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TOWARDS SUSTAINABLE CONSUMPTION: CONSUMER SEGMENTATION BASED ON PERCEPTIONS AND BEHAVIOURAL INTENTION RELATED TO ORGANIC VEGETABLES IN INDONESIA

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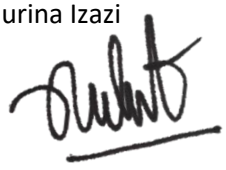

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"The past was honestly the best, but my best is what comes next.
You and I, best moment is yet to come."

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ABBREVIATIONS

COVID-19	: Corona Virus Disease
e.g.	: Exempli gratia (Latin word); for example (in English)
et al	: et alia (and others)
EU	: European Union
GNP	: Gross National per Capita
i.e.	: That is
IOA	: Indonesian Organic Association
IPCC	: Intergovernmental Panel on Climate Change
PLS-SEM	: Partial Least Squares Structural Equation Modeling
SPSS	: Statistical Package for the Social Sciences
TPB	: Theory of Planned Behaviour
UN	: United Nations
WTP	: Willingness to buy

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ABSTRACT

The sustainable consumption concept considers organic food consumption as one of the ways. The transformation towards sustainable consumption is considerably urgent with the current growth pace of environmental degradation. Given the need to increase organic food consumption as well as vegetables' daily intake in Indonesia, this study explores how environmental knowledge, environmental risk perception, environmental concern, environmental efficacy, product perception, trust, and behavioural intention influence the consumption of organic vegetables in Indonesia. This study combines constructs that are tested and validated from earlier studies. A number of 428 respondents were gathered through a web-based survey. Data were analyzed using multinomial logistic regression to identify significant factors influencing organic vegetable consumption, followed by a segmentation analysis to identify the characteristics of consumers. Product perception and behavioural intention were positively correlated with the higher consumption level of organic vegetables. The segmentation analysis indicated four segments in the organic vegetable market: *enthusiastic, reluctant, skeptical,* and *disengaged*. The results show that there exist gradients in the score of environmental knowledge, environmental risk perception, environmental efficacy, product perception, trust, and behavioural intention. The *enthusiastic* has the highest scores, and the *disengaged* has the lowest scores for all constructs, except for the environmental concern construct. Socio-demographic characteristics were also analyzed, resulting in the perceived financial situation and the presence of children being the factors that shape organic vegetable consumption. Related to the COVID-19 pandemic impact, the environmental concern of the respondents increased compared to the time before the pandemic. The originality of this research pertains to the identification of four market segment characteristics based on the significant factors influencing organic vegetable consumption in Indonesia. This research can help policymakers and marketers to build a strategy for enhancing organic food consumption based on the characteristics of targeted segments.

Keywords: Consumer survey, organic food, segmentation analysis

1. INTRODUCTION

With the increasing environmental damage and negative impacts caused by the climate crisis, there is an increasingly urgent need for the world's population to practice sustainable consumption behaviour, to ensure a safe and healthy life for present and future generations (IPCC, 2018). As the current consumption activity put pressure on the environment, there is a need for the population to transform their consumption activity towards sustainable consumption behaviour.

One criterion of sustainable consumption behaviour is the consumption of more environmentally friendly products. The production process of organic food is believed to be in line with this concept, so organic food consumption can be regarded as sustainable consumption behaviour (Dorce et al., 2021). The consumption of organic food in Indonesia is also known to emerge nowadays. The food product of interest in this study is organic vegetables. Vegetables are known as an important part of the diet, as they provide fiber, vitamins, minerals, and other nutrient benefits for human health. In Indonesia, organic vegetables are the most purchased organic products based on the survey from IOA (2019). Increasing vegetable and fruit daily intake in Indonesian citizens becomes one of the Indonesian government’s priorities.

Previous research on sustainable consumption behaviour mostly focused on the trend in the westernized country, but there is a potential bias for the constructs because it reflects the behaviour of highly educated, industrialized, and wealthy populations (Saari et al., 2021). This study seeks to understand the determinant of sustainable consumption behaviour from the micro-level perspective of individuals' environmental attitudes, trust, and product quality perceptions in the context of a global south country and try to understand the gap between the intention and the actions of sustainable consumption behaviour. Hence, using the framework modified from the Theory of Planned Behaviour (TPB) and other related studies, this study tries to enrich the current literature on the factors that potentially affect consumer choice in practicing sustainable consumption behaviour. The results of this study can help to build future attitude-targeted efforts to stimulate more organic vegetable consumption.

1.1 Research objectives

This study aims to determine the factors underlying the consumption of organic vegetables. Vegetables are considered an important element of the diet, as vegetables provide nutritional quality and benefit to the human body. Related to the sustainability point of view, organic vegetables provide more quality attributes compared to conventional vegetables, because they are produced by using fewer chemicals. Promoting organic vegetable consumption is the potential to enhance nutrient intake from vegetables and help to build consumption pattern that is more sustainable and environmentally friendly. The overall objective of this research is to give insight on what are the factors underlying consumers' consumption of organic vegetables. Following that, the research also aims to segment the market for organic vegetables in order to build specific recommendations for the organic vegetable market in the future.

1.2 Research questions

Based on the research objectives, the research question proposed in this research is:

- What are the factors influencing the consumption of organic vegetables?
- What are the profiles of the consumers segmented based on their reactions towards organic vegetables?

2. LITERATURE REVIEW

This chapter consists of four parts. The first part is about the definition of sustainable consumption behaviour and why is it important to promote sustainable consumption behaviour. Followed by the organic vegetables' consumption, particularly in the Indonesian context in the second part. The third part consists of the explanation of possible predictors of sustainable consumption and the last part is the proposed framework to predict organic vegetable consumption.

2.1 Sustainable consumption behaviour

Research shows that humans utilize resources and use services faster than natural ecosystems can regenerate, process, or recycle. However, most people seem to still perceive the economic activity as an activity that is primarily connected to the production and consumption of physical products (Rees, 2020). This economic activity leads to generating pollution (including greenhouse gas emissions that give rise to climate crisis), fisheries collapses, land degradation, etc. In short, humans are currently 'financing' economic growth by utilizing the biophysical systems on which humanity depends. There were too many people competing for the decreasing number of indispensable resources.

Previous studies of attention-behaviour associations related to sustainable consumption behaviour have overlooked their potential for cross-national variation, as most of them have used participants from one society, mostly from western societies. This trend of relying on participants from Western (as well as educated, industrial, wealthy, and democratic) populations reflects a general trend in behavioural science. Nevertheless, social scientists are becoming increasingly aware of the importance of using cross-cultural and diverse samples (Henrich et al., 2010).

2.1.1 Definition of sustainable consumption behaviour

Consumption is an economic, social, and physical process that is influenced by nature, external conditions, individual psychology, as well as geographical, cultural, legal, political, and infrastructure conditions in which each life (Sarigöllü, 2009). Consequently, understanding consumption requires contributions from a wide range of social and

physical science disciplines. Sustainable consumption behaviour is personal environmental behaviour with direct consequences on the environment. It is usually associated with pro-environmental behaviour, which is an aspect of individual behaviour that aims to reduce negative impacts on the environment (Dhandra, 2019; Stern et al., 1999). Sustainable consumption implies a variety of behaviours, from consumer purchases of environmentally friendly products to household and municipal water use patterns (Milfont & Markowitz, 2016). Sustainable consumption may be considered only related to environmental conservation efforts, but subtly contains concepts that are interrelated with social and economic sustainability. For example, the consumption of organic food may be assumed as an activity that represents ecologically motivated consumption, but consumers also perceive it as offering taste or personal health benefits (Peattie, 2010).

The concept of consumption patterns that are ethical and sustainable explicitly appeared in the 1970s, mainly in the United States, as "societal marketing" expands its practice to also take up environmental issues. Initially, research focused on energy use and pollution issues relevant to a narrow range of industries, including automobiles, oil, and chemical material. Consumption behaviour research focuses primarily on recycling and energy saving, and consumer responses to advertising and labeling information (Peattie, 2010).

Theories on sustainable consumption behaviour have been developed since the 1980s, however, because of the multifaceted nature of the phenomenon and various operationalizations, research on the underlying constructs is still needed (Dunlap & York, 2008). For example, there are recommendations for research analyzing relationships between pairs of variables rather than single variables, to evaluate the predictive power of environmental concerns, concerning sustainable consumption behaviour (Tam & Chan, 2018).

In studying consumer behaviour, the social-psychological approach from TPB dominates research related to sustainable consumption behaviour (Aertsens et al., 2009). The TPB is often used to measure pro-environmental behavioural intentions and actual behaviour. Many studies using TPB show that attitudes, subjective norms, and behavioural control can greatly influence consumers' purchase intentions (Yadav & Pathak, 2016).

2.1.2 The importance of sustainable consumption behaviour

Environmental degradation caused by climate change causes a human need to change consumption patterns to more sustainable ones. Sustainable consumption patterns need to be carried out to keep the environment safe and healthy for future generations (IPCC, 2018).

Researchers suggest thinking of production and consumption as a holistic system in which the activities of each of them and their interactions have an impact on the environment. The idea is to develop more sustainable production-consumption systems that include responsible purchasing, certification, and labeling, as well as saving on resource use. To achieve the goal of these efforts, consumers' ability is also needed to change their behaviour toward a more sustainable direction (Peattie, 2010). Along with this idea, the UN has marked sustainable consumption behaviour as one of the main objectives to achieve environmental sustainability (Yadav & Pathak, 2016).

The food system put significant pressure on earth through its high utilization of land, energy, water, and chemicals as well as through its distribution system that emits pollution to the environment (Edwards-Jones et al., 2008). Collectively, consumer choice of sustainable products can influence the food production system towards more sustainable practices.

2.2 Organic food in the context of Indonesia

Organic food is food originating from an organic farm that applies management practices aimed at maintaining ecosystems to achieve sustainable productivity and controlling weeds, pests, and diseases, through various means such as recycling plant and livestock remains, selection and rotation of plants, water management, land management, and planting and use of biological materials (National Certification of Indonesia, 2016). The trend of consumption of organic food has increased over the last few years. This phenomenon is consistent with the increasingly widespread concept of sustainability which is echoed as a way of life that places less burden on the environment. The United Nations stated that practices that apply integrated pest management which is the best option for the future and are more environmentally friendly can contribute to sustainability in agriculture (UN, 1992), which is in line with the practice that is used in organic

agriculture. In other words, the consumption of organic food has been considered a path to a more sustainable society (Dorce et al., 2021).

2.2.1 Organic vegetables' consumption in Indonesia

In this research, the organic vegetable is chosen as the product of focus. Vegetables are considered an important part of daily food intake. Vegetables provide important nutrients such as fiber, vitamins, and minerals which are beneficial for the human body. Improving vegetable consumption has been one of the top priorities of the Ministry of Heath Indonesia's programs. Concerning the sustainability point of view, organic vegetables provide more quality attribute compared to conventional vegetables, as it is produced by using fewer chemicals. Nevertheless, it has been known that the consumption of organic food in developed countries is higher than the consumption of organic food in developing countries (Yadav & Pathak, 2016). However, the concept of organic food is also accepted in Indonesia and become more prominent nowadays. Based on a previous survey, organic vegetables are the most purchased organic food in Indonesia (IOA, 2019).

Statistically, organic food consumers in Indonesia are still dominated by upper-middle income and higher education groups in the big cities (David & Ardiansyah, 2017). Until now, there is no official data from the government showing the number of consumers of organic food in Indonesia. However, based on data from Indonesia Organic Association (IOA) mentioned that the highest organic food consumption is in Java and Bali islands (IOA, 2019).

Identification of consumer motivation to buy and consume organic vegetables in Indonesia is important in developing organic agriculture in Indonesia (Rana & Paul, 2017). Organic farming, defined as farming with environmentally friendly practices and without the use of chemical inputs that are considered to damage soil fertility, is an alternative practice that is started widely practiced. In Indonesia, the government is starting to give its support to organic farming, which is an opportunity for the growth of organic food (Devi et al., 2021). One of the things that can support the sustainability of organic vegetable production is to encourage the formation of a market for organic vegetables.

