left in error are unrelated to the explanatory variables.

Some heteroskedasticity can exist because the variance of the unobserved factors changes throughout different segments of the population determined by the various values of the explanatory variables.

To verify, a Breusch-Pagan test, has been done with the null hypothesis of homoskedasticity (test is presented in Appendix B, figure 20). As I have a p-value equal to 0.000, this test rejects the null hypothesis and confirm there is some heteroskedasticity in the variance of the error term.

Because MLE is based on the distribution of y given x , the heteroskedasticity in $Var(y/x)$ is automatically accounted for.

As logistic regression does not have an equivalent to the R-square, McFadden’s pseudo R-squared was used, which is equal to $1 - Lm/LO$, where Lm is the log-likelihood function for the estimated model, and LO is the log-likelihood function in the model with only an intercept. It can be interpreted as an approximation of the proportion of the variation in choosing a fruit juice that is accounted for the

attributes; however, in McFadden's pseudo R-squared the values tend to be smaller than R-square. The values between 0.2 and 0.4 considered as good model fit (McFadden 1997). In our model the pseudo R-squared is 0.23.

When the estimates obtained via an MLE, we could only interpret their sign and significance. Moreover, for interpretation of the dependent variable coefficient, we need to generate the marginal effects - the Average Partial Effect (the average marginal affect - AME) , which takes the marginal effect of a variable for each individual in the sample and then calculates the mean.

Table 3. Mixed Logit Results for Aggregate model

	Coefficient	z	AME
Packaging material			
Can	-0.5993 (0.2237)	-2.68	-12.6%
Tetra pack	0.0931 (0.2570)	0.36	
Health and Nutritional Claims			
Added Vitamin C	0.0865 (0.1101)	0.53	
No added sugar	0.6294 (0.1101)	5.72	13.3%
With pulp	0.4691 (0.3032)	1.55	
Bio	0.1079 (0.2902)	0.37	
Fairtrade	0.7937 (0.1271)	6.24	16.8%
Price	0.5539 (0.7169)	0.77	
McFadden's pseudo R-squared= 0.23			

Results showed that Can bottles, no sugar added and Fairtrade are statistically significant in the model. Pet is omitted from estimation because of collinearity.

The coefficients are as expected, the positive sign of the attributes indicates that respondent's utility increases when adding these attributes. The negative sign for can suggest that this package material is less preferred than pet or tetra pack. For the nutritional claim the preferred label is no sugar added than added vitamin C or juice with pulp. This shows that consumers prefer orange juice with diet claim, rather than with nutritional attributes.

As we can see after calculation of AME if the Fairtrade label is present on orange juice, the respondents probability to buy this product will increase on 16.8%, in comparison with non-Fairtrade orange juice, if “No added sugar” information is present – probability to buy this product increase on 13.3% and if the material of package is can – the probability to buy this orange juice decrease on 12.6%.

Mixed logit model for different socio-demographic segments

I estimated mixed logit as well for lower age group – less than 35 years old and for higher age group – more than 35 years old, and I have found that the increase of probability to buy Fairtrade orange juice grow with age – from 13.5% increase for people with age less than 35 y. o, until increase in 19 % - for people with age older than 35 y.o. The increasing of probability to buy orange juice with “No added sugar” claim also grow with age – from 10% to 19%.

The increase of probability to buy Fairtrade orange juice in comparison with non-Fairtrade orange juice, growing as well with educational level – for person without any education degree or with completed secondary education level the probability to buy Fairtrade orange juice increase on 12.6%, for people with High school or Bachelor degree the probability to buy Fairtrade orange juice increase on 18%, and for people with Master degree or PhD – on 20.5%. The increasing of probability to buy orange juice with “No added sugar” claim also grow with educational level – from 12 % to 15.8%.

With increase in altruism characteristics (done benevolat in the past) and awareness of Fairtrade label there is an increase in probability to buy Fairtrade orange juice as well.

