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The Power of Certifications

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How Sustainability Certifications Impact the Product Preference in the Brazilian Juice Market

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"THE POWER OF CERTIFICATIONS - HOW SUSTAINABILITY CERTIFICATIONS IMPACT THE PRODUCT PREFERENCE IN THE BRAZILIAN JUICE MARKET".

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Abstract:

Purpose – The purpose of this study was to investigate, in how far sustainability certifications impact the product preference in the Brazilian juice market.

Design/methodology – Quantitative analysis was used applying conjoint analysis with different certifications and other product specifics embedded in a questionnaire design. Furthermore, cluster analysis was used to identify significantly different groups.

Findings – In general, sustainability certifications increase the product preference in the Brazilian juice market. However, the effects between the clusters are different. The two most important segments are two, one is mainly dominated by price-sensitivity, the other is basing its choice mostly on the certification. Demographic differences as well as differentiation between the certifications are very limited.

Research limitations – The study is investigating product preference, not actual buying behavior.

Practical implications – The study provides a dual targeting strategy how to approach the two most important identified segments.

Originality – Most prior studies are done in Europe or North America in the food market. Furthermore, comparisons between different certification groups are rarely conducted.

Keywords: sustainability, sustainability marketing, certification, Brazil

Category: Master thesis

Resumo:

Objetivo – O objetivo deste estudo foi investigar até que ponto as certificações de sustentabilidade impactam a preferência do produto no mercado brasileiro de sucos.

Metodologia – A análise quantitativa foi utilizada aplicando análise conjunta com diferentes certificações e outras especificações do produto incorporadas em um desenho de questionário. Além disso, a análise de cluster foi usada para identificar grupos significativamente diferentes.

Resultados – Em geral, as certificações de sustentabilidade aumentam a preferência do produto no mercado brasileiro de sucos. No entanto, os efeitos entre os clusters são diferentes. Os dois segmentos mais importantes são dois, um é dominado principalmente pela sensibilidade ao preço, o outro está baseando sua escolha principalmente na certificação. As diferenças demográficas, bem como a diferenciação entre as certificações são muito limitadas.

Limitações – O estudo está investigando a preferência do produto, não o comportamento real de compra.

Aplicabilidade do trabalho – O estudo fornece uma estratégia de segmentação dupla como abordar os dois segmentos identificados mais importantes.

Originalidade – A maioria dos estudos anteriores é feita na Europa ou na América do Norte no mercado de alimentos. Além disso, comparações entre diferentes grupos de certificação raramente são realizadas.

Palavras-chave: sustentabilidade, marketing da sustentabilidade, certificação, Brasil

Categoria do artigo: Tese de mestrado

List of Abbreviations

ABIO: Associação de Agricultores Biológicos do Estado do Rio de Janeiro (Association of Biological Agriculturers of the State of Rio de Janeiro)

ABIR: Associação Brasileira das Indústrias de Refrigerantes e de Bebidas não Alcoólicas (Brazilian Association of the Industry of Soft Drinks and non-alcoholic Drinks)

BRICS: Brazil, Russia, India, China, South Africa

CEP: Código de Endereçamento Postal (Postal Code)

CSR: Corporate Social Responsibility

GDP: gross domestic product

IBGE: Instituto Brasileiro da Geografia e Estatistica (Brazilian Institute of Geography and Statistics)

LOHAS: Lifestyle of Health and Sustainability

NGO: Non-Governmental Organization

OIA: Organização Internacional Agropecuária (Organization of International Farming)

SBVC: Sociedade Brasileira de Varejo e Consumo (Brazilian Society of Retail and Consumption)

UN: United Nations

USDA: United States Department of Agriculture

WTP: Willingness to Pay

WWF: World Wildlife Fund

1. The Problem

1.1 Contextualization

Human development has increased enormously in the last centuries, accelerating even further in the last decades. However, besides all the positive effects, such as increasing life expectancy, higher average education, income and technological achievements (McMichael, 2012), also problematic trends are taking place. Developments like rising amounts of natural catastrophes (Van Aalst, 2006), growing social inequalities (Dabla-Norris, Kochhar, Suphaphiphat, Ricka, & Tsounta, 2015) and rapid population growth (Azose, Ševčíková, & Raftery, 2016) are demanding a more sustainable way of production and consumption in the future. As a result of that, among others, the United Nations outlined sustainability in production and consumption as one of the key challenges of the 21st century in their Agenda 21 at the United Nations (UN) Conference on Environment & Development in Rio de Janeiro, Brazil 1992. (UN, 1992)

As consumer consciousness and recognition are growing towards these ecological and societal issues (Rejikumar, 2016; Schlegelmilch, Bohlen, & Diamantopoulos, 1996), including Brazil, especially by the growth of its middle class (Ariztia et al., 2014), several companies are improving their practices. One of the means of displaying them to the consumer and matching their preferences towards these products is labelling and certification. Starting in the coffee production in the second half of the 20th century (Van Loo et al., 2015), the first labels and certifications were introduced to facilitate the consumers' decision process and the product evaluation. Due to their success, labelling and certification soon became an industry by itself, as it also served as a well-working differentiating marketing tool in the field of sustainability marketing. (de Andrade Silva, Bioto, Efraim, & de Castilho Queiroz, 2017; Rousseau, 2015; Testa, Iraldo, Vaccari, & Ferrari, 2015)

However, due to the effectiveness of the certifications, the amount and variety of certified products increased rapidly over the years. Additionally to that, various certificates and labels have been introduced, (Grunert, Hieke, & Wills, 2014; Hartmann & Apaolaza-Ibáñez, 2009; Testa et al., 2015) leading to currently more than 450 in 199 countries, and 25 industry sectors that are listed on ecolabelindex.com alone. (Ecolabel Index, n.d.) This number is not only overwhelming consumers, who have difficulties evaluating, which label might fit their individual consumer preference best, but also for marketeers assessing how to differentiate in the best possible way from competition. (Atkinson & Rosenthal, 2014; Brécard, 2014; Janßen

& Langen, 2017) Besides that, different originations of and competition between certifications are adding complexity upon this issue. (Y. Li & van't Veld, 2015)

1.2 Objectives

The aim of this study is to evaluate, if the product certifications have a significant influence on consumer preference in Brazil in the first place. Secondly, it will examine, which certificate groups work best from a marketeer's perspective to match the different consumer preferences. To assess that, the market for ready to drink juice in Brazil is chosen, in particular orange juice. Hereby a conjoint analysis will extrapolate, in how far the certificates have an impact on these preferences in comparison to other factors, such as price and the display of the sugar content. After that, by combining the results of the conjoint analysis with a cluster analysis, the study will try to identify different segments, which can potentially be marketed at. As prior research indicates, demographic factors, such as income, the number of children, or being female moderate green purchasing intentions and preference for these products in a positive way in other markets. (Chekima, Wafa, Igau, Chekima, & Sondoh Jr, 2016; Van Doorn & Verhoef, 2015) Therefore, these possible factors will be considered in the formation of the clusters and be checked on for their validity in the Brazilian market.

1.3 Relevance and Justification

As mentioned above, the flood of certificates is making choices between certificate groups and which to pick in these groups difficult for all actors involved. (Janßen & Langen, 2017) Therefore, this study is adding upon the topic of certificate choice, especially from a marketeer's perspective. Resolving this issue in order to facilitate choosing the certificates, which help the most to increase consumer preference, will have a practical relevance for the Brazilian market. By choosing conjoint analysis as a tool close to real purchase decisions with real product bundles that practical relevance will be increased. (Malhotra, Nunan, & Birks, 2017)

Furthermore, research between different certification groups and categories has only rarely been conducted, as well as their joint appearance of different labels. (Janssen & Hamm, 2012; Verhoef & Van Doorn, 2016) Additionally to that, the vast majority of research conducted is aiming at the food market of developed countries, in particular North America and Europe. (Ariztia et al., 2014; Prieto-Sandoval, Alfaro, Mejía-Villa, & Ormazabal, 2016) As a result of

that, further research in an emerging economy such as Brazil in the beverage market will bring up new scientific insights and close research gaps.

Lastly, the Brazilian juice market is a highly relevant field of study. This results mainly from two factors. On the one hand, Brazil, as part of the BRICS countries, is one of the major emerging economies of the world, which is expected to increase its role in the global economy even further. (Brainard & Martinez-Diaz, 2009) On the other hand, as ready to drink fruit juice is part of the daily diet of many Brazilians, its market volume with 12 billion R$ (2017) annually is enormous. (Toledo, Moblicci, & Oliveira, 2018)

1.4 Questions to be answered

Coming from the research objectives, the main research question to be answered is, “How do sustainability certifications influence consumer preferences for ready to drink juice in Brazil?" Related to that, a series of sub questions are to be answered, if there is a significant influence on consumer preference:

- Which certificates work best to increase consumer preference?
- Are there different segments existing? If yes, in how far do they differ amongst each other?
- Are there significant demographic moderating factors of consumer preference for these segments existing?
- What are potential practical strategies to market at the segments identified?

2. Theoretical Framework

2.1 Terminology in the field of sustainability marketing

As already mentioned in the introduction, several, mostly environmental and social factors are demanding a more sustainable consumption on a global level. (Hák, Janoušková, & Moldan, 2016) Depending on their focus of research direction, the literature has found different names for this phenomenon: terms such as green consumption or consumerism are more focused on ecological aspects (Chan, He, & Wang, 2012; Papadas, Avlonitis, & Carrigan, 2017), whereas moral, social or ethical consumption has a stronger focus on the social aspects related to consumption (Ariztia et al., 2014), for instance. Simultaneously to that, the corresponding marketing terms are simultaneously named differently, depending on the focus of research. (Ariztia et al., 2014; Chan et al., 2012; Papadas et al., 2017)

However, full sustainability requires taking into account social, environmental and economic dimensions via definition of the triple bottom line. (Purvis, Mao, & Robinson, 2018; Reinecke, Manning, & Von Hagen, 2012) Since this idea is the underlying concept of most of the terms above and because this paper is including all these dimensions in the assessment of sustainability certification and its impact, in the following course of the work, the terminology will stick to sustainable consumption and sustainability marketing. (Kumar, Rahman, Kazmi, & Goyal, 2012) Moreover, it serves a basic simplification and therefore understanding purpose of this paper.