Organic food production in Indonesia is increasing. The area of organic certified agricultural land in Indonesia increased by 80% in 2017 with a total land area of 208

thousand hectares, and in 2018 it increased to 251 thousand hectares (IOA, 2019). The increase in land production for organic farming raises the question of whether a market for organic farming is available. The obstacle faced by farmers in transitioning to organic products is the difficulty of finding consumers who are willing to buy their products. By knowing the motivation of consumers to buy organic vegetables, producers and the government can formulate appropriate strategies for developing organic agriculture.

2.2.2 Research evidence of organic food consumption from Indonesia

First and foremost, Indonesia has some opportunities to develop organic vegetable sectors, such as the establishment of national regulation and the national government program "Organic 2010" (David & Ardiansyah, 2017). From the producer side, there are 23 certification bodies, 16 organic training centers, and 222 organic certified producers. These big and still growing opportunities are accompanied by some challenges, which include low market demand for organic food (IOA, 2019). Understanding consumers' motivation to consume organic vegetables is important to establish a strategy to increase consumption.

Literature has investigated consumers' product perceptions of organic food and personal determinants that influence organic food consumption (Aertsens et al., 2009). However, socio-demography can be a factor that influences consumer behaviour. Based on this fact, research conducted in areas with different socio-economic conditions will have different results (Yadav & Pathak, 2016). For example, the difference in conditions between countries with upper-middle income and low-middle income countries. This research is expected to enrich the literature related to low-middle income countries.

In Indonesia, research related to the relationship between consumer behaviour and the activity of purchasing goods with green labels has begun to be widely carried out, not only for organic food. The research has been carried out for various products and services, such as green tourism and products labeled green, with various constructs being explored. Personal goals, income, religious values, ethical obligations, perceived readiness to be green, cultural values, eco-label perception, peer pressure, pro-social values, and pro-environmental behaviour are several constructs investigated concerning green consumer behaviour (Adiasih et al., 2019; Ariswibowo & Ghazali, 2017; Ghazali et al., 2021; Lestari et al., 2020; Lita et al., 2017; Tamar et al., 2021). Understanding the behaviour of consumers

towards sustainable consumption and the factor that influence it can be beneficial to achieving sustainability in the production-consumption system.

2.3 Consumer behaviour predictors

Enormous number of research has been done to understand the motivation of consumers' intention to purchase organic food by testing different predictors. However, the inconsistency of the results encourages further exploration of this topic. Prior studies stated that health consciousness, quality and safety, and environmental consciousness are very important drivers influencing consumers' attitudes toward purchasing organic food (Rana & Paul, 2017). However, to the extent of the author's knowledge, the environmental attitude of consumers related to organic consumers is still under-researched. However, the environmental attitude might not directly influence the actual consumption behaviour. Consumers' trust, self-efficacy, and product perception of organic food are the constructs that are possibly mediating the actual behaviour.

2.3.1 Knowledge on environment

Environmental knowledge is defined as general knowledge about facts, concepts, and relationships related to the natural environment and ecosystems (Mostafa, 2007). In relation to consumer behaviour, it is the knowledge that consumers have regarding the environment, including objective knowledge about environmental systems and subjective knowledge about how to protect them through environmentally friendly behaviour (Pagiaslis & Krontalis, 2014). A study states that objective and subjective knowledge both have a positive influence on purchasing behaviour for green products (Mostafa, 2007; Tanner et al., 2004), although subjective knowledge is considered to have a greater impact on influencing green behaviour than objective knowledge (Ellen, 1994).

Previous research stated that environmental knowledge has a direct positive impact on green purchasing behaviour, so in this research, it is assumed that people with higher environmental knowledge are more likely to engage in environmentally friendly behaviour when buying something (Tilikidou, 2007). Environmental knowledge also encourages consumers' intention to pay more to buy sustainable products (Bang et al., 2000). In line with this, research in Indonesia on consumer behaviour in tourist services shows that subjective environmental knowledge has a positive relationship with willingness to pay,

even though the price given is more expensive (Adiasih et al., 2019). Environmental knowledge is considered a strong determinant of purchasing eco-friendly products (Rusyani et al., 2021).

Knowledge is considered one of the factors that influence risk perception, because if a person does not have sufficient environmental knowledge that person cannot personally assess environmental risk (Keller et al., 2012; Kim et al., 2014). This is also the reason why the environmental risk perception level is different between different regions or countries because the residents have a different level of environmental knowledge. Higher environmental knowledge can increase a person's level of environmental concern (Marquart-Pyatt, 2008).

However, another study finds out that knowledge related to the environment had nothing to do with environmental attitude (Tamar et al., 2021). In general, when someone obtains information related to something, they will behave according to the information obtained. Nevertheless, knowing more can lead to confusion as there are more things to consider before deciding to do something. Thus, one can intentionally ignore the importance of information to reduce an unpleasant psychological state due to confusion. In psychological theory, this is known as the cognitive dissonance phenomenon.

A study in Indonesia was conducted to analyze consumers' re-intention to consume organic food. The result shows that consumer perception of organic food is influenced by sensory characteristics and attractiveness of organic food (Cahyasita et al., 2021). Moreover, the researcher stated that there is a gap related to consumer environmental knowledge that needs to be investigated further. In addition, knowledge and awareness of environmental issues have been considered important factors in pro-environmental behaviour (Eom et al., 2016; Klöckner, 2013; Tam & Chan, 2018).

There are almost no statistical data on knowledge and perceptions of the environment as well as environmental awareness in Indonesia (Parker et al., 2018). However, some studies with small-scale populations try to investigate the environmental knowledge level of Indonesians. The result of a study of university students in 3 universities shows that they have good environmental knowledge, even though it’s not significantly affecting their environmental behaviour intention (Ma’ruf et al., 2016). Another survey

with bigger populations involved was done in rural, peri-urban, and urban areas' households in 2 provinces. A strong majority of respondents are aware of climate change and this is considered of being knowledgeable of environmental issues. Most of the people in this knowledgeable group consider climate change as a risk, but only a quarter of respondents take proactive action toward the climate change issue (Bohensky et al., 2013).

2.3.2 Environmental risk perception

Risk perception is described as the process of collecting, selecting, and interpreting signals related to the uncertain impact of an event (Wachinger et al., 2013). Risk perception can be described as the anticipated emotions of individuals, and the anticipated emotions have a significant impact on influencing a person's intention to do something (Perugini & Bagozzi, 2001). Environmental risk perception focuses on individuals' observations of the causes of negative outcomes in the natural environment (Saari et al., 2021). People have different reactions to environmental risk perception, which are: having rational insight into the problem, being willing to act, and being emotionally affected by environmental degradation (Franzen & Vogl, 2013).

Previous studies have tried to compare environmental risk perception between countries in the EU, and the results show that there are differences in the strength of environmental risk perception in each country (McCright et al., 2016). This difference is caused by differences in the social, political, and cultural contexts that each country has (Ghazali et al., 2021; McCright et al., 2016). Cross-national research shows that the environmental risk perceptions that people have on various dimensions are related to their attitudes and behaviour (Franzen & Meyer, 2010; Hadler & Haller, 2013).

The environmental risk perception can come from direct experience, for example experiencing problems with clean water or rising temperatures on the earth's surface, or through indirect experiences, such as reading news in the newspaper regarding an event. Risk perception can be different for each individual, depending on the type of risk, individual personality, social context, and knowledge possessed, which in this case is the knowledge related to the environment (Wachinger et al., 2013). Therefore, environmental knowledge can be an intermediary for environmental risk perception.

Both environmental knowledge and environmental risk perception have an impact on environmental concern, however, the latter has a stronger impact according to the current research (Saari et al., 2021). Additionally, the opposite result is shown when comparing the direct impact of environmental knowledge and environmental risk perception with sustainable consumption behaviour, with the former, resulting in a stronger direct impact on sustainable consumption behaviour (Saari et al., 2021).

2.3.3 Environmental concern

Environmental concern is defined as individual awareness of the fact that the environment is under pressure from pollution or the use of more resources than the earth can provide (Franzen & Meyer, 2010). It is assessed based on overall value orientation to the environment, level of concern about the future of the environment, and how human progress is harming the environment over time (Vainio & Paloniemi, 2014). One driver that motivates people to choose sustainable consumption is the environmental concern (Choi & Fielding, 2013).

A large number of studies have been conducted to evaluate the environmental concern. However, there is an overuse of very broad environmental concern measures and the assumption that prosocial and pro-environmental values are similar in the context of altruism. For instance, the environmental concern measures related to different environmentally friendly activities (i.e., recycling, consuming organic food, using public transport) are considered the same (Thøgersen & Ölander, 2006). On some issues, social and environmental values may be presented as opposed (i.e., exploitation of environmental resources to help tackle poverty) (Peattie, 2010). Hence, it is important to use specific measures for environmental concerns and assumptions or take the social values to measure to understand how is the dynamic of the values. Another study shows that individuals may practice sustainable product purchasing on a specific product, while at the same time not practicing energy or water saving practices because they think they "have done good things for the environment" in one aspect (Rana & Paul, 2017).

Environmental concern can affect behavioural intention or willingness to sacrifice, but the research that has been done does not always show the same results. The difference in results can be caused by the nature of the goods. A study states that a person's

willingness to sacrifice will be higher if the behaviour is directly related to public goods such as the conservation of endangered species, which is oriented to the existence of animals that exist in nature today, compared to behaviour related to an item that has a potential use value, for example, improved water quality (Choi & Fielding, 2013). Environmental concern is known to be growing among consumers, although studies show that there is no direct relationship with people's willingness to sacrifice more for the environment, it can influence behavioural intention (Lestari et al., 2020; Nordlund & Garvill, 2002).

Environmental concern is influenced by socio-demographic factors (Franzen & Meyer, 2010). High economic levels and higher education levels have a positive correlation with environmental awareness. Some studies show that age also has a positive reaction to environmental care. The older generation has more concerned than the younger generation. However, a study conducted in Indonesia investigating the relationship between environmental concern and age resulted in the uncorrelation of those parameters (Sueb et al., 2019). Another study was conducted to compare the level of environmental concern based on the GNP and stated that the level of environmental concern is negatively related to the wealth of a country (Dunlap & York, 2008). Nowadays, it is clear that environmental movements and public support for environmental protection become a global phenomenon that is not limited to wealthy countries only.

The increase in sustainable consumption behaviour can be caused by various things. The influence of environmental concern on consumer behaviour is considered one of the important factors based on previous research. However, the relationship between environmental concern and sustainable consumption behaviour is not straightforward, one of the reasons is that societal and political factors also affect sustainable consumption behaviour (Saari et al., 2021). Recent research findings show that individuals who experience cognitive dissonance between their pro-environmental attitudes and their rational understanding of the environmental impact of the behaviour are willing to pay to reduce cognitive dissonance when the costs of engaging in pro-environmental behaviour are low (Farjam et al., 2019). This also explains why high environmental concerns are not always related to the desire to purchase goods that are more environmentally friendly. Studies have shown that high levels of environmental concern on their own do not promote sustainable consumption behaviour among consumers (Wang et al., 2019).

2.3.4 Environmental efficacy

Another potential factor that can influence the consumption of sustainable consumption behaviour is environmental efficacy, which is related to consumers' behavioural control based on the TPB (Ajzen, 1991). Perceived behavioural control is reflected in inner control (e.g., environmental efficacy) and external perceived difficulty factors (Jackson, 2005; Sparks et al., 1997; Vermeir & Verbeke, 2008). Environmental efficacy can be defined as the consumers' belief that their effort can contribute to a solution to environmental problems (Wang, 2017).

Prior studies suggest that environmental efficacy is associated with a higher intention for sustainable consumption (Ghali-Zinoubi, 2022; Vermeir & Verbeke, 2006; Wang, 2017). This is because consumers who believe their individual behaviour will have a significant impact on environmental sustainability will behave more environmentally friendly (Lee & Holden, 1999). Environmental efficacy is considered one of the predictors of sustainable consumption behaviour at the individual level, as it raises emotional reactions toward environmental degradation and adds up to the individual commitment to environmental protection (Carmi et al., 2015; Wang, 2017).