Table 4. Average Marginal Effects for different socio-demographic segments

	AME
Age group	
Less than 35 y. o.	13.5%
More than 35 y.o.	19%
Educational level	
Any education degree or with completed secondary education level	12.6%
High school or Bachelor degree	18.1%
Master degree or PhD	20.5%
Altruism	
Benevolat	23.5%
Fairtrade awareness	
Seen logo	20.2%
Awareness of logotype	24.2%
Awareness of Fairtrade label significance	
Low	11.8%
High	24.3%

Mixed logit model for different market segments

In order to examine the relationship between consumer preferences for orange juice and consumer lifestyle characteristics, a mixed logit was estimated based on market segments related to lifestyle and dietary preferences.

I decided to divide all respondents in 7 clusters relatively to their lifestyle – Ecology conscious, Weight conscious, Price conscious, Health conscious, New things lover, Healthy diet followers and respondents which makes attention to labels and content of product and make estimation for each of these groups.

Table 5. Mixed Logit Results for different market segments

	Packaging material		Health and Nutritional Claims					Price
	Can	Tetra pack	Added vitamin C	No sugar added	With pulp	Bio	Fairtrade	
Ecology conscious consumers								
Coefficient	-0.5817(0.2360)	0.1055(0.2837)	0.1767(0.1783)	0.7007(0.1175)	0.4662(0.3337)	0.2241(0.3184)	0.8546(0.1397)	0.4363(0.7823)
z	-2.46	0.37	0.99	5.96	1.40	0.70	6.11	0.56
APE	-11.9%			14.3%			17.5%	
<i>McFadden's pseudo R-squared= 0.07</i>								
Weight conscious consumers								
Coefficient	-0.409(0.2596)	0.2436(0.2989)	0.1403(0.2051)	0.7209(0.1365)	0.3099(0.3423)	0.4133(0.3367)	0.7825(0.1499)	0.3165(0.8437)
z	-1.58	0.81	0.68	5.28	0.91	1.23	5.22	0.38
APE				14.8%			16%	
<i>McFadden's pseudo R-squared= 0.29</i>								
Health conscious consumers								
Coefficient	-0.6298(0.2295)	0.0944(0.2557)	0.1418(0.1715)	0.6295(0.1110)	0.4354(0.3125)	0.1053(0.2952)	0.8151(0.1321)	0.6131(0.7387)
z	-2.74	0.37	0.24	5.67	1.39	0.36	6.17	0.83
APE	-13%			13.2%			17%	
<i>McFadden's pseudo R-squared= 0.08</i>								
Price conscious consumer								
Coefficient	0.5792(0.2393)	0.2046(0.2653)	0.0854(0.1771)	0.6915(0.1142)	0.4153(0.32)	0.2040(0.3087)	0.7985(0.1369)	0.4308(0.7731)

					28)			
z	-2.42	0.77	0.48	6.05	1.29	0.66	5.83	0.56
APE	-12.1%			14.5%			16.7%	
<i>McFadden's pseudo R-squared= 0.12</i>								
Healthy diet consumer								
Coefficient	-0.6507(0.2302)	0.1108(0.2647)	0.0988(0.1712)	0.6694(0.1131)	0.5005(0.3138)	0.1270(0.3039)	0.8493(0.1327)	0.5880(0.7459)
z	-2.83	0.45	0.58	5.91	1.60	0.42	6.40	0.79
APE	-14.3%			13.8%			18%	
<i>McFadden's pseudo R-squared= 0.07</i>								
Like to try new things								
Coefficient	-0.4703(0.2246)	0.1732(0.2617)	0.1263(0.1695)	0.6377(0.1135)	0.3291(0.2998)	0.2124(0.2922)	0.7445(0.1275)	0.2687(0.7212)
z	-2.09	0.66	0.75	5.62	1.10	0.73	5.84	0.37
APE	-9%			13.5%			15.8%	
<i>McFadden's pseudo R-squared= 0.07</i>								
Like read content of product								
Coefficient	-0.6013(0.2326)	0.1328(0.2717)	0.1318(0.1677)	0.6927(0.1088)	0.5109(0.3159)	0.1633(0.3068)	0.8336(0.1306)	0.5528(0.7453)
z	-2.58	0.49	0.79	6.37	1.62	0.53	6.38	0.74
APE	-12.5%			14.4%			17.3%	
<i>McFadden's pseudo R-squared= 0.06</i>								

So as we can see, if orange juice have Fairtrade label the probability to buy this product in comparison with non-Fairtrade orange juice will increase the most for consumers, which give attention to content of product, as well for ecology conscious and healthy diet consumers.