2.2 The drivers of sustainable consumption

As mentioned in prior paragraphs, sustainable consumption is a global development, which has been growing further in the last decades. (Reisch & Thøgersen, 2015) In general, there are many drivers, which foster this consumption and innovations in its field. (Hojnik & Ruzzier, 2016) In an attempt to group them in a suitable way for this paper, three major key drivers can be identified. First of all, political actors, such as governments, but also supranational organizations as the UN or non-governmental organizations (NGOs) like Greenpeace or the World Wildlife Fund (WWF) moderate sustainable consumption. (Hojnik & Ruzzier, 2016) Especially in the case of governments they play a significant role, as they are able to use their legal power, e.g. via obligations or prohibitions to legally bind producers and consumers to certain standards and behaviors, such as the prohibition of a certain chemical or child labor. (Tayleur et al., 2017) Furthermore, these actors are also exercising non-binding actions. Some

examples are recommendations for consumption or production, as well as the support of sustainable practices, e.g. by setting targets. (Vittersø & Tangeland, 2015) As this work focuses on the relationship between producers and consumers, the role of these political actors will only play a subordinated role in the further course of this dissertation.

Secondly, consumers themselves have a direct influence on consumption by their daily product choices. (Sáez-Martínez, Lefebvre, Hernández, & Clark, 2016) Here, the historical development over the last decades took the direction towards more informed and more demanding consumers. A prominent example for that is the purchase of coffee. In contrast to a few decades ago, when it was usually a mostly simple functional decision, whereas today more and more consumers are more critically also taking into account the environmental and sociological costs related throughout the production process, when purchasing coffee. (Reinecke et al., 2012) The reasons for this evolution are multisided. Most importantly to mention are rising awareness about environmental issues, (Schlegelmilch et al., 1996) their depiction throughout mass media and especially social media, (Strähle & Gräff, 2017) movements towards healthier nutrition alternatives, such as organic food, (Van Doorn & Verhoef, 2011) but also increasing education levels throughout the population around the globe. (Chekima, Wafa, et al., 2016) One of the examples displaying the changes in consumer preference is the emergence of new market segments linked to sustainable consumption. One of most prominent ones is LOHAS, which means lifestyle of health and sustainable. This segment can be regarded as a pioneer in this field, since is not only consuming in a more healthy and sustainable way, but it is also forming the group identity.(S. Choi & Feinberg, 2017)

Thirdly, the companies themselves are a driver for sustainable consumption. Here, two major sub-levels can be identified. First of all, through technological advancement in technology and different means of production, new products, but also through existing more sustainable products becoming cheaper and therefore more affordable and widespread, companies can foster sustainable consumption. One example here could be the recent development of electromobility fueled by energy out of renewable sources, such as solar power. (Sáez-Martínez et al., 2016)

Additionally, a company can offer more sustainable products in the market and embed them into a part of their marketing and corporate social responsibility (CSR) tools, to create a competitive advantage and to respond to the altered consumer demands. (Reisch & Thøgersen, 2015) This idea will be more carefully evaluated in the next paragraph.

2.3 Product certification as a sustainability marketing tool

Sustainability marketing conducted by companies has been evolving since the late 20th century. (Reisch & Thøgersen, 2015) Starting with single Fairtrade initiatives in the coffee industry (Reinecke et al., 2012; Van Loo et al., 2015) and first sporadic attempts to reduce the use of pesticides in agriculture, especially relating to the promotion of organic practices, (Reganold & Wachter, 2016), addressing sustainability issues for marketing purposes has become mainstream in the 21st century. (Kumar et al., 2012) Despite the general effectiveness of these measures, which will be assessed more in detail in the next chapter, this new form of marketing is often used to create a competitive advantage, since further homogenization of products and services is demanding marketeers for more innovative approaches to differentiate them from competitors. (Baker, 2016) Nevertheless, although most multinational companies are nowadays running a CSR department, in which these marketing initiatives are usually executed, (Baumgartner, 2014) the commitment towards and communication of their sustainability level differs substantially. (Baldassarre & Campo, 2016)

When a company decides to promote its sustainability actions, apart from big CSR campaigns, the correspondent labelling of its products is often a popular method. (Eteokleous, Leonidou, & Katsikeas, 2016) By putting a visual element on the products, these labels have the power to reduce the information asymmetry between producers and consumers, especially at the point of sale. (Brach, Walsh, & Hille, 2015; Nikolaou & Kazantzidis, 2016) However, certifying a product as sustainable, is not a universal success guarantee. To make it work effectively, it needs to be noticed, understood, and valued by consumers. (Hoogland, de Boer, & Boersema, 2007; Thøgersen, 2000) This can for example be achieved, by taking a well-established certification with a self-explanatory name, placing it in an adequate place and size at a prominent place on the product packaging. Furthermore, the consumer must usually be willing to pay a price premium for the certification compared to an unlabeled product and therefore make a short-term monetary sacrifice. (Reinecke et al., 2012)

2.4 The impact of sustainability labels and certificates on product evaluations

The effects of sustainability certifications on consumers, their preferences, how they evaluate the labelled products and related issues have been studied in numerous studies over the last years. In the following a rough overview about the most important recent studies will be given.

First of all, a major part of studies has been conducted on organic certifications, due to their common use and popularity. (Van Doorn & Verhoef, 2011) Almost all studies indicate, that consumers are generally at least expecting a higher price associated with these products, however, this does not necessarily translate into a higher willingness to pay (WTP) of all segments. (Janssen & Hamm, 2012; Lee, Shimizu, Kniffin, & Wansink, 2013; Rousseau, 2015; Van Doorn & Verhoef, 2011; Verhoef & Van Doorn, 2016) Since a significant amount of consumers is relating organic certifications to healthiness, the certified products are not only assessed as healthier, but also lower in calories and higher in vitamins and nutrients, among others, which is even shown in taste experiments with two identical, differently labeled products. (Bauer, Heinrich, & Schäfer, 2013; Lee et al., 2013; Sörqvist et al., 2016) This is supported by the fact, that indulgence food as chocolate, for instance, shows less or no effects and price premiums for organic certification, as the purchase intention is not aiming the potential health gains often assigned towards the certificate. (de Andrade Silva et al., 2017; Rousseau, 2015; Van Doorn & Verhoef, 2011) However, when investigating the purchase intentions of organic more in detail, research also shows some ambiguity, as different segments of consumers identify organic certification rather with sustainability than health. (Verhoef & Van Doorn, 2016)

Regarding the effects of other sustainability certificates and labels, the majority of studies is also displaying an increased WTP, or at least an expected price premium in comparison to conventional products. (de Andrade Silva et al., 2017; de-Magistris & Gracia, 2016; Janßen & Langen, 2017; Rousseau, 2015) Although they also often translate into increased product evaluations, taste and price remain the most decisive factors, especially for the large price-sensitive segments. (de Andrade Silva et al., 2017, 2017; de-Magistris & Gracia, 2016)

Nevertheless, as mentioned in the organic context, most of the effects identified are not universally applicable. Therefore, the majority of studies are also investigating on the potential moderators linked to labels and certifications in order to identify the different segments. Usually, demographics and psychographics are identified as major drivers. Being female (Chekima, Wafa, et al., 2016), having children (Chekima, Chekima, Syed Khalid Wafa, Igau, & Sondoh Jr, 2016) higher education (Cai, Xie, & Aguilar, 2017) and income (de-Magistris & Gracia, 2016) are positively correlated to higher product preference, willingness to buy and WTP towards sustainability labelled products. The same is as well valid for consumers with a more sustainable lifestyle and sustainable involvement in general. (Atkinson & Rosenthal, 2014; Finisterra do Paço, Barata Raposo, & Filho, 2009; Grunert et al., 2014) Also, the

regularity of these purchases, as in the case of organic (Lee et al., 2013), have a positive influence.

Furthermore, the studies also try to identify possible problems regarding sustainability certificates and labels. Despite a general lack of knowledge on the topic, especially when it comes to a more concrete level, some studies show that even in the cases of sufficient knowledge, consciousness and willingness to improve the own consumption habits do often not translate into action. (Grunert et al., 2014; Van Doorn & Verhoef, 2015) Also, lack of trust in the certifications and opacity in the flood of labels are commonly mentioned. (Brécard, 2014; Janßen & Langen, 2017) Therefore, consumers are often not able to differentiate, why studies are also able to yield similar or at least some results with fake labels (Janssen & Hamm, 2012; Meyerding & Merz, 2018) and why some are claiming, that the vast majority of segments could be reached with one, self-explaining universal sustainability certification. (Janßen & Langen, 2017)

2.5 Labels, certifications and their differences

Before investigating the topic of available product labels and certifications more in detail, certain differences need to be pointed out. First of all, the group of product labels can be divided into two groups. On the one hand, there are mandatory labels, which have to be put on a product by legal requirements. Common examples are nutritional tables in many countries, but also highlighting of widespread allergens. (Cheftel, 2005) On the other hand there are voluntary labels, which can be put on a product and which are in the center of this dissertation. They can be divided into two sub-groups: self-declared labels and those validated by third parties, usually referred to as certifications. Therefore, every certification is a label, but not every label a certification. (I. Choi, 2014; Liu, 2003) Nevertheless, the literature existing is not always accurate about these terminological differences.