Furthermore, prior research shows that environmental concern does not always correlate with higher sustainable consumption behaviour. One of the reasons why individuals with environmental concerns do not implement sustainable consumption behaviour is because they feel that their actions have only a small impact and do not solve environmental problems globally. Previous research has shown that the relationship between environmental concerns and consumer behaviour is mediated through environmental efficacy (Vermeir & Verbeke, 2006; Wang, 2017). The consumers' perceived effectiveness or the extent to which consumers believe their actions will be effective or have a meaningful impact on an issue, shows a significant impact on consumer behaviour (Gupta & Ogden, 2009). Another study shows that even though consumers have a willingness to pay for a premium product, they remain unconvinced about their contribution to the environment and will still rely on public authorities to make policies that have a big impact on society (Zaccaï, 2008).

2.3.5 Trust and product perception towards organic food

Trust plays an important role in the purchase intention of consumers because it can reduce their uncertainty about the products or brands (Khare & Pandey, 2017). Trust is defined as the hope that the trustee is willing to fulfill the promises and comply with the obligations (Pivato & Misani, 2008). Trust in the field of marketing can be defined as the expectation of the consumers that the merchants keep their promise and are not trying to take the advantage of the consumer's vulnerability (Kolsaker & Payne, 2002).

As organic foods have some specific characteristics, the role of trust is more critical. Consumers who are not sure about how organic foods were produced put no trust in the organic food producers (Paul & Rana, 2012). Organic food is categorized as something new in the market, so the ambiguity is high and people are more anxious to purchase it. Trust in the organic food producers is important to reduce the ambiguity and uncertainty feeling regarding organic food attributes (Carfora et al., 2019).

Prior studies found that consumers' trust that the products are free of chemicals influences the willingness to purchase organic food products (Saba & Messina, 2003; Sirieix et al., 2013). Trust towards the quality of organic products, whether it has a label or not, is essential for the purchase of organic products (Petrescu et al., 2017). Trust is considered a necessary condition to establish a market for credence goods, one of them is organic food, particularly when the products are categorized as premium. A study conducted in Thailand resulted that the lack of consumer trust is a barrier to the development of the organic food market (Nuttavuthisit & Thøgersen, 2017). Consumers' lack of confidence in the control system in organic food production and the naturalness of organic food correlates with the decrease in purchasing behaviour. Moreover, higher trust in organic products was found to be associated with a higher benefit perception of organic food products (Ricci et al., 2018).

Previous studies considered some ethical intentions to the environment and society to be authentic, however, the internal and external factors influence the actual purchase decision. The general attitude towards the environment would not necessarily influence environmental-specific behaviour, however, it could be a good starting point (Ajzen, 1991; Vermeir & Verbeke, 2006). Positive perception toward organic food is one of the internal

factors influencing consumers' purchasing behaviour (Rana & Paul, 2017). The relation between the positive attitude towards the product and the intention to buy is significantly positive (Kozup et al., 2003).

Consumers' transition towards sustainable lifestyles is not only because they have a higher consciousness of the environment, but also because they look for personal benefits. Personal benefits are attached to the product and would influence a positive attitude towards the product only (Marchand & Walker, 2008). Thus, the more reflective or appropriate attitude toward a specific product, the more predictable the attitude toward sustainable behaviour is (Ajzen, 1991). When comparing organic food to conventional food, consumers can have different overall perceptions of both products. This product perception is influenced not only by the main characteristics that differentiate organic and inorganic food, namely the use of chemical pesticides, but also influenced by the perception of taste, appearance, and freshness of the products. Higher satisfaction with organic food influences the consumer's purchase activity (Paul & Rana, 2012).

However, consumers think organic food is relatively costly (Paul & Rana, 2012). The high price might prevent consumers with high intentions to purchase organic food (Yadav & Pathak, 2016). This is probably the reason why the high intention to purchase organic food is not followed by the actual behaviour of purchasing.

2.3.6 Translating behavioural intention to actual consumption behaviour

TPB states that the best predictor of the actual behaviour is the intention to perform a certain behaviour. Behavioural intention is defined as an individual's readiness to perform a certain behaviour and it is assumed as an immediate antecedent of the actual behaviour (Ajzen, 1991). Previous research that applies TPB shows that attitudes, subjective norms, and behavioural control can greatly influence consumers' purchase intentions (Yadav & Pathak, 2016). Attitude toward behaviour refers to the "degree to which a person has a favorable or unfavorable evaluation or appraisal of the behaviour in the question", the subjective norm is defined as "perceived social pressure to perform or not perform the behaviour", and perceived behavioural control is "an individual perceived ease or difficulty or performing the particular behaviour". People who have a higher degree of control over them are more likely to have a strong intention to perform a particular

behaviour. Thus, people have higher intentions to perform a certain behaviour when they evaluate the outcome of the behaviour as pleasurable (attitude), when they feel social pressure to perform the behaviour (subjective norm), and when they feel capable of performing it (perceived behavioural control) (Dorce et al., 2021). The theory has been used in the area of food choice, including organic food choice (Aertsens et al., 2009).

The high level of environmental attitudes that people have in both poor and rich societies increases the feeling of optimism that the human population will be able to overcome the threat of the climate crisis that is imminent. However, it turns out that this optimism has faced challenges in recent years (Tam & Chan, 2018). The challenge is the decline in environmental concerns in a number of societies, and what is more concerning is that environmental attitudes often do not translate into real pro-environmental actions (Franzen & Vogl, 2013; Kollmuss & Agyeman, 2002). In fact, mitigating environmental problems requires behaviour change. The efforts made by researchers, governments, and other organizations to increase environmental concern will be in vain if the increase in environmental concern is not followed by behavioural changes that are more sustainable.

Previous studies refer to the misalignment of ethical intentions into actual behaviour alternately as attitude-behaviour, intention-behaviour, or word-action gaps (Carrington et al., 2010). Research on ethical consumerism, psychology, and social-psychology related to consumer behaviour is variously documented, however, they do not explain the intention-behaviour gap. A growing number of research try to investigate ethical purchase decision-making but only focus on the relationship with ethical purchase intentions (Carrington et al., 2014). The translation from intentions to actual buying behaviour remains poorly understood.

Recent research shows the influence of environmental attitudes on pro-environmental behaviour varies across societies. The influence tends to be stronger in wealthier countries with higher levels of individualism. It is possible that what can predict environmental attitudes on pro-environmental behaviour in some societies does not necessarily have the same predictive power in other societies (Milfont & Markowitz, 2016). Future investigations into these variations are useful. It is also recommended to combine several variables instead of using a single variable in predicting the effect of environmental

attitudes and pro-environmental behaviour. Also, it is needed to identify country-level factors that can explain the expected cross-national variations (Tam & Chan, 2018).

Many studies have investigated the relationship between environmental attitudes and consumption behaviour but have not covered a value-action gap. Research shows that the majority of people have environmental concerns but do not practice pro-environmental behaviour when faced with undesirable choices in terms of price, convenience, and ease of green products (Carrington et al., 2014; Kollmuss & Agyeman, 2002). However, some studies show the consistency of participants between environmental concerns and green purchase activities. Environmental concern can be an aggregate factor that affects green purchasing behaviour, compared to other factors such as demographics or personality variables (Sparks & Shepherd, 1992).

Further studies related to environmental attitudes and pro-environmental behaviour were carried out by Carrington et al. (2014), who conducts an exploratory study to find out what are the factors causing the gap. The analysis shows that there are 4 interconnected factors, namely: (1) prioritization of ethical concerns into primary or secondary; (2) formation of plans or habits; (3) willingness to commit and sacrifice; and (4) shopping behaviour modes.

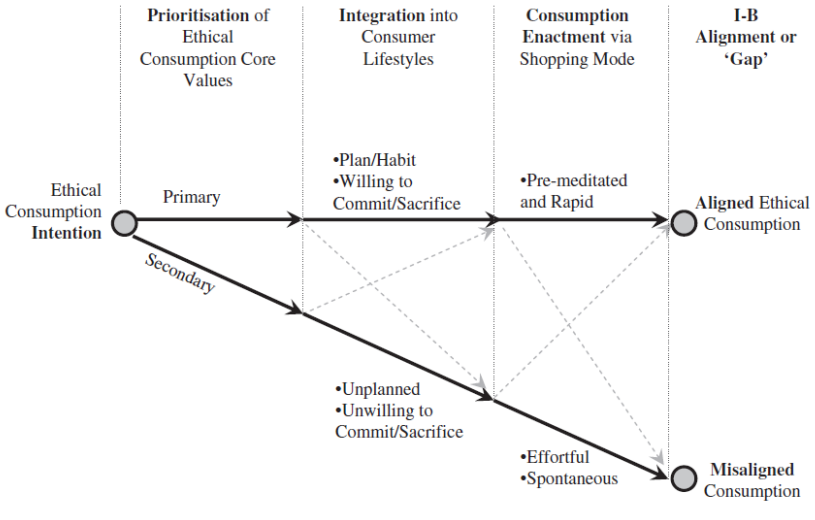

Figure 1 The translation of ethical consumption intentions into actual behaviour (Carrington et al., 2014)

As illustrated in Figure 1, people who consider ethical concern as a primary priority are more likely to make plans and are willing to commit or make sacrifices. This behaviour

gradually facilitates the formation of ethically appropriate habits. This behaviour that has been formed as a habit becomes an automatic and effortless activity, resulting in pre-meditated and rapid shopping behaviours and leading to ethically aligned consumption. Similarly, people who consider ethical concern as a secondary priority tend to do less research and plan before buying, resulting in ethically aligned consumption practices hence the gap.

However, the figure also illustrates the complexity involved in the environmental concern decision-making process. The shaded lines illustrate that the secondary ethical concerns sometimes also influence the purchase of products that are more environmentally friendly. Correspondingly, people with primary ethical concerns may also put their concerns aside and engage in more impulsive buying. Nevertheless, this study provides valuable insights into the obstacles to sustainable consumption behaviour and can be developed more in future research.

2.4 Predicting organic vegetable consumption

TPB is the social-psychological approach that is widely used in understanding consumer behaviour. The theory states that the best predictor of actual behavioural performance is the intention to perform a certain behaviour, wherein the intention is determined by three socio-psychological constructs: attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). However, other variables which can be called background factors should be considered to enrich the understanding of people's behaviour. The choice of the background variables should be relevant and depend on the behaviour and population under study. Nevertheless, it is assumed that the influences of these background variables on the intention are mediated by attitude, subjective norms, and perceived behavioural control (Ajzen, 2011). Following the approach of the prior study, environmental efficacy and trust are considered as perceived behavioural control, and product perception is considered as attitude.

Although TPB has been reported to be successful in predicting behaviour, the theory continues to evolve, and various researchers have expressed confidence that for certain behaviours and contexts, the addition of other variables can improve the predictive ability of the model (Cahyasita et al., 2021). Researchers have argued that the TPB model can be

modified, and additional predictors can be added (Ajzen, 2002). In the context of developing countries, health, beliefs about organic food, and quality were found to be the most influential factors in the intention to consume organic food (Sadiq et al., 2020).

The environmental attitude of consumers in relation to organic vegetable consumption is still under-researched, hence this study proposed to fill the gap. Prior research suggests adding environmental knowledge to the constructs to have more insight into the relationship of environmental knowledge to organic consumption behaviour.

Earlier research on sustainable consumption behaviour focused on either the attitude-behaviour gap or the concern-behaviour gap (Carrington et al., 2014; Tam & Chan, 2018). In a meta-analysis of the efficacy of TPB in analyzing the context of buying and consuming organic food, support was found for the relationship between intention and behaviour, but only a few studies have reported this correlation, possibly because they have measured actual behaviour (Scalco et al., 2017). Hence, the scholars suggest also evaluating the actual behaviour of the individuals for future research. This study was one of few studies that measured the actual consumer behaviour, not just the intention to perform the action.

In recent studies within the European context, the focus has shifted to the development and operationalization of constructs that are related to environmental risk perception, environmental concern, and pro-environmental behaviour (Saari et al., 2021). The construct can be tested in the context of developing countries to prove its robustness because there is a possibility of bias due to the construct that is made based on the context of developed higher-income countries. Based on the literature review, the hypothesized framework will be explained in the next chapter.