With presence of “No added sugar” information the highest increase on probability to buy this product, in comparison with orange juice without this claim, we see to weight conscious and price conscious consumers and also consumers, which like to read the content of product.

The highest decrease of probability to buy orange juice if the packaging material is can, we see to health conscious and healthy diet consumers.

However, even for Price conscious consumers the coefficient on price is not significant and don't have expected negative sign, as it's stated by consumer theory – product utility increase when price decrease. As survey was published on social network page and majority of respondents tend to be from the author's entourage and it can lead to non-random sample. I assume that, respondents can underestimate the importance of price attribute for them in survey, and such behavioral characteristics can lead to biased estimation results. In my opinion, such characteristics can be closely related with

altruistic behavior. Altruism is commonly understood to be behavior that benefits others at a personal expense to the behaving individual. (B. Kerr et al., 2004) As a result, this concept can be regarded as the opposite of egoism, which refers to a motivational attitude whose ultimate goal is to improve personal welfare. I used proxy variable to control for altruistic characteristics in my work, but my proxy-variable Benevolat can be not enough strong instrument to mitigate this problem.

Conclusions

Although consumers and producers place a high importance on product attributes such as quality and price, packaging and labeling play an essential part in a consumer's decision to buy. These aspects are essential since they are the consumer's first line of contact with the product.

The increasing interest for sustainability has created the fair trade movement, which works on achieving a more sustainable production environment in less developed countries by offering producers more favorable trading conditions. From one hand, Fairtrade labels have a positive impact on small farmers and plantation workers, because they provide opportunities for higher and more stable income and living standards, which makes farmers and workers less vulnerable to poverty and external factors.

From another point of view, Fairtrade labels are not really enough efficient instrument to reduce poverty.

The purpose of my master thesis was to analyze the effects that Fairtrade label have on the demand of orange juice, inside the market created by the citizens of region of Wallonia (as consumers) - a higher or lower demand for food products that have Fairtrade label against those, which don't have such certification. I analyzed demand for Fairtrade orange juice for full sample, and for different socio-economic groups and different market segments, based on lifestyle and diet preferences segmentation.

Firstly, i made analysis of the market of orange juice from regular market to Fairtrade market – i made overview of Fairtrade label history and structure of organization, philosophy and aims and also some critics. I discussed the impact of orange juice industry on Brazil – the main exporter of orange juice worldwide, the certification FT system and Fairtrade supply chain in Brazil, as well as advantages and disadvantage of Fairtrade in Brazilian economy for producers, workers, customers and government. Second part is dedicated to research methodology. In third part i made literature review of behavioral economic theories, which can help to explain the motives for ethical consumption. Therefore i analyzed methods of estimation of willingness-to-pay based on survey data. In my research i used the choice-based conjoint analysis approach. In fourth part I discuss the materials and methods used in this study – I discuss the selection of attributes and levels for my choice-based conjoint analysis and develop the experimental design for my survey. Then i talked about the empirical model, which i use in my work, another popular techniques for discrete choice variables evaluation and market segmentation. Fifth part represent the empirical part of my work: analysis of gathered data and estimation of the consumer demand of Fairtrade orange juice with mixed logit model. I performed results for aggregate model, estimation for different socio-economic groups and for different market segments, based on lifestyle and diet preferences segmentation.

The results of the data study reveal that having a Fairtrade label on an orange juice enhances the likelihood of consumers in the Wallonia buying it.

The principal factors which increase the probability to buy Fairtrade orange juice is belonging to older age group, high level of education, altruistic characteristics of person and awareness of Fairtrade.

As well the increase in probability of buying orange juice with Fairtrade label have consumers which give attention to content of product, as well for ecology conscious and consumers having healthy diet.