In first category of self-declared labels, most of them are case not protected. Therefore, they can theoretically be put on almost every product. One common example here would be the claim “natural”, which tries to make products appear as ecological or healthy. (Cheftel, 2005) In contrast to that, among the second category, the most important group is the one of certifications. They are awarded by a certifier, which is a third party such as a non-governmental organization or a government, through a standardized process. (I. Choi, 2014; Liu, 2003; Reinecke et al., 2012) By that, it can, as outlined in prior paragraphs, guarantee a certain standard, “provide the consumer with simple, useful and reliable information on complex issues

that are present along the production chain" (Rodrigues, Dalmarco, Aoqui, & de Lourdes Marinho, 2016) and to legally protect all parties involved from external misuse. Once a certification is well-established, it can then also be easily identified in the point of sale as, for example, organic by the consumer. Also, economics of scale can be achieved then, if the certification is promoted, as all certified products can profit from such an initiative. (Janssen & Hamm, 2012) Nevertheless, this can also work into the opposite direction and negatively affect all products, such as a potential scandal involving a certification. (Dufault, 2010) Examples for these certifications can be product traits, such as organic certified by an entitled NGO or state, Fairtrade by the World Fairtrade Organization, but also the country of origin label by the European Union. In theory, as already pointed out, these protected certifications supported by the controlling certifier should be significantly more credible, than self-declared labels. However, since consumers have problems differentiating, this is not always the case. (I. Choi, 2014; Liu, 2003)

Depending on the certifier, some of the processes to obtain the certification can be very enduring and costly. One example for that is the process to be organically certified by the USDA. Here, the producers need to prove three years of continuous organic production before being able to label their products with the USDA organic certification. Apart from the costs for the process itself, which can accumulate up to several thousand US$ according to the USDA, this means, that producers need to stick to organic means of production throughout the timeframe without realizing a potential price premium for the end product. (USDA, n.d.-a) Therefore, receiving a certification can be a substantial investment and, in some cases, even a strategic decision for a business. (Bratt, Hallstedt, Robèrt, Broman, & Oldmark, 2011)

2.6 Certification groups for sustainable consumption

As already stated in prior paragraphs, the amount of product certifications available is overwhelming. (Brécard, 2014; Janßen & Langen, 2017) Taking Ecolabel Index as the most complete index available, currently more than 450 of them are existing in approximately 200 countries. (Ecolabel Index, n.d.) However, this basis is not complete, since the Brazilian "Produto Orgânico Brasil" is missing, for instance, which leads to the assumption, that the actual number is significantly higher. Taking these huge numbers into consideration, it is entirely difficult for consumers to differentiate between the certifications, leading to several issues on their side. Trust in the certifications and their underlying institutions, full knowledge about their practices and the implications of these practices, as well as label recognition are

only some problems to be mentioned, which rarely be fully resolved for every product certification. (Atkinson & Rosenthal, 2014; Hoogland et al., 2007; Janßen & Langen, 2017; Thøgersen, 2000)

In order to facilitate assessing the existing product certifications, these currently present on Ecolabel Index have been analyzed and grouped. Due to their characteristics, almost all of the more than 450 certificates can roughly be organized and put in either one of the following three subcategories:

- Fairtrade/social certifications: These certifications are primarily concerned about the wellbeing of the producers. Therefore, the major intentions of the institutions are, among others, humane working conditions, prohibition of child labor as well as ensuring a reasonable fair wage, guaranteeing livelihood of producers and their families. (Fairtrade International, n.d.) Some of the most prominent institutions are, for instance, Fairtrade International, EQUITRADE or the World Fairtrade Organization.
- Environmental certifications: These certifications are stressing the environmental impact of the production. Depending on the organization, this can include issues such as the carbon footprint, deforestation, pollution but also animal welfare or overfishing. (Rainforest Alliance, n.d.-a) Being the largest of the three groups, exemplary certifiers are Rainforest Alliance, Animal Welfare or Carbon Trust.
- Organic certifications: These certifications have a huge overlap with the environmental group, as organic production implies, amongst others, reduced use of pesticides, abundance of monocultures and ecological production in general. (USDA, n.d.-c) Although these points are not very different from many present in the environmental certifications, two reasons are support separating them from the classical ecological group: first of all, organically produced products are often advertised with or purchased because of a focus on the direct health benefits for the consumer instead of underlining the environmental benefits related to it. (Lee et al., 2013; Rousseau, 2015) In contrast to that, environmental labels are mostly focusing their communication on the ecological impact. (Fairtrade Wales, n.d.; Hoogland et al., 2007) Secondly, the number of certificates for organic production is extraordinarily high as well is their popularity in use, such as the supermarket exploration in the following chapter 3 has shown. This justifies separating them from the environmental group. Examples to be mentioned are United States Department of Agriculture (USDA) Organic, the organic certification from the EU or the Brazilian “Produto Orgânico Brasil”.

Although these three groups can be defined as the major groups, they are not mutually exclusive. Above, the comparison of organic and environmental certifications is the most prominent example, where this is displayed. Competing organizations, (national) interests as well as standards and regulations are the major reasons, why a common framework is still not really existing. (Lee et al., 2013) Also, many of these certificates have a very specific focus, towards which they have been created, such as for example a specific regional area (Associação de Agricultores Biológicos do Estado do Rio de Janeiro (ABIO) for agriculture in the state of Rio de Janeiro, Brazil), a sector (NSF/ANSI 140 for carpet sustainability) or a very specific element of the sub-category (Dolphin Safe for dolphin safety in the fishing industry). Additionally, further creation of new certifications as the Certified California Sustainable Winegrowing founded in 2017, (The Wine Institute, n.d.) consolidation of existing certifications as in the case of UTZ and Rainforest Alliance (Rainforest Alliance, n.d.-b) and different certification levels within one certifier such as the different USDA standards depending on the organic content (USDA, n.d.-b) are adding up even further upon the complexity for the consumer. Nevertheless, the rough differentiation above is an approximate market representation in terms of classification and occurrence frequency, which is suitable for the purposes of this study.

3. Research context

3.1 The Brazilian Economy and its Juice Market

Brazil, as part of the BRICS countries, is one of the biggest emerging economies of the world. (Brainard & Martinez-Diaz, 2009) According to official data from the IBGE, Brazil has had real average growth rates of the gross domestic product (GDP) per capita of approximately 2.3% annually, in the years from 1997 to 2018, measured quarterly, increasing the importance and influence of the economy of the fifth most populous country on earth even further. However, Brazil's growth is not stable. Not only are the differences between the extremes quite big, but also are they appearing multiple times with quite short time lag in between. (e.g. Q1 2010: 9.21%; Q4 2015: -5.52%) (IBGE, 2019) The most drastic recent impact was the economic crisis of Brazil, which is still showing its impacts throughout the sectors. (The World Bank, 2019) Due to Brazils geographic location in the Tropics with all its fruits, one important product of its economy is ready to drink fruit juice.

In the market of ready to drink fruit juice, products are officially differentiated into three categories. "Sucos" (juice) is a product that is made 100% out of the fruit, compared to "Nectares" (nectars) with 30-50% fruit content and "Refrescos" (refreshments) containing at least ten percent fruit content, depending on the fruit. Furthermore, the Brazilian Agriculture Department, which sets the standards for these products, defines that nectar and refreshments are allowed to contain additional water and sugar in contrast to the pure juice category. (Ministério da Agricultura, Pecuária e Abastecimento, 2018) However, apart from this official definition, many market players add marketable subcategories, such as "sucos tropicais", which is rather and therefore, should be claimed as nectar due to the definition, (ABIR, n.d.-c) or they state incorrect values on the content percentages, as defining nectar between 20% and 30% juice content for instance, (TAEQ, n.d.) creating ambiguity in the market data available .

Looking at the overall juice category, of the 21,4 billion liters of non-alcoholic beverages Brazil has produced in 2017, only 6,8% are located in one of the three fruit juice categories coming after the dominant groups of soft drinks (48,2%) and bottled water (42,6%). Nevertheless, it is highly profitable, claiming 12 billion R$ or 20,1% of the total market volume right after soft drinks (48,7% or R$ 30 billion) and bottled water (21,3% or R$ 13 billion). Regarding the market players, apart from Coca Cola, which is taking 21,5% of the juice market share, mostly

with its brand “Suco del Valle”, no company is above five percent market share. (Toledo et al., 2018)

Having a look into the data per category of 2017, Associação Brasileira das Indústrias de Refrigerantes e de Bebidas não Alcoólicas (ABIR) only provides a breakup between “Néctares e sucos prontos” (nectar and ready to drink juice) and “refrescos”. Taking this data, the 6.8% market share (1,475 million liters produced) are approximately 3/4 juice and nectar (1,102 million liters) (ABIR, n.d.-a) and only a quarter refreshments (373 million liters). (ABIR, n.d.-c) The consumption of both subgroups has been facing a similar development of growth over the last years (growth rates usually above 10%), which has been declining recently during the time of the Brazilian economic crisis. Therefore, the production level has decreased in the last years, bringing the consumption in 2017 of refreshments back on its level of 2012 and the consumption of juice and nectars back on its 2013 level. (ABIR, n.d.-a, n.d.-b)

3.2 Supermarket exploration

To validate the insights of the macro data on a micro level, a supermarket exploration was carried out, investigating on how the situation in the shelves is regarding existing certifications and other marketing specificities. Furthermore, the exploration was also then in the next step used to help setting up the research design in the following chapter 4.2. For that, six supermarkets, respectively two each of the three chains chosen, have been investigated regarding their products in the ready to drink juice segment and also for other products, which might be certified or labelled in any way. The place of the investigation was the South Zone of Rio de Janeiro.

3.2.1 Pão de Açúcar

The second biggest supermarket chain in Brazil is Pão de Açúcar, having more than 1100 stores spread all over the country. With revenues of 45 billion R$ (2016), it is targeting the general public of any supermarket customers. (SBVC, 2017) With its the mass market focus, the two stores visited offer several ready to drink juices of different tastes. Common tastes are grape, orange, apple and mango, but also more exotic fruits such as passion fruit, approximately equally shared among the three juice categories. Having a closer look at orange juice, the products found vary between 0.5 liters and 2.0 liters, most close to one liter. The price range for the liter bottles is between 6.99 and 17.99 R$, with the majority of the 1l products being around 9-11R$. In the two supermarkets visited, no certified orange juice has been found, as

well as no other certified juice. However, labels, stating the products in the juice category do not contain added sugar, are common. Exploring other certified products, only cookies certified with the Brazilian "Produto Orgânico Brasil" were found.