3. RESEARCH METHODOLOGY

3.1 Study design

Organic food development is increasing all over the world. Researchers have been exploring this development from a broadened point of view, varying from the production system and process, and supply chain, to exploring the consumer behaviour of organic food. More specifically, prior research has been done to understand the factors that are affecting the consumption of organic food. Although a lot of research has been done in this field, the results are still varying.

Many published studies in the context of consumption of organic food were predominantly conducted in Europe, US, Oceania, and Asia. The Asian countries that become the object of the studies are most countries from South Asia and East Asia (Asif et al., 2018; Chekima et al., 2019; Yadav & Pathak, 2016), while the evidence from the countries of Southeast Asia still low in number, including the study from Indonesia context. It is an opportunity to conduct a study with a focus on Indonesia's consumers to enrich the literature on organic food purchase and consumption. As stated earlier in this article, individuals across different cultures may have different motivations for purchasing organic food (Rana & Paul, 2017).

In Indonesia, limited study has been done in exploring consumer behaviour toward organic food, even though the consumption of organic food is significantly increased in recent years (IOA, 2019). With the high number of populations in a country, it is interesting to understand consumer behaviour towards organic food and to expand the development of organic foods that are more environmentally friendly. This study focuses on a specific product of organic food, which is organic vegetables. To add to that, consideration must be taken that the application of this research probably is limited to organic vegetables only.

3.1.1 Data collection

This study was conducted by the means of a survey. A web-based consumer survey was carried out using Qualtrics software in June 2022. An online survey was chosen as the data collection method because of the target population area which is quite large. The target population of this consumer survey is Indonesian-speaking residents of Java and Bali

islands. Java and Bali islands were chosen because these islands have high numbers of organic food consumers based on a prior survey by IOA (2019). Regarding age, the population of interest is the residents aged 18 years old and above. Accordingly, this survey considers complete survey responses and participants who consume vegetables at home as well as participate in grocery shopping for the family as the inclusion criteria. Sampling is performed through a non-probability sampling method, namely convenience sampling. This sampling method allows the consumers in the target population to choose to participate in the survey or not out of their willingness.

The language used to build the questionnaire is English, then translated to Indonesian. Before distribution, the questionnaire was tested on 10 random people to ensure no error in the translation. The survey was distributed through social media and online community forums. A total of 735 participants attempted to fill in the survey, with 444 participants meeting the inclusion criteria. Preceding the survey, informed consent was provided to inform the potential participants about the consequences of participating and ensure the participation is voluntary. The code number was used to identify each participant and the data were processed anonymously to ensure confidentiality.

3.2 Measurements

A number of 30 questions were asked to the participants, including questions about (1) consumption pattern of organic vegetables, (2) consumer behaviour, and (3) COVID-19 pandemic impact. The socio-demography questions were also included in the last part of the survey. Appendix 1 shows the questionnaire used for this research.

3.2.1 Consumption pattern of organic vegetables

Consumption frequency of organic vegetables before the pandemic was assessed through a six-point scale by asking how often the participants consume organic vegetables, ranging from “Never” (=0) to “Daily” (=6). A consumption frequency score was used to measure the participants’ actual consumption behaviour. The participants who consume organic vegetables were then asked the location of purchasing the organic vegetables and what kind of organic vegetables they consume.

3.2.2 Consumer behaviour

All constructs in the proposed theoretical model are estimated using multiple items that are selected based on theoretical considerations and empirical evidence found in previous publications. Eight constructs are developed using several items presented in Table 1.

Table 1 Measurement items for the constructs

Constructs	Measurements items
Objective Knowledge	Q1.1 Organic farmers do not use synthetic pesticides.
	Q1.2 Organic farmers are not allowed to use synthetic fertilizers, except for some substances that are allowed but restricted in their use.
	Q1.3 Organic farmers may use genetically modified seeds.
	Q1.4 Eco-friendly organic vegetables.
	Q1.5 Organic products have a special certification.
Product perception	*"Compared to non-organic vegetables, organic vegetables are ..."*
	Q2.1 Better.
	Q2.2 Healthier.
	Q2.3 More attractive appearance-wise.
	Q2.4 Safer.
	Q2.5 Better for the environment.
	Q2.6 Fresher.
	Q2.7 Trendier and more contemporary.
	Q2.8 More expensive.
	Q2.9 The benefits are more proportional to the purchasing cost.
Trust	Q3.1 I think organic companies/producers are aware of their responsibilities.
	Q3.2 I believe those who sell certified organic products do sell organic quality products.
	Q3.3 I believe in organic food labels/logos.
	Q3.4 I believe in institutions that certify organic food products.
Subjective Knowledge	Q4.1 I feel I know the cause of the above environmental problems.
	Q4.2 I feel I know the solution to the above environmental problems.
	Q4.3 I have a hard time knowing if my way of life is helping or damaging the environment.
Environmental Risk Perception	*"In general, do you think that … is…?"*
	Q5.1 Air pollution caused by cars.
	Q5.2 Air pollution caused by industry.
	Q5.3 Pesticides and the use of chemicals in agriculture.
	Q5.4 The pollution of rivers and lakes in Indonesia.
	Q5.5 The increase in the earth's temperature is caused by the climate crisis.

Environmental Concern	Q6.1 We worry too much about the future of the environment, but not enough about the current prices of goods and jobs.
	Q6.2 Society has an excessive concern with human behaviour which is increasingly damaging the environment.
	Q6.3 Many things are more important in life than protecting the environment.
Environmental Efficacy	Q7.1 I love finding new ways to help the environment.
	Q7.2 I often consider how things will be in the future and try to influence those things with this kind of everyday behaviour.
	Q7.3 I think sacrifices made now (such as buying a less preferred or more expensive product), need not be made because the future consequences can be handled at a later time.
	Q7.4 I don't think my efforts made much of a difference.
	Q7.5 I usually ignore warnings about possible future environmental problems, assuming that they will be resolved in the future.
Behavioural Intention	*"How willing are you...?"*
	Q8.1 Paying a higher price to protect the environment.
	Q8.2 Reducing the allocation of lifestyle expenditures and using them to contribute to the environment.
	Q8.3 Purchase organic vegetables within the next 2 weeks.

Items were measured on a 5-point Likert scale except for Objective Knowledge which consisted of True/False questions; Environmental Risk Perception which consisted of 5-point scales ranging from 'Absolutely harmless' to 'Very dangerous'; and Behavioural Intention which consisted of 5-point scales ranging from 'Very unwilling' to 'Very willing'. The following items were reverse-coded to show the same direction of effects: Q2.8, Q4.3, Q6.1-Q6.3, Q7.3-Q7.5.

The objective knowledge construct is based on the definition of organic food presented in the Indonesian National Standard Document for Organic Food (SNI 6729:2016). This construct includes five items to measure the knowledge of participants about organic food. Each item is a true or false question, and the total score of the participants is calculated based on the number of the right answer(s) they give.

The product perception construct aims to measure the participants' perception of organic vegetables. The participants were asked how much they agree/disagree with various attributes of organic vegetables when compared to non-organic vegetables. It was measured using a five-point Likert scale ranging from "Strongly Disagree" (=1) to "Strongly Agree" (=5). This measurement is based on the research conducted by Steptoe et al. (1995) and Ureña et al. (2008).

The trust construct wants to measure the degree of participants' trust towards the quality of organic food in the market. Four items measure if the participants believe the producers of organic food understand their responsibilities to produce good quality organic food, whether the organic foods sold in the market are truly produced organically, and whether the participants believe in organic certification as well as the institution who issues organic certification. It was measured using a five-point Likert scale ranging from "Strongly Disagree" (=1) to "Strongly Agree" (=5). Trust construct is modified from the research that was done by Roh et al. (2022).

The subjective knowledge construct is based on the validated questionnaire conducted by Vainio & Paloniemi (2014). It consists of three items measuring how much the participants feel they know about the causes and solutions of several environmental problems, and whether they know if the way they live helping or damaging the environment. All of these items aim to measure the perceived knowledge about environmental problems. It was measured using a five-point Likert scale ranging from "Strongly Disagree" (=1) to "Strongly Agree" (=5).

The environmental risk perception construct measures the participants' perception of the dangers of air pollution caused by cars and industries, chemical pesticides, water pollution, and increasing temperature caused by climate change in the environment. The construct is based on the research conducted by Marquart-Pyatt (2008). The five items in this construct were measured using a five-point scale ranging from "Absolutely harmless" (=1) to "Very dangerous" (=5).

The environmental concern construct was developed based on the research of Vainio & Paloniemi (2014). The three items measure the degree to which the participants agree or disagree if people worry too much about the future of the environment but not enough about the current prices and jobs, if people have a too excessive concern about damaging the environment, and if many things are more important than protecting the environment. It was measured using a five-point Likert scale ranging from "Strongly Disagree" (=1) to "Strongly Agree" (=5).

The environmental efficacy construct measures the degree to which the participants are confident that the positive things they do for the environment have a real impact. This

construct was developed based on the research conducted by Sellers et al. (2013). The participants were asked using five items whether they agree or disagree that they love to find new ways to help the environment, that they are being considerate of what they do because they care about how things will be in the future, that they need to sacrifice to reduce the bad consequences in the future, that they think their efforts will bring differences, and that they pay attention to the warnings about possible environmental problems because the problems cannot be resolved by themselves. It was measured using a five-point Likert scale ranging from “Strongly Disagree” (=1) to “Strongly Agree” (=5).

The behavioural intention construct consists of three items measuring participants’ intention toward protecting the environment. The participants were asked how much they are willing to pay a higher price to protect the environment, reduce the allocation of lifestyle expenditures and use them to contribute to the environment, and purchase organic vegetables within the next 2 weeks period. This construct was developed based on the research of Lo (2016) and Marquart-Pyatt (2008). It was measured using a five-point scale ranging from “Very Unwilling” (=1) to “Very Willing” (=5).

3.2.3 COVID-19 pandemic impact

The consumption change of organic vegetables during the COVID-19 pandemic was assessed using a five-point scale, ranging from “Same amount of consumption” (=0) to “Increased by more than 6 portions” (=5). The perception of purchasing difficulty of organic vegetables before and during the COVID-19 pandemic was assessed using a five-point Likert scale, ranging from “Very Easy” (=1) to “Very Difficult” (=5). Finally, the overall concern towards environmental issues before and after the pandemic was also assessed using a five-point Likert scale, where “Not at all concerned” was scored by 1 and “Very concerned” was scored by 5.

3.3 Hypothesized framework

The framework model for the factors underlying the consumption of organic vegetables was constructed based on models by Ajzen (1991) and modified based on the relevant literature. The hypothesized model is shown in Figure 2.

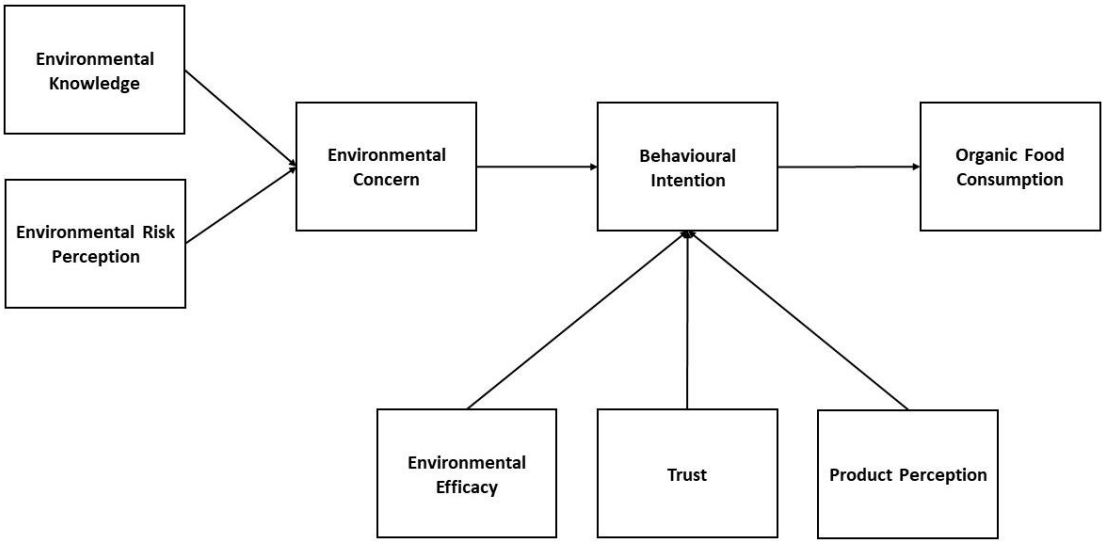

Figure 2 Proposed framework based on the modification of TPB from Ajzen (1991) and Saari (2021)

Based on the previous literature review, the variables that can predict organic vegetable consumption are environmental knowledge, environmental risk perception, environmental concern, environmental efficacy, trust, product perception, and behavioural intention. It is hypothesized that people with a more positive score on those variables also have a higher frequency of organic vegetable consumption. Identifying homogenous subgroups of consumers is also important to establish a targeted marketing strategy based on the characteristics of each subgroup.