From results of survey we can see that many consumers are unaware of or confused about what the Fairtrade label means – the 28.4% of respondents don't have any information about the Fairtrade label and nearly 30 % of respondents have very limited knowledge about this label.

Fairtrade organizations, through public awareness campaigns, could increase the number of consumers of orange juice who feel a moral need to pay a fair price, as well as the added benefits that ethical purchasing decisions can provide.

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Appendix A

Survey

Figure 16. Survey : socio-demographic questions

* Sexe

<input type="radio"/> Femme
<input type="radio"/> Homme
<input type="radio"/> Autre

* Âge

<input type="radio"/> moins de 18 ans
<input type="radio"/> de 18 à 24 ans
<input type="radio"/> de 25 à 34 ans
<input type="radio"/> de 35 à 50 ans
<input type="radio"/> de 51 à 64 ans
<input type="radio"/> 65 ans et plus

* Éducation

- Aucune scolarité terminée
- Diplôme d'études secondaires ou équivalent
- Haute école ou équivalent
- Baccalauréat universitaire ou équivalent
- Maîtrise universitaire ou équivalent
- Doctorat ou équivalent

* Ethnicité

- Blanc
- Hispanique ou Latino
- Noir
- Asiatique
- Autres

* Êtes-vous marié?

- Oui
- Non

* Profession

<input type="radio"/> Indépendant
<input type="radio"/> Ouvrier
<input type="radio"/> Employé
<input type="radio"/> Étudiant
<input type="radio"/> Rentier
<input type="radio"/> Ménagère
<input type="radio"/> Chômeur
<input type="radio"/> Retraité
<input type="radio"/> Inactif
<input type="radio"/> Autre

* À quelle fréquence achetez-vous du jus d'orange?

<input type="radio"/> Jamais
<input type="radio"/> Moins d'une fois par mois
<input type="radio"/> 1-3 fois par mois
<input checked="" type="radio"/> 2-3 fois par semaine
<input type="radio"/> 4-5 fois par semaine
<input type="radio"/> Plus de 5 fois par semaine

Figure 17. Survey: Consumption and Fairtrade questions

* À quelle fréquence achetez-vous du jus d'orange?

- Jamais
- Moins d'une fois par mois
- 1-3 fois par mois
- 2-3 fois par semaine
- 4-5 fois par semaine
- Plus de 5 fois par semaine

* À quelle fréquence faites-vous attention si un produit porte un label lors de vos courses?

- Toujours
- Souvent
- Parfois
- Presque jamais
- Jamais

* Achetez-vous bio?

- Oui
- Non

* Avez-vous déjà fait du bénévolat?

- Oui
- Non



* Avez-vous déjà vu ce logo:

Oui

Non

* Comprenez-vous ce que signifie ce logo?

Oui

Non

* Savez-vous ce que signifie le label Fairtrade?

Je sais très bien

Je sais bien

J'ai quelques informations

J'ai entendu parler de ce label

Je ne sais pas du tout

* À quelle fréquence achetez-vous du jus d'orange Fairtrade:

<input type="radio"/> Jamais
<input type="radio"/> Moins d'une fois par mois
<input type="radio"/> 1-3 fois par mois
<input type="radio"/> 2-3 fois par semaine
<input type="radio"/> 4-5 fois par semaine
<input type="radio"/> Plus de 5 fois par semaine

Figure 18. Survey: lifestyle questions

* Pour moi, les informations sur les produits sont d'une grande importance. J'ai besoin de savoir ce que contient le produit alimentaire.

Pas du tout d'accord		Tout à fait d'accord		
1	2	3	4	5

* Je remarque lorsque les produits que j'achète changent régulièrement de prix.

Pas du tout d'accord		Tout à fait d'accord		
1	2	3	4	5

* Je mange souvent des fruits et des légumes.

Pas du tout d'accord		Tout à fait d'accord		
1	2	3	4	5

* Je prends soin de ma santé. Je vérifie régulièrement mon état de santé.