3.2.2 Zona Sul

Zona Sul is a supermarket chain from the state Rio de Janeiro focusing its operations on the Zona Sul of the city of Rio de Janeiro. The chain runs 37 stores mainly in the South zone of Rio de Janeiro with annual revenues of 1.8 billion R$. (SBVC, 2017) Targeting the upper middle class, the two stores visited offer several ready to drink juices of different tastes, also approximately equally divided into the categories, but with less refreshments. Grape, orange, apple and mango make up the majority of the juice in the shelves. Taking a special focus at orange juice, the products found vary between 0.5 liters and 1.5 liters, most close to one liter. The price range for the liter bottles is between 8.99 and 16.99 R$, most of them being close to 13 R$. In the two supermarkets, no certified orange juice has been found. However, there is a small offer of organic drinks (juice or nectars) including grape, mango and passion fruit certified with the "Produto Orgânico Brasil". Furthermore, a common feature is a label claiming "no added sugar" on around half of the products in the juice category. Regarding the other certification categories defined in chapter 2.6, products in the coffee and chocolate area with the Rainforest Alliance certificate were found. Taking the Social/Fairtrade category into consideration, no certified products were identified.

3.2.3 Hortifruti

Hortifruti is a supermarket chain, that has 41 stores in the states of Rio de Janeiro, São Paulo and Espirito Santo with revenues of 1.5 billion R$. (SBVC, 2017) It is, as already indicated in the name, focused on the fruit sector and related products, such as juice. In general, the stores put a certain amount of its offer to sustainable products, some self-declared, some certified, such as organic almost all by the "Produto Orgânico Brasil". This behavior is also prevalent in its advertisement campaigns promoting sustainable agriculture practices and knowledge about the origin of the products offered. (Hortifruti, n.d.) Taking a closer look at the juice category, it is generally bigger than in the other stores, including a shift from products with lower juice content (refrescos, nectars) to pure juice. One of the reasons for this is, that Hortifruti assigns a significant amount of space towards their self-produced juice, which are all located in the category of "sucos". Looking at the price ranges prevalent, Hortifruti takes between 7.99 R$ and 19.99 R$ for most fruit juice of sizes between 0.5l and 2l, most are ranging between 13 R$

to 15 R$ for a liter, as also for orange juice. However, some upper outliers, as for instance a 2l grape juice for 25.99 R$ are also present.

Focusing on certifications, Hortifruti has a significant amount of certified juice and nectar of all tastes including orange, all of them with the “Produto Orgânico Brasil”. Additionally, labels claiming, “without added sugar” and “without preserving agents” are highly common. Apart from that, the Rainforest Alliance certification has been found on other products, mainly coffee and chocolate.

4. Methodology Procedures

4.1 Conjoint analysis as the main analysis tool

To evaluate how the Brazilian market responds to sustainability certifications, conjoint analysis embedded in a questionnaire has been chosen. Conjoint analysis has been a popular research tool in the past decades, as it asks respondents to evaluate product bundles. Here, the product bundles presented are usually demanding a trade-off between certain attributes from the respondents, which is comparable to a purchasing situation in the supermarket. (Green & Srinivasan, 1990; Malhotra, Nunan, & Birks, 2017) Depending on the design of the analysis, respondents are, in a classical design either required to rate (rating-based), rank (ranking-based) or simply decide between (choice-based) the alternatives offered. The results obtained differ on the design. Ranking and especially choice designs are advantageous in coming closer to a purchase situation, where the most preferred product has to be picked and where a decision has to be made. In a rating-based design, exact factors can better extrapolate different utilities for the product attributes and has therefore advantages in determining the differences between the product bundles. However, this design can lead to limited differentiation between the bundles (all products are rated well) and is farther away from a purchase situation. (Green & Srinivasan, 1990; Jedidi & Zhang, 2002; Louviere, 1988)

4.2 Survey design: Rating-based conjoint analysis with different certificates

After deciding on conjoint analysis as the general tool, the choice cards and the questionnaire have to be designed. As already mentioned in the introductory part, the product chosen is ready to drink orange juice ("suco" category). Based on the certificate group categories of chapter 2.6 and the cross validation of the supermarket exploration of 3.2, three certificates, one of each category have been chosen. First of all, the Brazilian "Produto Orgânico Brasil" was picked representing the group of organic product certifications, since it is not only the main organic certification used in the Brazilian supermarkets explored, but also already present in the juice market and commonly used. Furthermore, the certificate is entirely in Portuguese, reducing potential misunderstandings due to language barriers. Also, it is generally officially used and promoted from official side (OIA, n.d.-b) as well as mandatory in the Brazilian market. (OIA, n.d.-a)

Secondly, Rainforest Alliance has been picked representing the group of ecological certificates. Although the certificate is in English, as the exploration has shown, it is used on products in Brazilian supermarkets, especially on coffee and chocolate. (Messer, Costanigro, & Kaiser, 2017; Rainforest Alliance, n.d.-b) Furthermore, relying on its high popularity and its name "Rainforest" might be effective in Brazil due to the prevalence of the Tropical Rainforest in the Amazonian state and its surroundings.

Thirdly, Fairtrade was chosen representing the Fairtrade category. The main reasons for this choice are, that no prominent certification in Portuguese language or even a Brazilian one is existing and since no other Fairtrade certificates were found during the supermarket exploration. Therefore, Fairtrade has been chosen for its popularity within the category, as well as for its self-explaining name. (Fairtrade Wales, n.d.; Tang et al., 2016)

Additionally, to the three certificates, a label claiming, "without added sugar" ("Sem adição de açúcar") was added to the experimental design, as it is commonly used in all supermarkets explored. Although this label is effectively superfluous for the juice category (Ministério da Agricultura, Pecuária e Abastecimento, 2018), it will be useful to see its impact compared to the impact of the certificates. The reason for this is, that previous studies have already proven a potential impact of meaningless differentiation in general (Carpenter, Glazer, & Nakamoto, 1994), which is basing on limited consumer knowledge and differentiation, as also in this field by the use of made-up certificates and labels. (Janssen & Hamm, 2012; Meyerding & Merz, 2018; Zander, Padel, & Zanoli, 2015) All the three certificates as well as the sugar label are on a binary scale, meaning they are either there on a choice card, or not.

Regarding the price levels coming along with the products, four levels have been chosen, mainly based on the supermarket exploration: low (6.99 R$), medium (9.99 R$), high (12.99 R$) and very high (15.99 R$). These prices are approximately covering most of the supermarket range for the one-liter size while maintaining a continuous increase of three R$, cutting out only single outliers in the premium segment. The price ending of .99 R$ is also generally very common, also in the supermarkets explored, since studies have shown prices ending in 9 or equivalent typically yield psychological advantages. (Janssen & Hamm, 2012; Meyerding & Merz, 2018; Zander, Padel, & Zanoli, 2015)

As the full factorial design (4 x 2 x 2 x 2 x 2 = 64 options) would be extremely difficult to fully evaluate by each respondent, an orthogonal design has been created. Taking the three certificates, the sugar label and the four price levels, a total of eight choice cards have been

created. These eight cards were then visually illustrated combined with an unbranded orange juice bottle. In the informational text explaining the evaluation task it was also claimed, that all products are 1l bottles and from the same brand. The eight choice cards can be visually found embedded in the questionnaire in appendix 4 and 5 or the SPSS plan sheet (appendix 8).

Since average respondents might not be used to the design, the questionnaire has been pretested with ten Portuguese speaking respondents, who were genuine to give honest feedback. Due to the high mobile use rates in Brazil ("Smartphone Usage in Brazil," 2019) and the planned questionnaire distribution via social media and messenger, it was assumed, the vast majority of all respondents will answer the survey on their mobile phones. Therefore, the pretest was explicitly done on the mobile devices, testing a rating and a ranking design. It gathered two main findings. First of all, respondents often needed more time than expected to execute only the conjoint task and to fully understand it (approximately five minutes on average). Secondly, the ranking design was very difficult to execute on the phone, as it is displayed in a drag-and-drop menu combined with scrolling on the phone, requiring some practice. Therefore, a rating-based conjoint (scale from 0-100) was chosen, including randomizing the order of the eight cards by the software and adding a force response, to assure, that all eight cards are evaluated and to exclude potential biases from the order.

Additionally, to the rating task, the survey design included demographic questions. Taking into consideration the pretest finding, that the conjoint analysis is quite time consuming, the number of questions is limited. The following things were asked with the following response options:

- Nationality ("Brazilian", "foreigner living in Brazil", "other")
- Age (open)
- Gender ("male", "female", "other")
- Number of children ("0", "1", "2", "3 or more")
- Postal code (open, with format explanation)

Regarding their order, the nationality question was asked at the very beginning of the questionnaire. If the answer "other" was selected, the survey ended, since only people in the Brazilian market were included in the study. The other four questions were asked after the conjoint analysis was carried out, each with a force response.

Apart from that, the questionnaire software used was Qualtrics, the language chosen was Portuguese, as it is the language spoken in Brazil. Therefore, the survey was translated into

Portuguese before the distribution. The whole questionnaire can be found in the appendix. (appendix 1-7)

4.3 Data Treatment

After collecting the data, the dataset will be cleaned. This includes the removal of answers from non-Brazilian respondents, and those, who have not completed the conjoint analysis. To avoid potential biases in the sample, also respondents without demographics or an unidentifiable CEP will be removed. CEPs that can be identified, will be looked up and completed by the corresponding state and city. Using the IBGE database, the residential GDP per capita per year (nominal; latest available: 2016) for that area will be added.

After that, the extraction of the part worth utilities of the conjoint analysis will be conducted. For that, in the tool SPSS the syntax function will combine the cards in the plan sheet (appendix 8) with the rating results of the components. For this matter all variables will be treated as discrete. Since the conjoint analysis is based on the formula

$$R = C + U_{price} + U_{organic} + U_{eco} + U_{fairtrade} + U_{sugar}$$

two things will be extracted by the software. On the one hand, it will gather a constant (C), which will describe a base utility of the product. Secondly, it will extract factors describing the utilities of the different factors for each level, which will be four price utilities and two for each certificate as well as the sugar label. This will be done on an overall level and also on an individual level. Then, by using the constant C as well as the specific attribute levels, which are desired to be studied, for each of the five part-utilities U_{price}, $U_{organic}$, U_{eco}, $U_{fairtrade}$ and U_{sugar}, the estimated Rating (R, scale 0-100) can be determined for all 64 elements of the full design.