3.4 Data analysis

Prior research tests a similar framework to the one proposed in this research using PLS-SEM. This multivariate data analysis method is well-established in social and behavioural science (Hair et al., 2019). It has been used in previous consumer behaviour studies related to sustainable consumption (Saari et al., 2021). Furthermore, PLS-SEM can be used to assess a relatively complex model, by testing the theoretical model using a prediction perspective. PLS-SEM method is also suitable to analyze complicated and more sophisticated models because it can analyze the mediation effect in a structural model. In this research, PLS-SEM was initially used to analyze the data.

SmartPLS 3 software was used for model estimation, followed by bootstrapping procedure with 5.000 samples, the percentile approach, and a two-tailed test for

significance testing. The process continued with the assessment of measurement models and structural models. However, the result of indicator reliability, composite reliability, and ρ_A was below the critical value for most of the constructs, and the coefficient paths of the model are not significant except for one path. Meaning that the model is not strong enough to explain the effect of the constructs in the model. Based on this result, the data was then analyzed using multinomial logistic regression. Statistical analysis was performed using IBM SPSS Statistics 28.

3.4.1 Data cleaning and recoding

Survey data was imported from Qualtrics and proceeded with data cleaning. Respondents that are not meet the inclusion criteria were screened out. Data that were considered bad data (e.g., straight-line responses) were also screened out to prevent respondents who carelessly fill out surveys from being included in the analysis of the results. Parts of the data were transformed into new variables by the means of variables computing or grouping (e.g., the year born was transformed into several age groups).

3.4.2 Factor analysis and variables construction

Exploratory factor analysis was done using Principal Component Analysis (PCA) method to check the internal reliability of each construct and item correlation. The variables with high factor loadings and meet the critical value of Cronbach's alpha are then used to develop summated scale by calculating the mean values.

3.4.3 Descriptive statistics

Descriptive statistics were used to describe nominal data, such as consumption frequency, location of organic vegetable purchasing, type of consumed organic vegetables, and environmental problems in Indonesia. The data are presented as percentage graphs.

3.4.4 Multinomial logistic regression

To identify factors affecting the consumption of organic vegetables, in this research the data were analyzed using multinomial logistic regression. Multinomial logistic regression can be expressed by a probability function. The backward method was used as a modeling procedure, that allows the software to include all variables and then remove the least significant variables until all variables remained in the model and significantly contribute to the dependent variable.

Based on the calculation by (Long, 1997), assume that y is a dependent variable with K nominal outcomes. The probability of observing outcome c given x is $\Pr(y = c|x)$. The multinomial logit model is calculated as:

$$\Pr(y = c|x_i) = \exp(x_i\beta_c) / \left[1 + \sum_{k=2}^{K} \exp(x_i\beta_k)\right]$$

where i indicates observation ith, k=1 indicates outcome 1 as a reference group.

In addition, the multinomial logistic model can be expressed by the odds ratio between the outcome pairs of the dependent variable. For instance, the odds of outcome c versus outcome d given x equal:

$$Odds_{c|d} = \frac{\Pr(y = c|x_i)}{\Pr(y = d|x_i)} = \frac{exp(x_i\beta_c)}{exp(x_i\beta_d)} = exp(x_i[\beta_c - \beta_d])$$

After taking logs of the equation above, the multinomial logistic model is linear as:

$$\text{Ln}(Odds_{c|d}) = x_i(\beta_c - \beta_d)$$

The estimates of the model are estimated using the maximum likelihood estimation technique. The model fit was evaluated using Pearson chi-square (goodness of fit) with p > 0.05 indicates that the model fits the data well, and the likelihood ratio test chi-square (model fitting information) with p < 0.05 suggests that it is a good model. All these indices are reported by previous statisticians (Hair, 2009).

3.4.5 Segmentation analysis

The results obtained from multinomial logistic regression were used further for segmentation analysis. The hierarchical clustering method was used in this analysis. The number of clusters was determined using the interpretation of the dendrogram. The clusters then proceeded to be analyzed based on their characteristics and socio-demography profile. One-way ANOVA and Crosstabs were used as statistical methods to perform comparison analysis on the profiling of the segments.

3.4.6 Comparison analysis

Matched pairs signed-rank analysis was performed to compare the condition before and during the COVID-19 pandemic, using Wilcoxon signed-rank test. It is a non-parametric test that can be applied to ordinal data.

4. RESULT AND DISCUSSION

4.1 Description of the sample

A total of 735 participants entered the survey. However, only 444 participants completed the survey, considering the inclusion criteria of having a role in grocery shopping in the family and having consumed vegetables in the house. After the data cleaning process, the final number of participants is 428. An overview of their socio-demographic background is presented in Table 2. More than half of the participants are females (65.5%) hence it should be noted that this research does not reflect the whole population. A prior study found that females are more likely to respond to online questionnaires because females tend to be more engaged in communication and exchanging information, while accessing and completing an online survey falls in this category (Smith, 2008). These participants were mainly users of social media (Facebook, WhatsApp, Instagram, Twitter, etc.), where the survey was mainly distributed. Hence, it can be observed that the majority of the age group (50.7%) is 26 – 40 which were a relatively young age. Consequently, the results of this study are limited for application to the general population, especially for the older age groups. The respondents mainly live in the urban area, with the amount of 72.9% of respondents respectively. The education level of respondents was dominated by bachelor level, which makes up for 63.8% of total respondents.

Table 2 Socio-demographic profile of the sample (n=428)

		n	(%)
Age			
	< 26	153	35.3
	26 - 40	225	50.2
	41-55	47	10.5
	> 55	19	4.0
Area of living			
	Urban area	312	72.9
	Rural area	116	27.1
Education level			
	Elementary	3	0.7

	Secondary	66	15.4
	Bachelor	273	63.8
	Master	68	15.9
	Doctoral	17	4.0
	Did not attend	1	0.2
Income			
	< 2.000.000	154	36.0
	2.000.0000 – 6.000.000	163	38.1
	6.000.000 – 10.000.000	75	17.5
	> 10.000.000	36	8.4
Perceived financial status (%)			
	Less adequate	86	20.1
	Just adequate	287	67.0
	More than adequate	55	12.9
Children (%)			
	Yes	125	29.2
	No	303	70.8
Household member			
	1	52	12.1
	2	44	10.3
	3	105	24.6
	4	108	25.2
	5	70	16.4
	> 5	49	11.4
Work status (%)			
	Self-employed	41	9.6
	Government worker/employee	66	15.4
	Private worker/employee	165	38.6
	Unpaid family worker	11	2.6
	Casual worker	22	5.1
	Student	89	20.8
	Unemployed	34	7.9
Gender (%)			
	Male	148	34.6
	Female	280	65.4

4.2 Organic vegetables purchasing and consumption

This section discusses the participants' consumption frequency and purchasing activity for organic products. Figure 3 shows the percentage of consumption frequency. A total of 20% of participants never consume organic vegetables, while 19% of participants consume organic vegetables every day.

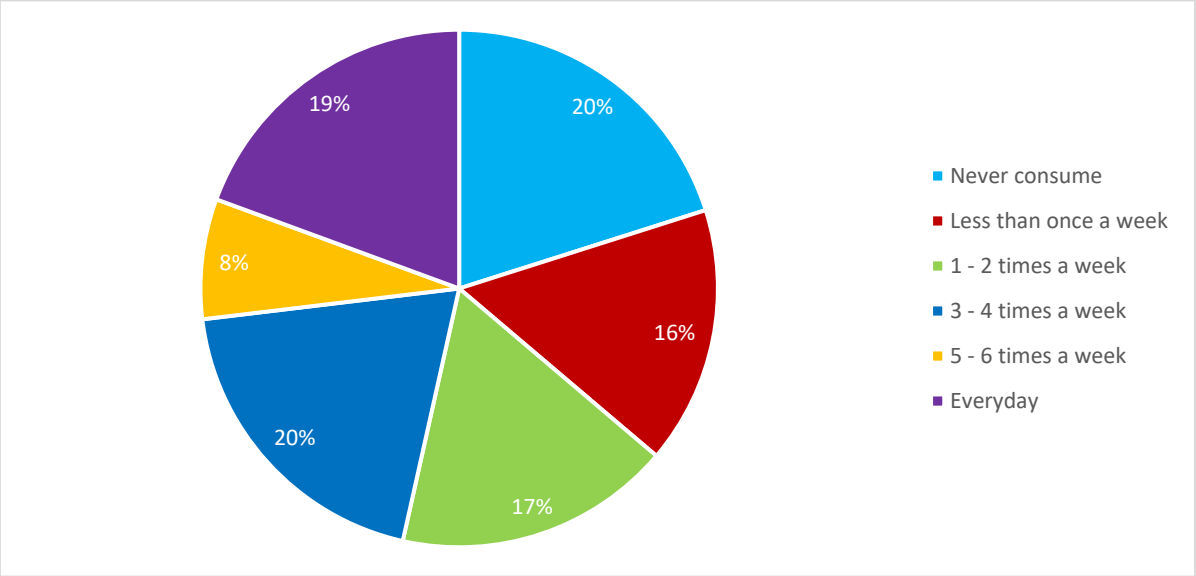

Figure 3 Percentage of consumption frequency (n=428)

Figure 4 shows the distribution of purchasing locations for organic vegetables. The supermarket was the highest chosen location for purchasing organic vegetables, making up 43.5% of total participants who ever consumed organic vegetables. This result is in line with the previous survey conducted by IOA (2019), in which the supermarket is the go-to place when people want to buy organic foods. A small share of participants (5.4%) chose to grow their organic vegetables.

Figure 5 indicates the type of organic vegetables purchased by the respondents. Spinach, water spinach, lettuce, carrot, and tomato were among the organic vegetables that are most consumed, which were purchased by more than 35% of respondents who consumed organic vegetables. The prior survey by IOA (2019) showed that spinach, water spinach, lettuce, and carrot were among the most consumed organic vegetables in Indonesia.