Pas du tout d'accord		Tout à fait d'accord		
1	2	3	4	5

* J'ai changé de produit pour des raisons écologiques.

Pas du tout d'accord		Tout à fait d'accord		
1	2	3	4	5

* Je choisis souvent des aliments / boissons parce qu'ils contribuent au contrôle du poids.

Pas du tout d'accord			Tout à fait d'accord	
1	2	3	4	5

* Je suis une personne qui aime essayer de nouveaux produits.

Pas du tout d'accord			Tout à fait d'accord	
1	2	3	4	5

Figure 19. Survey: Conjoint analysis

* Quel produit préférez-vous?

Veuillez choisir parmi les trois options proposées.

Deux des choix incluent des informations sur les produits présentés (types d'emballages, prix, label...)

Le troisième choix indique qu'il n'y a pas de préférence entre le choix A et le choix B.

Veuillez indiquer quel choix sera le plus attrayant pour vous, en termes d'attributs influençant votre intention d'achat.

Tous les produits proposés contiennent le même volume - 250 ml.

 <p>Jus D'orange Riche En Vitamine C; 0.7€</p>	 <p>Jus D'orange Riche En Vitamine C ; Fairtrade; Bio; 1€</p>	<p>Je ne voudrais acheter aucun de ces produits.</p>
--	---	--

* 2. Quel produit préférez-vous?



Aucun sucre supplémentaire n'a été ajouté; Bio; 1 €



1.25 €

Je ne voudrais acheter aucun de ces produits.

* 3. Quel produit préférez-vous?



Jus D'orange Riche En Vitamine C; Fairtrade; 1 €



Jus d'orange avec pulpe; Fairtrade; Bio; 1.25 €

Je ne voudrais acheter aucun de ces produits.

* 4. Quel produit préférez-vous?



Jus D'orange Riche En Vitamine C; Bio; 1 €



Aucun sucre supplémentaire n'a été ajouté; Fairtrade; 0.7 €

Je ne voudrais acheter aucun de ces produits.

* 5. Quel produit préférez-vous?



Je ne voudrais acheter aucun de ces produits.

* 6. Quel produit préférez-vous?



Je ne voudrais acheter aucun de ces produits.

* 7. Quel produit préférez-vous?



Je ne voudrais acheter aucun de ces produits.

* 8. Quel produit préférez-vous?



Aucun sucre
supplémentaire n'a été
ajouté; Fairtrade; 1€



Jus d'orange avec pulpe;
0.7€

Je ne voudrais acheter aucun
de ces produits.

* 9. Quel produit préférez-vous?



Jus D'orange Riche En
Vitamine C; Fairtrade; Bio;
1.25€



Jus d'orange avec pulpe,
Bio; 1€

Je ne voudrais acheter aucun
de ces produits.

Apendix B

Stata results

Figure 20. Breusch-Pagan test for heteroskedasticity

```
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variables: All independent variables
```

H0: Constant variance

```
chi2(33) = 218.79
Prob > chi2 = 0.0000
```

Figure 21. Correlation matrix

	can	tetrapack	pet	vitC	noaddsug	withpulp	fairtrade	bio	price	Sex	Married	Frequency	Frequency
can	1.0000												
tetrapack	-0.4947	1.0000											
pet	-0.4385	-0.5641	1.0000										
vitC	0.0877	-0.0806	0.0000	1.0000									
noaddsug	-0.0331	0.1218	-0.0945	-0.3780	1.0000								
withpulp	-0.0331	-0.1523	0.1890	-0.3780	-0.2857	1.0000							
fairtrade	0.1240	-0.1140	0.0000	0.2357	0.0000	-0.2673	1.0000						
bio	-0.1240	-0.1140	0.2357	0.0000	0.0000	0.0000	0.1111	1.0000					
price	0.1194	-0.0704	-0.0407	0.1118	-0.0423	-0.0423	0.0719	0.2443	1.0000				
Sex	-0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000			
Married	-0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000	-0.0199	1.0000		
Frequency	-0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0460	0.0217	1.0000	
Frequency	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0999	0.1852	-0.0815	1.0000