After this, it will be analyzed, if clusters can be potentially formed. For this matter, the utility values will be taken. However, before being able to perform a cluster analysis, they need to be normalized. Therefore, two steps will be performed. First of all, the factor value extracting the lowest utility for the factors is put to 0 and the others within the factor are corrected upwards by the equivalent value. Taking the case of price_1 as an example, this is done by applying

$$U_{price_1_positive} = U_{price_1} - Minimum\ (U_{price_1};\ U_{price_2};\ U_{price_3};\ U_{price_4})$$

for all four price levels. Respectively, the same is done with all the other factors and their utilities. Secondly, the utilities for all respondents are normalized on the respondent level, to

achieve a comparability between them. For that, the lowest single utility stays 0 and the highest single utility is set to 1. Keeping the price_1 example, the following formula

$$U_{price_1_normalized} = U_{price_1_positive} / Sum_{Maxima}$$

with

$$Sum_{Maxima} = Sum\ (Maximum(U_{price_1_positive}, U_{price_2_positive}, U_{price_3_positive}, U_{price_4_positive}), Maximum\ (U_{organic_1_positive}, U_{organic_2_positive})\ Maximum\ (U_{eco_1_positive}, U_{eco_2_positive}), Maximum\ (U_{fairtrade_1_positive}, U_{fairtrade_2_positive}), Maximum\ (U_{sugar_1_positive}, U_{sugar_2_positive}))$$

is applied for all levels of all factors yielding these normalized values. After that, a cluster analysis can be carried out. Therefore, the hierarchical cluster analysis will give the "ideal" number of clusters by using the bigger jump in the distance coefficient (often referred to as "elbow criterion"). After that, this ideal number of clusters is taken to conduct a k-means cluster analysis, determining the cluster centers and forming the subgroups. After the subgroups are formed, the cluster membership will be saved and by running the conjoint analysis on the specific clusters again, the summaries for the segments will be generated.

Lastly, the formed clusters will be checked for significant demographic differences. As outlined in chapter 2.3, several studies in the field of sustainability marketing have found moderating demographic factors for the different segments identified. (Cai et al., 2017; Chekima, Chekima, et al., 2016; Chekima, Wafa, et al., 2016; de-Magistris & Gracia, 2016) Therefore, the demographics gathered in questionnaire will be analyzed for significant differences depending on their cluster membership using ANOVA and Chi-Square analyses.

4.4 Method limitations

Apart from the advantages mentioned in the previous chapters, the conjoint analysis chosen will also have some limitations, deriving from the methodology itself. Primarily it will yield consumer preferences, but no actual buying behavior. Therefore, the results will have practical value, but they cannot be translated into market shares, for instance. (Moser, 2015; Sirgy, 2015; Van Doorn & Verhoef, 2015) This is especially true, since, as previously mentioned, other studies have indicated an attitude-behavior gap. (Janssen & Hamm, 2012; Sörqvist et al., 2015)

Additionally, the number of attributes chosen to evaluate are limited. This is why, the experimental design is only close to a real supermarket decision. However, in the real situation,

the product evaluation is more complex, since further attributes are added, as in the case of orange juice packaging, size, brand or store location, for instance. (Kim & Lee, 2015; X. E. Li, Jervis, & Drake, 2015) Therefore, the utilities and importance of the attributes assessed by this study might be lower in reality.

Lastly, as the pretest indicated, the amount of time needed to execute the rating is quite time-consuming, especially for those who have never filled such a questionnaire before. Therefore, to increase the number of respondents finishing all the questions asked, the demographic attributes asked has been limited in order to reduce the overall time needed to approximately seven to eight minutes. Nevertheless, the most important potential moderators from former studies, which are outlined in chapter 2.4, are checked on.

5. Analysis

5.1 The sample

The survey was distributed from March 15 to April 15 2019, mainly via social media and messenger, such as WhatsApp, Facebook, Instagram as well as Reddit. Of the total of 380 people who started the survey, 110 had to be removed from the sample as they were either foreigners not living in Brazil (seven) or they stopped during or before the conjoint analysis part, leaving of 270 responses for the conjoint analysis. Of these 270 respondents 32 did not provide the demographic information at all and 28 gave no or incorrect information on their CEP and had to be removed therefore as well. This leaves 210 valid and complete responses.

Having a look at the demographics of the 210 subjects, the average respondent is 25.5 years old (median 24 years) including a range from 15-70 years. This is younger than the Brazilian average of 32,6 years, (Vettorazzo, 2018) but not uncommon for online questionnaires. Due to the young average age, 91,4% of the respondents do not have children (3.3% one, 3.8% two and 1.4% three or more). As the percentage of having children is that small, it will be treated as a binary factor (children/no children) in the further course of the analysis. Additionally, the majority of the sample is male (68.6% male, 31.0% female and 0.5% other).

Regarding the geographic distribution the 210 respondents who gave a correct CEP are covering 20 of the 26 states of Brazil with at least one respondent each, as well as Brasilia, DF. Nevertheless, more than half of them are located the states of São Paulo (30.5%) and Rio de Janeiro (22.9%), since they are two of the three most populous ones. Combining the CEP with the GDP per year and capita data, the average of 43,484 R$ (median 46,700 R$) is above the Brazilian average of 30,548, considering the large residential groups of the states and especially in the capitals of São Paulo and Rio de Janeiro, which are well above the average.

Since only five of the 210 respondents (2.4%) indicated a nationality different than Brazilian although living in Brazil, the influence of nationality will not be analyzed in the further course of this work.

5.2 Overall Results

On the aggregated level, all the certificates as well as the sugar label provide positive effects on the product evaluations. From the basis of the utility constant 56.1, adding the organic certification increases the evaluation the most by 7.0 points (-7.0 points for no organic

certification; importance 17.4%) followed by the display of the sugar content with 5.6 points increase (-5.6 points for no sugar display; importance 16.5%) and almost equal effects for Fairtrade (+3.6 / -3.6 points; 12.0% importance) and ecological (+3.9 / -3.9 points; 12.4% importance) certifications. However, price remains the most important factor on the aggregated level, with 41.7% importance and equally high utilities, creating a difference of approximately 27.3 utility points between the highest and lowest price. (6.99 R$: 13.4 points; 9.99 R$: 5.1 points; 12.99 R$: -4.6 points; 15.99 R$: -13.9 points)

5.3 Cluster Analysis and segmentation

After the overall analysis, a cluster analysis was carried out. Using the method explained in chapter 4.3, the hierarchical cluster analysis indicates three clusters as the "ideal" number of clusters by applying the elbow criteria. It indicates a higher jump in the distance coefficients from 207 to 208 (22.0 to 25.4 compared to steps between approximately 1 and 1.5 before) which means, that 210-207=3 clusters should be used. (appendix 10) Therefore, the k-means method was applied (number of clusters: 3) clustering the normalized utility values, yielding significant values for all attributes used in the conjoint analysis. (appendix 12) The normalized final cluster centers can be found in appendix 13.

5.3.1 The "Price Sensitive"

The first cluster found is a price sensitive cluster with 41.9% market share. Starting with a basis utility of 56.1, this cluster can be characterized that it evaluates products by far the most on the basis of their prices (importance price: 61.5%). People in this segment give highest average utilities for the lowest and the lowest utilities for the highest price, creating a difference of 52.4 utility points between the two extremes. (6.99 R$: 27.1 points; 9.99 R$: 6.4 points; 12.99 R$: -9.2 points; 15.99 R$: -24.3 points) Also, the highest utility decrease can be found between the low and medium price (20.7 points), which indicates an even higher preference for the lowest price in general.

However, on average also the certificates as well as the sugar label add utility on the product preference, if they are present. Here, adding the organic certification has the biggest impact with 5.1 points increase (-5.1 points for no organic certification; 12.3% importance) followed by the other three with comparable smaller impacts. (Fairtrade certification +2.2 with / -2.2 without, importance: 8.4%; ecological certification +1.5 with / -1.5 without, importance: 8.3%; sugar label +1.9 with / -1.9 without, importance: 9.5%).

Therefore, taking the findings together, potential usage of certificates and labels is very limited in this segment. To for example achieve on average the same rating result for a product with the medium price of 9.99 R$, all three certificates as well as the sugar label would need to be added (price from 6.99 R$ to 9.99 R$: 20.8 points drop, all certificates and sugar label: increase of 21.2 points compared to none). However, since such a full certification is very resource and time intensive for such a small return, targeting this segment with a low-cost product is more advisable.

5.3.2 The "Certification Lovers"

The second and biggest segment with 47.6% market share is the cluster of the "Certificate Lovers". Coming from an average base utility of 56.0 points, members of this segment care a lot about the certificates, as well as the sugar label, as all of them yield on average very high positive utilities and importance values. Surprisingly, the highest utility is assigned to the sugar label with 9.8 points (-9.8 points no label; 22.2% importance) followed by the organic certification with 9.3 points (-9.3 points no certificate; 21.0% importance). The ecological certificate with 6.7 points (-5.9 points for no certificate; 16.0% importance) as well as Fairtrade with 5.9 points utility increase (-5.9 points for no certificate; 15.6% importance) are also yielding high utility scores.

Comparing the effect of the certificates as well as the impact of the sugar label with the effect of the prices it has to be mentioned that price is only a minor issue for this segment. Although price still works in the expected way that lower prices yield higher utilities than higher ones, the amplitude between the two extremes is with 12.3 points quite low (6.99 R$: +5.7 points, 9.99 R$: +4.3 points, 12.99 R$: -3.4 points, 15.99 R$: -6.5 points; importance: 25.1%).