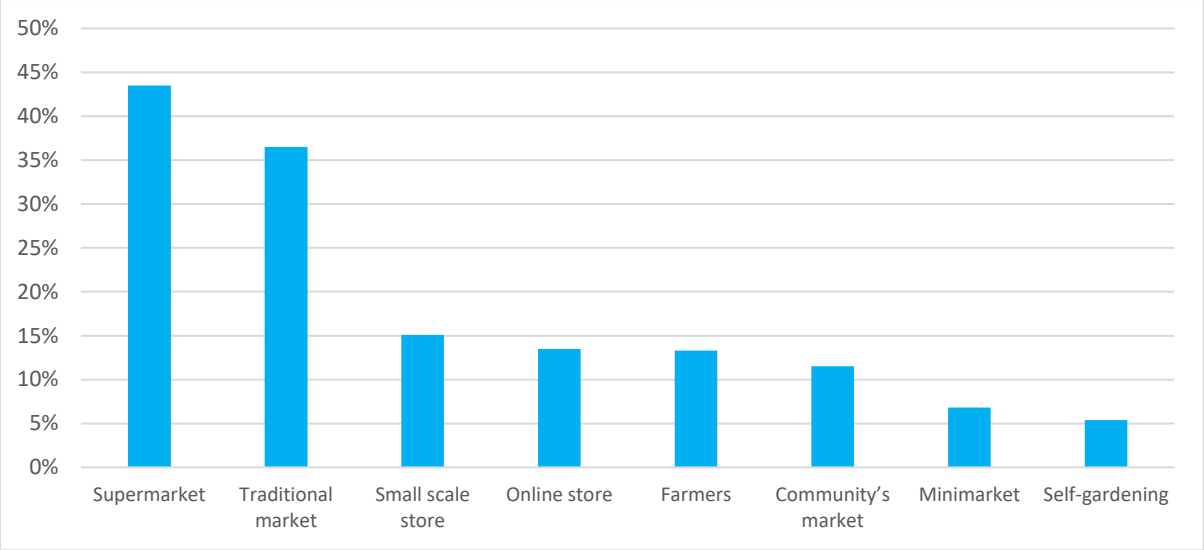

Figure 4 Distribution of purchasing location of organic vegetables (n=428)

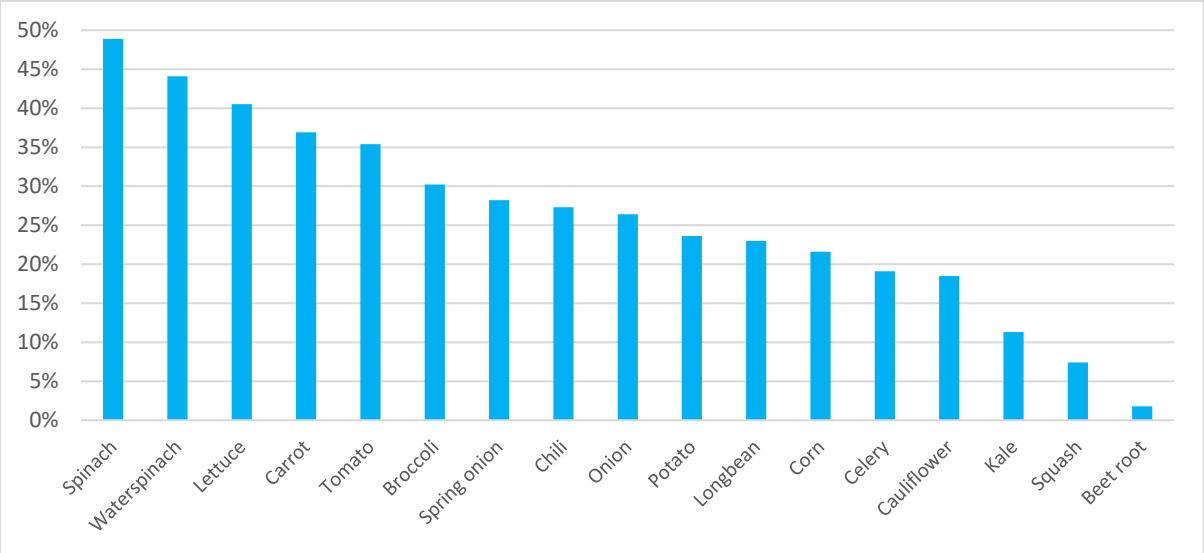

Figure 5 Distribution of organic vegetable types purchased by respondents (n=428)

4.3 Perceived environmental problem

Figure 6 shows the percentage of respondents choosing a different kind of environmental problem they think is the most important for the country as well as for themselves and family. When respondents were asked which environmental problems that are the most important for the whole country, the majority answered land degradation and deforestation as the problem that is affecting the country. However, the majority of

respondents answered climate change and air pollution as the most important environmental problem that is affecting themselves and their family. The different perception of the most important environmental problem is possible because the participants would choose the problems that are directly affecting them in their daily life. Given that most participants live in urban area (72.9%), the problem of climate change and air pollution would be the main challenges they face every day. Perception of the importance of environmental problems was related to individual's emotions and facing the problems every day should highly affect their emotions (Franzen & Vogl, 2013).

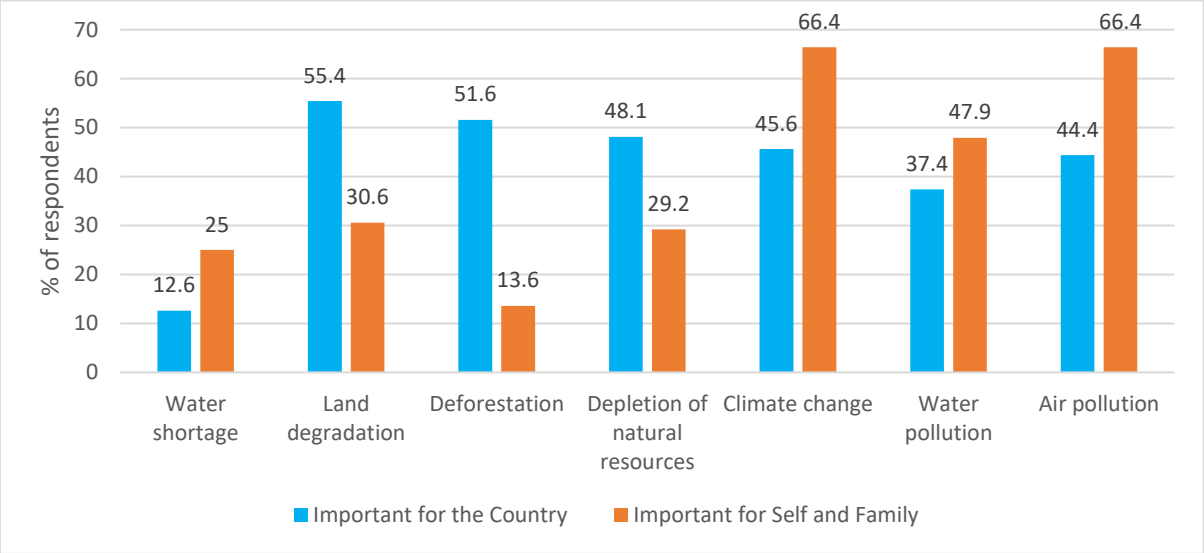

Figure 6 Perception on environmental problems that are important for the country vs for self and family (n=428)

4.4 Factors predicting organic vegetable consumption

Factor analysis was performed to test the reliability of each construct. Internal consistency reliability was measured using Cronbach's alpha. The product perception construct was assessed by scoring 9 items (Cronbach's alpha = 0.782) and the Trust construct was assessed using 4 items (Cronbach's alpha = 0.794). Related to the environmental attitude, the Subjective Environmental Knowledge construct was measured using 3 items (Cronbach's alpha = 0.497). Five statements were used to assess the Environmental Risk Perception construct (Cronbach's alpha = 0.746) while the Environmental Concern construct was assessed using 3 items (Cronbach's alpha = 0.523). Environmental Efficacy was assessed by 5 statements (Cronbach's alpha = 0.622) and Behavioural Intention was measured using 3 items (Cronbach's alpha = 0.709). It should be

noted that Cronbach's alpha for Subjective Environmental Knowledge is below the threshold to determine the reliability (Cronbach's alpha = 0.5) (Hinton et al., 2014), and removing one item of the construct can improve Cronbach's alpha value above the threshold. However, Hair (2009) stated that a minimum of 3 items is needed to make a construct that has good coverage of the construct's theoretical domain, hence none of the items was removed. As for the low score in reliability, the causes can vary depending on the content heterogeneity (i.e., in the Subjective Knowledge construct, 1 item measuring the knowledge about the problem and 2 items measuring the knowledge of the solutions to the problem) or on the error from the interactions of the item and respondents' characteristics (i.e., the limited intelligence level of respondents) (McCrae et al., 2011).

To understand the factors that are contributing to the consumption frequency, the data were analyzed using multinomial logistic regression, using the backward elimination stepwise method. The consumption frequency was grouped into 3 categories, namely Low (consume less than once a week), Medium (consume 1-4 times a week), and High Consumption (consume more than 5 times a week).

All constructs were entered, then the least significant variables were removed until all variables significantly contributed to the model. Appendix 2 shows the removal process of the model. The variables that were removed are Objective Knowledge, Environmental Efficacy, Trust, and Subjective Knowledge. The interaction effect of Behavioural Intention and Environmental Concern was also added to the model, but it was not contributing significantly hence the removal. The constructs that significantly contribute to the model are Product perception, Behavioural Intention, Environmental Concern ($p<0.05$), and Environmental Risk Perception ($p<0.1$) (Table 3).

Table 3 Effects of the independent variables on consumers' preferences: likelihood ratio tests.

	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	880.443	4.204	2	0.122
Product perception	882.704	6.465[b]	2	0.039
Behavioural Intention	898.641	22.402[c]	2	0.000
Environmental Risk Perception	883.711	7.472[b]	2	0.024
Environmental Concern	885.776	9.537[b]	2	0.008

Sig. = probability of obtaining the chi-square statistic given that the null hypothesis is true, df = number of degrees of freedom for the model; [a] $p \leq 0.10$, [b] $p \leq 0.05$, [c] $p \leq 0.01$.

Table 4 Estimations of multinomial logistic regression

	Medium Consumption vs Low Consumption						High Consumption vs Low Consumption					
	β	Standard error	Wald	df	Sig.	Exp β /Odds Ratio	β	Standard error	Wald	df	Sig.	Exp β /Odds Ratio
Intercept	-2.066	1.333	2.401	1	0.121		-2.852[a]	1.478	3.722	1	0.054	
Product perception	0.504[b]	0.253	3.972	1	0.046	1.655	0.656[b]	0.287	5.229	1	0.022	1.927
Behavioural Intention	0.933[c]	0.233	16.022	1	0.000	2.542	1.011[b]	0.258	15.350	1	0.000	2.747
Environmental Risk Perception	-0.639[b]	0.239	7.171	1	0.007	0.528	-0.445[a]	0.259	2.952	1	0.086	0.641
Environmental Concern	-0.164	0.167	0.961	1	0.327	0.849	-0.534[b]	0.180	8.799	1	0.003	0.586

Number of observation = 428; Chi-square = 55.794; Log likelihood = 876.239; Nagelkerke = 0.138; ; [a] $p \leq 0.10$, [b] $p \leq 0.05$, [c] $p \leq 0.01$

Table 4 shows the result of the multinomial logistic regression. Relative to the Low Consumption group, if the score of Product perception and Behavioural Intention of the subjects were to increase, the multinomial log-odds for the subjects to be in the Medium and High Consumption groups would be expected to increase. In other words, respondents with higher Perception and Behavioural Intention scores are more likely to be in the Medium and High Consumption groups. A prior study stated that behavioural intention has a mediation and direct effect on sustainable consumption behaviour and influences positively (Saari et al., 2021). From the multinomial regression result, it is interesting to do a segmentation analysis of the subjects based on their Product perception and Behavioural Intention, because the results were found to be significant in both estimation groups (Medium vs Low consumption and High vs Low consumption).

4.5 Consumer segmentation

Product perception and behavioural intention constructs were chosen as the references for segmentation analysis because the result from multinomial logistic regression shows that both constructs are significantly associated with the organic vegetable consumption frequency. Environmental risk perception and environmental construct were not used for segmentation analysis because environmental risk perception was only significant in the Medium vs Low consumption estimation group, while

environmental concern was only significant in the High vs Low consumption estimation group.

Table 5 Size, mean ratings, and the 95% confidence interval of the segments on the classification variables

Segment description	Segment 1 *'disengaged'*	Segment 2 *'skeptical'*	Segment 3 *'reluctant'*	Segment 4 *'enthusiastic'*	F	p-value
Product Perception	low	low	high	high		
Behavioural Intention	low	high	low	high		
Size (% of sample)	20.1	41.6	28.0	10.3		
Product perception, mean	3.42^{a}	3.46^{a}	4.06^{b}	4.37^{c}	121.962	<0.001
(95% CI)	(3.31-3.52)	(3.40-3.52)	(4.02-4.11)	(4.28-4.45)		
Behavioural Intention, mean	2.88^{a}	3.92^{c}	3.67^{b}	4.70^{d}	399.479	<0.001
(95% CI)	(2.83-2.94)	(3.86-3.97)	(3.63-3.72)	(4.61-4.78)		

The superscripts indicate significantly different means using the Scheffe post hoc comparison test.

Table 5 shows the result of the segmentation analysis. A-four segment solutions were found to be the optimal solution. The highest size of the segment was found in Segment 2 which consists of 41,6% of total respondents. *Segment 1* is characterized by the lowest score of product perception and behavioural intention, hence can be termed as '*disengaged*' group. This group accounted for 20,1% of the respondents. *Segment 2* is characterized by a low level of product perception of organic vegetables but has a higher behavioural intention. This group which has the highest representation, which is 42% of total respondents respectively, can be termed as '*skeptical*'. The '*Skeptical*' group is possibly consisting of people who have high intention to perform pro-environmental behaviour but have poor product perception of organic vegetables. Segment 3 is characterized by a high score of product perception towards organic vegetables, but relatively low in behavioural intention. This group represents 28% of the total respondent and can be termed as '*reluctant'* group. '*Reluctant'* consists of people with positive product perception of organic vegetables but less intention to perform pro-environmental behaviour. *Segment 4* represent the smallest size, which is 10,3% of the total respondent. It is characterized by the highest score of product perception and behavioural intention,

hence can be termed as '*enthusiastic*'. The cluster analysis shows that there exist gradients in product perception towards organic vegetables and behavioural intention. Table 5 shows that the respondents may have the highest score in product perception towards organic vegetables and behavioural intention (segment '*enthusiastic'*) or the lowest score in product perception towards organic food and behavioural intention (segment '*disengaged*'). It means that the product product perception and behavioural intention are positively correlated, i.e. good product perception was related to high behavioural intention, and vice versa.

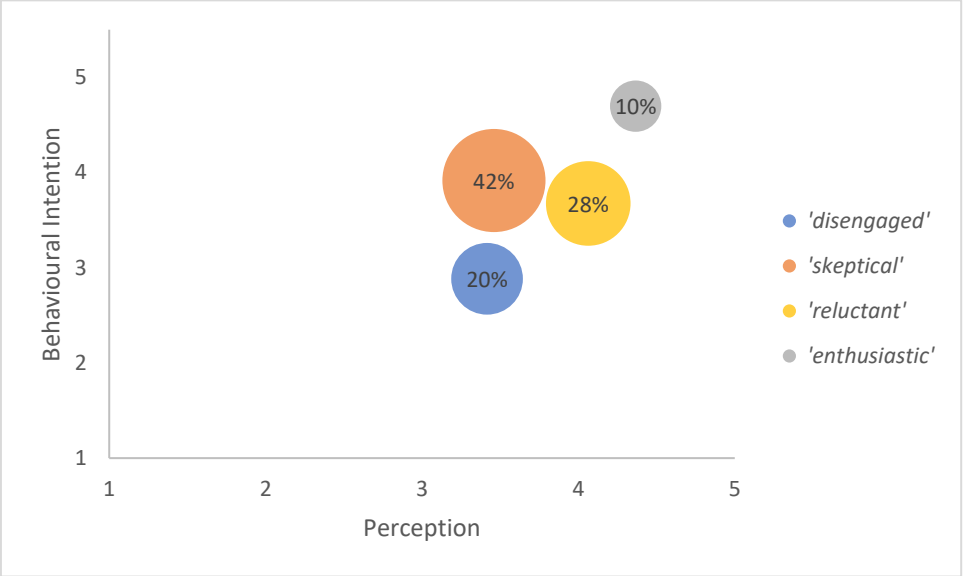

Figure 7 Consumer segmentations plot on chart (n=428)

Figure 7 displays the consumer segmentations plot on the chart. The product perception scores for every segment are higher than the neutral point. It shows that the respondents tend to perceive organic vegetables as a good option for their food choice compared to non-organic vegetables. A study that has been done in 2006 revealed that Indonesian consumers were known to have good perceptions of organic food, in terms of its safety, healthy, environmentally friendly, freshness, better taste, and appearance characteristics (Kurnia et al., 2013). This result is consistent with more recent studies from different countries, stating that people have positive product perceptions regarding the characteristics of organic foods (Roh et al., 2022; Stoleru et al., 2019; van Loo et al., 2013). For behavioural intention, there are 20% of total respondents have a lower score than the neutral point, which means that this group has lower intention than the rest of the

respondents in committing pro-environmental behaviour. Still, the construct of behavioural intention was built upon the willingness to sacrifice more money to commit pro-environmental behaviour. It is possible when people have the same level of behavioural intention, yet some of them are willing to pay more for the environment and some of them are not. However, the latter might be willing to perform another pro-environmental behaviour that does not need to sacrifice more money. Personal financial conditions are considered a barrier to the willingness to pay more for the environment and this is probably the main factor why 20% of respondents have less intention to carry out pro-environmental behaviour (Zhang et al., 2018).

Table 6 indicates the socio-demographic profiling of the segments. Significant differences between segments are found in perceived financial status and the presence of children. People with a less adequate perceived financial situation are mostly found in the '*disengaged'* segment and are least found in the '*skeptical'* and '*enthusiastic*' segments. It means that people with less adequate perceived financial relatively have low interest in organic food consumption. Consumers tend to think organic food is costly (Paul & Rana, 2012), hence, people who perceive their financial situation as less adequate might not consider purchasing organic vegetables for their diet. People with less adequate perceived financial in '*skeptical'* were found to have relatively higher behavioural intentions, but the higher price of organic vegetables might negatively affect their overall perception of organic vegetables (Yadav & Pathak, 2016).

People with children are mostly found in the '*enthusiastic*' segment. The possible explanation is that the presence of children in a family is correlated with the perception of organic vegetables and behavioural intention. In line with this result, the presence of children under the age of eighteen positively increases the probability of purchasing intention of safe vegetables (Zhang et al., 2018). The presence of children was found to be correlated with higher food safety awareness in the family, especially when the family has children in the developmental growth stages (McFadden & Huffman, 2017). As organic vegetables were perceived as the healthier and safer options compared to conventional vegetables, the consumption of organic vegetables is increased. Moreover, families with children are more likely to have higher behavioural intention to perform pro-environmental behaviour, which further translated to the actual consumption behaviour

(Redondo & Puelles, 2017). It was also found that parents with children are more motivated to do pro-environmental behaviour because they want to preserve good environmental conditions for their children in the future (Thomas et al., 2018).

Table 6 Socio-demographic profiling of the segments.

Segment description	Segment 1 *'disengaged'* (%)	Segment 2 *'skeptical'* (%)	Segment 3 *'reluctant'* (%)	Segment 4 *'enthusiastic'* (%)	Pearson Chi-square/ F-value	p-value	Cramer's V
Product perception	low	low	high	high			
Behavioural Intention	low	high	low	high			
Area of living (%)					6.758	0.080	0.126
Urban area (72.9)	74.4	78.1	61.4	68.3			
Rural Area (27.1)	25.6	21.9	38.6	31.7			
Education level (%)					17.898	0.268	0.118
Elementary (0.7)	1.2	1.1	0.0	0.0			
Secondary (15.4)	12.8	16.3	25.0	12.5			
Bachelor (63.8)	66.3	62.9	54.5	66.7			
Master (15.9)	18.6	16.3	13.6	14.2			
Doctoral (4.0)	0.0	3.4	6.8	6.7			
Did not attend (0.2)	1.2	0.0	0.0	0.0			
Income (%)					11.411	0.249	0.094
<2,000,000 (36.0)	40.7	34.3	47.7	30.8			
2,000,000–6,000,000 (38.1)	32.6	35.4	36.4	46.7			
6,000,000–10,000,000 (17.5)	16.3	20.8	9.1	16.7			
>10,000,000 (8.4)	10.5	9.6	6.8	5.8			
Perceived financial status (%)					21.212	0.002	0.157
Less adequate (20.1)	34.9[a]	14.6[b]	27.3[a,b]	15.0[b]			
Just adequate (67.1)	34.9	14.6	27.3	15.0			
More than adequate (12.9)	7.0	15.2	6.8	15.8			
Children (%)					11.520	0.009	0.164
Yes (29.2)	22.1[a]	26.4[a,b]	22.7[a,b]	40.8[b]			
No (70.8)	77.9[a]	73.6[a,b]	77.3[a,b]	59.2[b]			
Household member (%)					14.696	0.474	0.107
1 (12.1)	11.6	13.5	11.4	10.8			
2 (10.3)	9.3	10.7	11.4	10.0			
3 (24.5)	24.4[a,b]	23.0[a,b]	9.1[b]	32.5[a]			
4 (25.2)	23.3	25.8	29.5	24.2			
5 (16.4)	22.1	15.7	20.5	11.7			
> 5 (11.4)	9.3	11.2	18.2	10.8			
Work status (%)					21.928	0.235	0.131
Self-employed (9.6)	10.5	7.9	9.1	11.7			
Government worker (15.4)	14.0	15.7	11.4	17.5			
Private worker (38.6)	36.0	43.3	31.8	35.8			
Unpaid family worker (2.6)	3.5	2.8	0.0	2.5			
Casual worker (5.1)	5.8	3.9	11.4	4.2			

	Student (20.8)	20.9 [a,b]	19.7 [a,b]	36.4 [b]	16.7 [a]			
	Unemployed (7.9)	9.3	6.7	0.0	11.7			
Gender (%)						1.438	0.697	0.058
	Male (34.6)	37.2	32.6	40.9	33.3			
	Female (65.4)	62.8	67.4	59.1	66.7			

Figure 8 shows the consumption frequency based on the segments. Segment '*enthusiastic*' was dominated by people with high consumption frequency. Prior study found that the combination of a positive attitude towards the product and positive behavioural intention has a considerable role in predicting purchasing behaviour toward organic food (Arvola et al., 2008). Moreover, a positive attitude towards organic food has an important role to increase the involvement of the consumers hence increasing the probability to make organic food consumption a routine (Aertsens et al., 2009). As can be seen from the figure, the '*disengaged*' group was dominated by respondents with low consumption levels. This group was characterized by a low level of perception of organic vegetables, thus the respondents can have lower involvement with organic vegetables. This condition is then added with the low interest to sacrifice more for pro-environmental behaviour, hence the low consumption of organic vegetables.

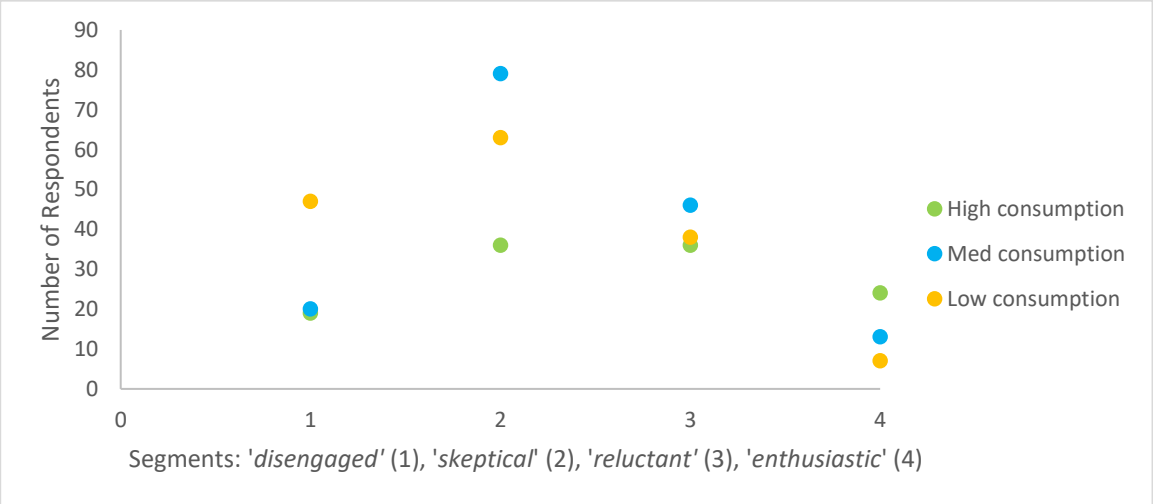

Figure 8 Consumption frequency based on the segmentations (n=428)

Table 7 presents the characteristics of each segment. The scores of objective knowledge, subjective knowledge, environmental efficacy, trust, and environmental risk perception gradually increase from Segment 1 to Segment 4. The '*enthusiastic*' has the

highest scores on those constructs, while '*disengaged*' group has the lowest scores. As previously stated, the '*enthusiastic'* group was dominated by high consumption level consumers. Previous research stated that higher objective and subjective knowledge positively influence green product purchasing behaviour (Adiasih et al., 2019; Mostafa, 2007; Tilikidou, 2007). Environmental risk perception was also found to influence sustainable consumption behaviour (Saari et al., 2021). Higher intention to sustainable consumption behaviour was associated with higher environmental efficacy as suggested by prior studies (Ghali-Zinoubi, 2022; Vermeir & Verbeke, 2006; Wang, 2017). A prior study also found that trust was associated with organic food consumption, as it can reduce the uncertainty feeling about organic food attributes (Carfora et al., 2019).