Therefore, due to the high scores for the certificates as well as for the label and the reduced importance and scores for price, this segment can be easily targeted with a high or very price, as long as one of the certificates or the sugar label is present. Taking the average amplitude of the price extremes (12.3 points), a product with the very high price of 15.99 R$ would still be better rated than one with the lowest price of 6.99$, when only either sugar label (19.6 points difference label/ no label), organic certification (18.5 points difference certification/ no certification) or the ecological certification (13.4 points difference certification/ no certification) is present. Even with the weakest effect of the Fairtrade certificate (11.76 points difference certification/ no certification) this effect is almost achieved. Taking this into account,

adding at least one of the few mentioned above is worth investing the resources and time required, expecting high increases in product preference and the ability to charge a higher price.

5.3.3 The "Expensive Organic"

The third and smallest segment with 10.5% market share is the one of the "Expensive Organic". From a base utility of 56.9 points, this cluster is evaluating the products significantly different from the others, since the price is quite important (37.6%), but utilities are on average not higher for lower prices. Instead, there seems to be an ideal level for the high price of 12.99 R$ and also positive results for the medium price of 9.99 R$. Here, especially the high negative utility for the lowest price is remarkable. (6.99 R$: -6.5 points, 9.99 R$: +3.7 points, 12.99 R$: -8.6 points, 15.99 R$: -5.9 points; importance: 37.6%)

Regarding the certificates, only the organic certificate has a mentionable impact of 9.4 points difference for a certificate compared to none. (+4.7 points with certificate / -4.7 points without; importance: 21.5%) The utilitarian value of the ecological certificate (+0.3 points with / -0.3 without; importance: 12.4%) is on average very small and the impact of the Fairtrade certificate is on average even negative (-0.6 points with / +0.6 points without; importance: 10.1%), but also small. Adding the "without added sugar" label has a bigger, but still small, positive effect. (+1.7 points with / -1.7 points without; importance: 18.5%)

Due to the ideal high price of 12.99 R$, calculating trade-offs is providing limited benefits for this segment. On average, the ideal product for this segment would be an organically certified product, priced 12.99 R$. Adding the sugar label would still be sensible, as it is practically almost costless, the other certificates are superfluous or even providing negative impact, as in the case of Fairtrade. However, this segment is in general hard to interpret due to its heterogeneity and high number of reversals. Also, the level of the utilities is on segment level quite low in general, as, for instance, the advantage of having an organic certification compared to no certification is only 9.4 utility points difference. This is even lower than the effect for organic certification in the first, price sensitive cluster. (10.2 points difference)

A tabular overview over all the segments and their values can be found in the appendix. (appendix 11)

5.4 Demographic differences between clusters

After the definition of the three clusters, it will be analyzed, if the clusters are showing significant demographic differences. Therefore, as outlined in chapter 4.3, the cluster membership will be analyzed for demographic differences. As stated in 5.1 nationality will not be analyzed due to the small amount of non-Brazilian respondents in the sample.

Firstly, the cluster membership has been analyzed using ANOVA to control for the per capita GDP retrieved from the CEP and the corresponding IBGE data as an approximation of income. Here the means are approximately similar for the clusters and also the significance level of .71 is above the threshold of .05. (appendix 14) Therefore it is assumed, the means are not significantly different and that the GDP per capita does not have an impact on the cluster membership. This is confirmed by the multiple comparisons of the post hoc LSD test. (appendix 15)

Secondly, another ANOVA has been executed for the age. Due to the p-value of .03 the null hypothesis of equal means has to be rejected, which can be seen in increasing average ages in the clusters (24.24 “Price Sensitive; 25.74 “Certification Lovers; 29.36 “Expensive Organic”). However, the p-values in the LSD post hoc test indicates, that only the difference between the first and third segment is significant on a .05 level, all others are not. (appendix 14 and 15)

Besides these two ANOVA analyses, three Chi-Square tests have been executed to see, if gender, having children or state residency are significantly differently distributed amongst the clusters. With significance levels for the Pearson Chi-Square of .77 (state, appendix 16) and .33 (gender, appendix 17) the null hypotheses of equal distributions could not be rejected; therefore, they are assumed to be equal. However, having children is with a Pearson Chi-Square significant (.00). Looking at the distribution, it is striking, that having children is especially linked to membership of cluster 3 (“Expensive Organic”) as the count of 7, who have children, is exceeding the expected count of 1.9 significantly (appendix 18), whereas it is underrepresented in the other two.

5.5 Discussion of results

Summarizing the results of the analysis, the three different segments identified differ regarding how the certificates and the sugar label impact the product evaluations. However, most effects are, on the segment view average in the expected directions. Generally, the certificates increase the product evaluations. Furthermore, lower prices yield higher utilities than higher prices. The

only exceptions are in the third segment. Here, a slightly negative utility for Fairtrade and also their preference for the "ideal" price of 12.99 R$ are deviating from this insight on the segment view. However, on the individual level more reversals of these segment-level results are possible.

As the two biggest segments with approximately 90% market share are indicating clear and differentiable behaviors, a dual targeting approach seems suitable to address them. One example for a suitable market approach would be placing on the one side one product in the low-cost range offering a "no frills" product and on the other side a premium-priced product with certifications as well as labels. Since the product preference for both segments are increased for the superfluous information as in the "without added sugar" case, this information could also be highlighted for the consumers of both segments.

The third segment is more difficult to target, as it is quite heterogenous and also difficult to place on a two-dimensional scale, where consumers decide either for highly priced certified products or cheaper, non-certified product. Several reasons might be thinkable for this behavior. On the one hand, the customers in this segment could interpret price as a quality indicator, which is a common shortcut. (Chatterjee, 2018) This would explain for example the negative utility for the low price of 6.99 R$. On the other hand, it could also be, that the people here did not care too much about the price in general and that it used only the other parameters as shortcuts, which might happen, if the conjoint task is too complicated. (Bansak, Hainmueller, Hopkins, & Yamamoto, 2018) Also, simple technical reasons, such as handling problems with the software or random evaluation are possible. However, if the price of 12.99 R$ is picked, and if the product has an organic certification, that group might at least partially move towards the products "Certificate Lovers" segment. Furthermore, the segment is with ca. 10% market share possibly neglectable.

Looking at the differences of the effects the different certificates as well as the sugar level create, it has to be mentioned, they are quite indifferent with small advantages for the organic certification. Therefore, they are from a marketing perspective almost exchangeable and from that view, a cost-benefit analysis should define, which certificate or label will be preferred. The easiest way here would be to pick the sugar label, since it does not create extra costs, apart from changing the packaging. All other three certifications picked would require a full check of and probably an alteration of the production conditions. However, this advantage is easy to copy by the competition and not as long lasting as a certification. Therefore, a mid-term strategy targeted at the "Certification Lovers" segment would be strategically advantageous to contain at least

one or better two certifications. Here, overlapping standards could be useful to fulfill standards of two certifications, such as omitting pesticide use, which is necessary for most organic and ecological certifications. (Montiel, Christmann, & Zink, 2019)

Taking a closer look at the demographics and their directions, most are, as outlined in chapter 5.4 not significant, except for partially age and children. Previous research indicated, these demographics tend to moderate a segment towards preferring sustainably certified products, usually going along with a higher WTP. (Chekima, Chekima, et al., 2016; Chekima, Wafa, et al., 2016) This is not entirely true, as this "Expensive Organic" segment is more prone to have children and be older, but on the average level, the segment of the "Price-Sensitive" still yields higher utility values as the for all certificates and the sugar label. Therefore, in this study higher age as well as having children can only be associated with preferences for higher prices and a higher WTP in general. Although indicated differently by the income approximation retrieved by using the CEP, one potential and logical reason for this could be a higher income in the "Expensive Organic" group. This might be an indicator, that the CEP-based income criterion is not optimal.

6. Conclusions

6.1 General Summary and answers to research questions

The study executed in this paper demonstrates, that sustainability certifications generally have the power to increase product evaluations compared to similar products without certification in the context of the Brazilian juice market. Nevertheless, these effects differ significantly between the different consumer segments, as the price-sensitive segment is for example almost only evaluating the products on the basis of their costs and the segment of the "Certification Lovers" is basing their preference mostly on the existing certifications of the products. These effects for segments are validating that results from previous research are partly applicable to the Brazilian market, as large price-sensitive but also certificate affine segments are in general not uncommon (de Andrade Silva et al., 2017; de-Magistris & Gracia, 2016). However, on an overall average level, it can generally be said, that certifications increase product evaluations.

Taking a closer look at the differences between the certifications picked from the groups defined, the differences between the specific certifications are very small with a small advantage for the organic certification on average. This and also the high utilities for the theoretically superfluous "no added sugar" label in the juice category support the thesis, that consumers have problems differentiating and that their knowledge is limited. This is similar to previous research already existing in other markets (Brécard, 2014; Grunert et al., 2014; Van Doorn & Verhoef, 2015) and supporting the argument, that the majority of the market, or at least those, who show a reaction towards the certificates, could probably be served by a general, self-explaining sustainability certification. (Janßen & Langen, 2017) Due to the popularity and acceptance, this could potentially be the organic certification scoring slightly higher in the utilities. These higher utilities for the organic certification also indicate at least some potential for a specific seal to stand out, although this potential seems to be limited in the Brazilian market. As this organic certification can be very costly and enduring to obtain (USDA, n.d.-a), it has to be assessed if the potential costs are worth the small extra benefits in comparison with other certifications.

Since approximately 90% of the market showing either a price-sensitive or a certificate-focused product preference, the dual targeting strategy presented in chapter 5.5 seems appropriate to address the biggest segments. Here, a "no-frills" low price and a certified premium product would be placed in the market to address the two big segments separately according to their

preferences. The third identified segment is mostly neglected due to its limited size and heterogeneity.

Summarizing these insights to answer the research questions proposed in the introduction, it can be said that sustainability certifications generally increase the consumer preference for ready to drink juice in Brazil. Therefore, they represent from a marketing perspective an interesting opportunity to address sustainability issues and satisfy consumer demands for more sustainable products and services. The identified segments differ substantially from each other regarding their preferences for certificates in general, although within a segment there are only small differences between the certificates themselves. Here, the organic certification has a small advantage compared to the other ones picked. However, although the segments have different preferences, they are demographically with the data gathered in the survey only very slightly differentiable. This is especially valid for the differences between the two big clusters mainly marketed at, as they are not significant. Therefore, creating a target customer or a persona on a solely demographic profile for these segments is not feasible.

6.2 Practical and academic implications

The study conducted has practical as well as academic implications. From a practical perspective it serves as a guideline, how the Brazilian market can be approached with products containing sustainability certifications. By that, for instance, a producer of juice could ideally realize a price premium applying the dual targeting strategy outlined in chapter 5.5. Since the study also shows, that the differences between the certificates are comparably small, the producer should probably not be concerned too much with the certificate choice if he decides to certify, as long as they are visible, understood and self-explaining. (Hoogland et al., 2007; Thøgersen, 2000) However, the experiment also showed, that organic certifications still yield on average a slightly higher utility over the others picked. Therefore, if applicable, the strategy of using this certification, which has been observed in the supermarket, especially Hortifruti, can generally be confirmed. Furthermore, for the juice segment, superfluous positive information, such as the “without added sugar” label seems to create a positive effect. Therefore, if applicable, this kind of meaningless differentiation represents a quick opportunity to improve product evaluations without altering the product itself.

From an academic perspective, this research adds to the research conducted on the impact of sustainability certifications. As pointed out in the chapter 1.3, research between different certification groups and categories has rarely been done (Verhoef & Van Doorn, 2016) as well

as research in countries different from Europe or North America in sectors different than the food sector. (Ariztia et al., 2014; Prieto-Sandoval et al., 2016). Therefore, this study is helping to close these research gaps further.

6.3 Research limitations

The scope of the research is limited to Brazil and the market for ready to drink juice, therefore a general applicability to other countries and markets has to be conducted with caution. Furthermore, the certificates picked serve as an example representing the several categories. Although the ones used have been carefully picked and therefore probably a higher informative value than others, the utilities for similar certificates out of the same category might be different, due to certificate specific factors, such as credibility, for instance. (Atkinson & Rosenthal, 2014; Bratt et al., 2011) This is why, the aim of this study is more to deliver an approximate guideline, which certificate group works best for the Brazilian juice market, than to state exact utilities for each certificate within the group.

Additionally, as already mentioned in the methodology limitation part, the conjoint analysis is putting limits on the analysis. In a real-life decision, more factors are influencing product preference, such as taste, brand, store location or packaging. (Kim & Lee, 2015, 2015) Therefore, the parameters of the analysis are not collectively exhaustive. Furthermore, due to the attitude-behavior gap, we cannot expect that the indicated preferences translate exactly into actual buying behavior. (Kim & Lee, 2015; X. E. Li, Jervis, & Drake, 2015) However, they serve as an approximation, that has to be studied more in detail. Furthermore, this limitation is also linked to the attention to the certificates. As pointed out in previous research, they need to be recognized and understood. (Hoogland et al., 2007; Thøgersen, 2000) This is due to their visualization in the choice cards easier, than in a purchasing situation, where the logo might be placed at a less popular place as the backside of a bottle, for instance and of smaller size. Therefore, this study is eliminating potential problems in this field beforehand.

Lastly, although the segments identified are thematically significantly different, almost all the observable demographics analyzed are not displaying any significant differences between them, except of age and having children. Also, the sample is partially biased towards young male respondents who do not have children.

6.4 Further Research

The study presented serves as one of the initial researches for the Brazilian market. Therefore, further research in many directions is possible. First of all, since the study by its methodology is only able to yield product preferences, studying actual behavior represents an interesting opportunity for further research. Here, for instance, a field research application of the segmentation proposed in chapter 5.5 might be interesting to see, in how far the preferences translate into actual behavior. In this study, it can also be analyzed, if the certificates are recognized in the first place and by that eliminate their potential oversight as it is pointed out in the previous chapter.

Also, demographically observable differences between the segments have hardly been found. To further identify differences, following research could control for further demographics to be able to adjust the targeting of these groups. Here quantitative and qualitative studies could yield further information going beyond these demographics, by also including sociographic variables. Furthermore, also research on different product categories or with other certificates might be interesting for that issue.

Lastly, another interesting study direction would be the investigating the motivational drivers of the consumers. Here it would be interested to see why the groups have or have not preferences for certified products. The driving factors, such as philanthropy or (lack of) certificate trust could then again used for marketing purposes to convince customers to purchase the usually more highly priced certified products.

7. References

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8. Appendix

Appendix 1: Questionnaire Page 1: Introduction

Oi gente,

Sou o Max e sou estudante da FGV-Rio. Para me graduar tenho que realizar um último estudo no qual preciso de sua ajuda.

Única coisa que peço é que responda sinceramente às perguntas, leia atentamente cada uma. O questionário inteiro dura 5 minutinhos, aproximadamente. Não há respostas certas ou erradas, quero saber apenas sua opinião.

Todos os dados serão tratados com cuidado, as respostas são 100% anônimas e vão ser utilizadas apenas para esse estudo. Caso interesse-se pelos resultados, é um prazer compartilhar com você depois.

Muito obrigado por sua ajuda!

→

Appendix 2: Questionnaire Page 2: Nationality Question

Para esse estudo é necessário que seja brasileiro(a) e/ou morar no Brasil. Escolha a opção abaixo:

Eu sou brasileiro(a)

Eu sou estrangeiro(a) mas moro no Brasil

Outro

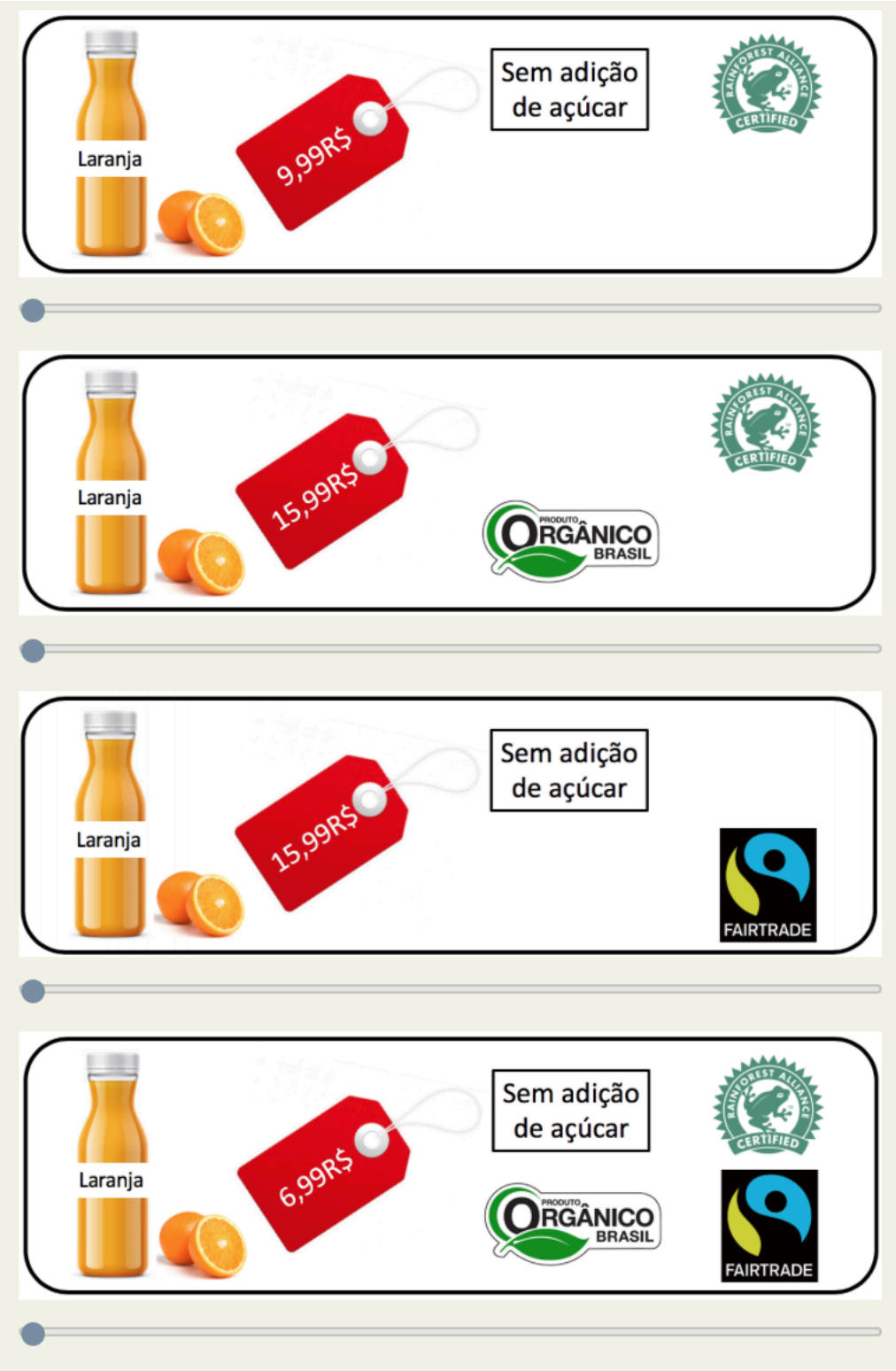
→

Appendix 3: Questionnaire Page 3: Rating Task Explanation

Imagine o cenário seguinte: você está no supermercado e quer comprar um suco de laranja. Fica em frente a prateleira e vê vários produtos, os quais aparecerão na próxima página. Todos os produtos são da mesma marca numa garrafa de 1 litro. Por favor avalie os 8 produtos numa escala entre 0 e 100 onde 0 significa muito ruim e 100 significa muito bom.

Appendix 4: Questionnaire Page 4, Part 1: Rating of first 4 Choice Cards (randomized order of all 8)

Appendix 5: Questionnaire Page 4, Part 2: Rating of first 4 Choice Cards (randomized order of all 8)



Appendix 6: Questionnaire Page 5:Demographic Questions

Finalmente queria perguntar a você algo sobre você mesmo

Idade:

Sexo

- Masculino
- Feminino
- Outro

Quantos filhos tem?

- 0
- 1
- 2
- 3 ou mais

sua CEP (entre no formato 12345-678)

Appendix 7: Questionnaire Page 6: End of Questionnaire

Muito obrigado por sua participação. Se você tem interesse nos resultados, me envie um e-mail e eu ficaria muito feliz em compartilhar os resultados com você depois da análise: maximilian.prell@gmx.de

→

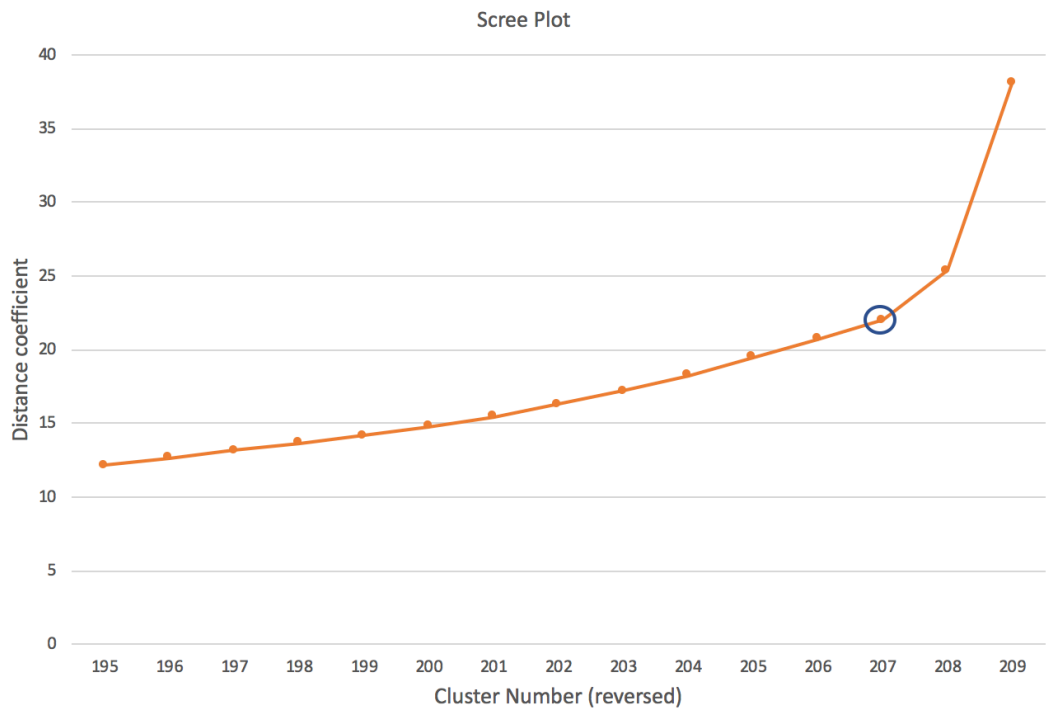
Appendix 8: SPSS plan sheet for Conjoint Analysis, created by using orthogonal design

CARD_	Price	sugar_content	organic_certificate	fairtrade_certificate	eco_certificate
Card1	15,99	without added sugar	no certificate	fairtrade certificate	no certificate
Card2	6,99	no label	no certificate	no certificate	no certificate
Card3	9,99	without added sugar	no certificate	no certificate	eco certificate
Card4	12,99	without added sugar	organic certificate	no certificate	no certificate
Card5	12,99	no label	no certificate	fairtrade certificate	eco certificate
Card6	6,99	without added sugar	organic certificate	fairtrade certificate	eco certificate
Card7	9,99	no label	organic certificate	fairtrade certificate	no certificate
Card8	15,99	no label	organic certificate	no certificate	eco certificate

Appendix 9: SPSS syntax sheet for Conjoint Analysis

```
CONJOINT
PLAN = '/Users/maximilian/Desktop/planfinal.sav'
/DATA= '/Users/maximilian/Desktop/Finalsheetall210.sav'
/SCORE = Card1 to Card8
/SUBJECT = ID1
/FACTORS=  sugar_content (DISCRETE) organic_certificate (DISCRETE)  fairtrade_certificate (DISCRETE) eco_certificate (DISCRETE) Price (DISCRETE)
/PRINT =ALL
/UTILITY = '/Users/maximilian/Desktop/conjointutilitiesfinal.sav'
```

Appendix 10: Scree Plot to apply elbow criterion using distance coefficients for cluster number



Appendix 11: Tabular Overview Utilities and Importance, Overall and per Segment

Segment		Overall	1: Price Sensitive	2: Certificate Lovers	3: Expensive Organic
Size	Respondents	210	88	100	22
	Market share	100%	41,9%	47,6%	10,5%
Utilities:	Constant	56,1	56,1	56,0	56,9
Price	6.99 R$	13,4	27,1	5,7	-6,5
	9.99 R$	5,1	6,4	4,3	3,7
	12.99 R$	-4,6	-9,2	-3,4	8,6
	15.99 R$	-13,9	-24,3	-6,6	-5,9
	Amplitude	27,3	51,4	12,3	15,1
	Importance	41,7%	61.5%	25,1%	37,6
Organic Certification	With	7,0	5,1	9,3	4,7
	Without	-7,0	-5,1	-9,3	-4,7
	Amplitude	14,1	10,2	18,5	9,4
	Importance	17,4%	12,3%	21,0%	21,5%
Fairtrade Certification	With	3,6	2,2	5,9	-0,6
	Without	-3,6	-2,2	-5,9	0,6
	Amplitude	7,3	4,3	11,8	1,2
	Importance	12,0%	8,4%	15,6%	10,1%
Ecological Certification	With	3,9	1,5	6,7	0,3
	Without	-3,9	-1,5	-6,7	-0,3
	Amplitude	7,7	3,0	13,4	0,7
	Importance	12,4%	8,3%	16,0%	12,4%
Sugar Label	With	5,6	1,9	9,8	1,7
	Without	-5,6	-1,9	-9,8	-1,7
	Amplitude	11,2	3,8	19,6	3,4
	Importance	16,5%	9,5%	22,2%	18,5%

Footnotes:
Utilities: Points on the evaluation scale (0-100)
Amplitude: Difference between highest and lowest value in category

Appendix 12: ANOVA with Significance Attributes Conjoint in Cluster Analysis

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
NPrice1	5.052	2	.020	207	255.472	.000
NPrice2	.938	2	.020	207	47.129	.000
NPrice3	.499	2	.012	207	40.097	.000
NPrice4	.129	2	.006	207	21.195	.000
Nsugar_content1	.496	2	.014	207	35.792	.000
Nsugar_content2	.043	2	.003	207	13.071	.000
Norganic_certificate1	.190	2	.011	207	16.646	.000
Norganic_certificate2	.017	2	.002	207	10.035	.000
Nfairtrade_certificate1	.168	2	.008	207	22.314	.000
Nfairtrade_certificate2	.017	2	.002	207	7.981	.000
Neco_certificate1	.220	2	.009	207	25.260	.000
Neco_certificate2	.030	2	.002	207	16.264	.000

Appendix 13: Final Cluster Centers (normalized values)

Final Cluster Centers

	Cluster		
	1	2	3
NPrice1	.61	.18	.11
NPrice2	.36	.16	.23
NPrice3	.18	.09	.30
NPrice4	.00	.06	.11
Nsugar_content1	.07	.21	.11
Nsugar_content2	.02	.01	.08
Norganic_certificate1	.12	.21	.17
Norganic_certificate2	.01	.00	.05
Nfairtrade_certificate1	.07	.14	.04
Nfairtrade_certificate2	.02	.02	.06
Neco_certificate1	.06	.15	.06
Neco_certificate2	.02	.01	.06

Appendix 14: ANOVA Cluster Membership with age and GDP

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Idade:	Between Groups	474.161	2	237.081	3.645	.028
	Within Groups	13464.320	207	65.045		
	Total	13938.481	209			
GDP_Capita	Between Groups	275225548	2	137612774	.346	.708
	Within Groups	8.242E+10	207	398173044		
	Total	8.270E+10	209			

Appendix 15: Post Hoc Test of ANOVA Cluster Membership with age and GDP

Post Hoc Tests

Multiple Comparisons

LSD

Dependent Variable	(I) Cluster Number of Case	(J) Cluster Number of Case	Mean Difference (I-J)	Std. Error	Sig.
Idade:	1	2	-1.501	1.179	.204
		3	-5.125*	1.922	.008
	2	1	1.501	1.179	.204
		3	-3.624	1.899	.058
	3	1	5.125*	1.922	.008
		2	3.624	1.899	.058
GDP_Capita	1	2	-1918.9767	2916.57747	.511
		3	1264.50409	4756.41340	.791
	2	1	1918.97666	2916.57747	.511
		3	3183.48076	4698.98980	.499
	3	1	-1264.5041	4756.41340	.791
		2	-3183.4808	4698.98980	.499

*. The mean difference is significant at the 0.05 level.

Appendix 16: Chi-Square Test Cluster Membership with State

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	33.042[a]	40	.774
Likelihood Ratio	38.925	40	.519
N of Valid Cases	210		

Appendix 17: Chi-Square Test Cluster Membership with Gender

Sexo * Cluster Number of Case

Crosstab

			Cluster Number of Case			
			1	2	3	Total
Sexo	1	Count	66	62	16	144
		Expected Count	60.3	68.6	15.1	144.0
	2	Count	22	37	6	65
		Expected Count	27.2	31.0	6.8	65.0
	3	Count	0	1	0	1
		Expected Count	.4	.5	.1	1.0
Total		Count	88	100	22	210
		Expected Count	88.0	100.0	22.0	210.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.601[a]	4	.331
Likelihood Ratio	4.994	4	.288
N of Valid Cases	210		

Appendix 18: Chi-Square Test Cluster Membership with Children (yes/no criterion)

Children_yn * Cluster Number of Case

Crosstab

			Cluster Number of Case			
			1	2	3	Total
Children_yn	n	Count	84	93	15	192
		Expected Count	80.5	91.4	20.1	192.0
	y	Count	4	7	7	18
		Expected Count	7.5	8.6	1.9	18.0
Total		Count	88	100	22	210
		Expected Count	88.0	100.0	22.0	210.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.306[a]	2	.000
Likelihood Ratio	12.060	2	.002
N of Valid Cases	210		