Table 7 Profiling segments based on characteristics

Segment description	Segment 1 *disengaged*	Segment 2 *skeptical*	Segment 3 *reluctant*	Segment 4 *enthusiastic*	F	p-value
Product Perception	low	low	high	high		
Behavioural Intention	low	high	low	high		
Objective Knowledge	3.36^{a}	$3.72^{a,b}$	$3.80^{b,c}$	4.18^{c}	7.140	<0.001
Subjective Knowledge	3.22^{a}	3.45^{a}	3.45^{a}	3.84^{b}	12.570	<0.001
Environmental Efficacy	3.43^{a}	3.77^{b}	$3.84^{b,c}$	4.01^{c}	15.945	<0.001
Trust	3.74^{a}	$3.84^{a,b}$	3.97^{b}	4.33^{c}	13.865	<0.001
Environmental Risk Perception	3.96^{a}	4.10^{a}	$4.14^{a,b}$	4.36^{b}	5.768	<0.001
Environmental Concern	$3.35^{a,b}$	3.48^{b}	$3.22^{a,b}$	3.05^{a}	5.571	<0.001

The superscripts indicate significantly different means using the Scheffe post hoc comparison test.

However, the highest score of environmental concern was found in '*skeptical'* group. This segment has characteristics of a relatively low level of product perception but high behavioural intention. On the contrary, a previous study showed that a high level of environmental concern is correlated with a higher behavioural intention to do pro-environmental behaviour (Saari et al., 2021). Nevertheless, the low score of product perception might restrain the respondents to consume organic vegetables, hence this segment was dominated by respondents with low and medium consumption frequency, even though they have higher concerns about the environment. A previous study suggested that different results of the influence of environmental concern were because

individuals who experience cognitive dissonance between their environmental concern and the impact of the pro-environmental behaviour were willing to pay if the cost of pro-environmental behaviour is low (Farjam et al., 2019). (Wang et al., 2019) also stated that high levels of environmental concern do not promote sustainable consumption behaviour among consumers. Moreover, people might simply believe that organic food consumption is not considered an action to save the environment (Scalco et al., 2017). It is also possible that the individuals practicing other pro-environmental behaviour such as energy and water saving, thus they do not perform the sustainable purchasing behaviour as they think they have been practicing pro-environmental behaviour in other aspects (Rana & Paul, 2017).

4.6 COVID-19 impact

This section explores the impact of the COVID-19 pandemic on the consumption of organic vegetables and consumers' perceptions of purchasing organic vegetables and environmental concern. Table 8 shows the change in consumption frequency of organic vegetables during COVID-19. The majority of respondents experienced the same consumption frequency before and after the COVID-19 pandemic. However, 22.9% of respondents experienced increasing consumption of organic vegetables in 1-6 portions per week and 4.2% of respondents experienced increasing consumption in more than 6 portions per week. More than a quarter of respondents claimed to have increased their consumption. Organic food was perceived as a healthier option by consumers (Kurnia et al., 2013). The increasing level of health concerns during the COVID-19 pandemic situation might impose consumers to buy more organic vegetables (Rekhter & Ermasova, 2021).

Table 8 Consumption frequency changes of organic vegetables during COVID-19

	(%)
Change of consumption frequency	
Decrease 1-6 portions	5.8
Decrease > 6 portions	2.1
Increase 1-6 portions	22.9
Increase > 6 portions	4.2
Same	45.8
Never consume	10.0
N/A	9.1

Table 9 indicates the difficulty of purchasing organic vegetables and the environmental concern before and after the COVID-19 pandemic. The comparison was done using the Wilcoxon Signed Rank test. Compared to the time before the pandemic, the respondents significantly feel more difficult to purchase organic vegetables during the COVID-19 pandemic (z-value = -2.176). The reason behind this could be that during a pandemic, the lockdown policy hampered the distribution of organic vegetables. Another possible reason could be the impact of the pandemic itself has caused farmers to get sick and consequently, the production of organic vegetables has decreased. This condition leads to difficulties in purchasing organic vegetables during the pandemic situation. The prior study highlighted the impact of imposing restrictions on the movement of goods and the lack of labor in food production were the challenges faced during the COVID-19 pandemic situation (Butu et al., 2020).

The environmental concern of respondents is significantly higher during the COVID-19 pandemic. Although the median of the scores before and during the COVID-19 pandemic was similar, the z-value showed a high score in differences between those two periods (z-value = -5.487). In line with this result, a prior study stated that the pandemic situation has increased the concern for climate change (Mohommad & Pugacheva, 2022). However, it is possible that the concern for the environment driven by natural disasters and extreme weather that were coincidentally happened during the pandemic.

Table 9 COVID-19 impact on perception of purchasing organic vegetables and environmental concern

	Before COVID-19	During COVID-19	z-value (Wilcoxon Signed Rank)	p-value
Difficulty of purchasing perception			-2.176	0.030
Median	2.00	3.00		
Environmental concern			-5.487	<.001
Median	4.00	4.00		

4.7 Discussion and recommendations

This research indicated that product perception and behavioural intention are the factors that contribute to the actual consumption of organic vegetables. While this research could not explain how the path of constructs influenced other constructs in the

proposed framework, this research was still able to segment the respondents based on the contributing criteria and profile the characteristics of each segment. Thus, this research provided the originality to identify four market segments with different attitudes and behaviour toward organic vegetables. These four segments are '*enthusiastic*', '*reluctant'*, '*skeptical*', and '*disengaged'*. '*Enthusiastic'* group is significantly dominated by high-consumption consumers. Understanding the characteristics of this segment can be beneficial to build a strategy that can be applied in other segments to improve their organic vegetable consumption.

Product perception towards organic vegetables and the behavioural intention were found to be significant factors in organic vegetable consumption. A positive perception of the product is one of the internal factors influencing purchasing behaviour (Rana & Paul, 2017). Besides, consumers tend to consider a transition to sustainable consumption when they perceive personal benefits from the actions. As the perceived personal benefits were attached to the characteristics of the product (Marchand & Walker, 2008), establishing communication about the good characteristics of organic vegetables can be a strategy to increase consumption. This strategy is suitable to be applied in '*skeptical'* and *'disengaged*' groups as they have a relatively poor perception of organic vegetables. The communication strategy can also be applied in enhancing behavioural intention of the individuals, by communicating the negative impact of environmental degradation on the quality of life. As people are more attached to their personal or egocentric goals (Gifford & Nilsson, 2014), this communication effort is the potential to stimulate behavioural intention. This strategy was suitable to be applied in '*reluctant'* and *'disengaged*' groups as they have low behavioural intentions. The government, organic food institutions, and organic vegetable marketers should provide a clear message to the public about the benefit of organic vegetables. Promotions, seminars, and campaign that is integrated into social activities can be held.

Price was known to be a significant barrier to organic food consumption (Aschemann-Witzel & Zielke, 2017). In this study, perceived less-adequate financial situation was related to a poor level of perception of organic vegetables and less eagerness to sacrifice more money to perform pro-environmental behaviour. Consumers with limited budgets consequently would have less access to organic vegetables. Policymakers can contribute

to the development of the organic vegetable market by implementing agricultural subsidies for organic farmers. This strategy can affect the price differential between organic and conventional vegetables. Moreover, policymakers can invite food sector stakeholders to join the attempt to develop organic vegetable markets through their corporate social responsibility programs. People with a less-adequate financial situation were mostly found in the '*disengaged*' group, which was dominated by low-consumption consumers. Prior study stated that occasional buyers of organic foods are more sensitive to price (Aschemann-Witzel & Zielke, 2017), hence the appropriate strategy is to give discounted prices or coupons to this consumer segment.

Besides price, lack of trust was considered a barrier to organic food consumption. The score of trust was the lowest in '*disengaged*' group but the highest in '*enthusiastic*' group. Gaining consumers' trust is one way to move the consumers from other segments to the '*enthusiastic*' segment. A good communication strategy is needed to gain the trust of the consumers. Vega-Zamora et al. (2019) proposed an approach to convey the message to increase consumers' trust. The main reason for the lack of trust is that consumers do not believe in the authenticity of the organic product, whether it is produced following the organic production standard or not. The strategy then is by involving organic farmers or organic farmers cooperation to join the campaigns aimed at consumers. They also proposed to convey the messages of the campaign using the emotional approach to be able to build trust among consumers. A prior study suggested building campaigns involving role models (i.e., community leaders, influencers) whom consumers consider as important. These role models are people whose opinions are valued. The involvement of role models whom consumers look up to can influence consumers' trust and purchase intention of organic food (Verina et al., 2019).

In this study, the environmental attitude was assessed using some constructs. Even though general attitude towards the environment did not necessarily influence pro-environmental behaviour, it could be a good starting point to specifically design potential strategies to improve the consumption of organic vegetables. Objective knowledge and subjective knowledge levels were found to be the highest in '*enthusiastic*' group. Hence, increasing objective and subjective knowledge, related to the environment and organic products in other segments may eventually increase their organic vegetable consumption.

The strategy to increase the knowledge can be done by involving the consumers in food and farm experiences. These experiences can also increase the involvement of consumers in organic vegetables. High involvement in organic vegetables can increase the probability to make consumption a routine (Aertsens et al., 2009). However, the role of involvement was not studied in this research. Applying a communication strategy to increase consumers' knowledge is also an option. It should be noted that the communication activities must not be too much to avoid cognitive dissonance, which can result in lowering consumers' confidence to perform pro-environmental behaviour. Also, a prior study stated that environmental knowledge influences environmental risk perception, although it could not be concluded from this research (Saari et al., 2021). Efforts to increase consumer knowledge here are also expected to increase environmental risk perception.

The additional insight gained from this study is that Indonesians are active on social media, as proven by the prominent response to the questionnaire that was disseminated via social media. This potential can be utilized to increase consumers' positive perception of organic vegetables. Previous research found that social proof such as comments or like on social media subtly influences consumers' perceptions and behavioural intentions of organic foods (Hilverda et al., 2018). This information can be useful for marketers of organic products to shape a positive image on social media and gain more traction from product reviews and likes. The social influences (i.e. discussion between peers) with the intermediaries using social media can also potentially increase consumer positive perceptions. However, this study did not include the effect of social influences on organic vegetable consumption, hence it would be interesting to include it in the future study.Regarding the COVID-19 pandemic, the higher level of difficulty in purchasing organic vegetables suggests that policymakers should think about re-designing the food distribution system to strengthen food resilience in anticipation of the same crisis would be happened in the future. Shortening the supply chain and innovating in marketing strategy can be the options to improve the food system. Stepping up the strategy to utilize online platforms and e-commerce to sell food products is the potential to cut the long and ineffective supply chain. Building up local food production by improving the infrastructure needed is an important starting point to develop a short food supply chain. Support for the farmers and establishing the readiness of the market to accept local food products are also

essential to ensure the short supply chain runs sustainably. Moreover, the higher environmental concern of the consumers during a pandemic can be an opportunity for policymakers to implement bolder climate policies (Mohommad & Pugacheva, 2022). Protecting the livelihoods of citizens should be the priority from the climate policy perspective, as climate change affects the lower-income group disproportionately.

The limitation of the study is that the distribution of gender and age in the sample was skewed, hence the results should be interpreted with caution, and they cannot be extrapolated to the whole population. Further study should explore broader consumer groups, notably older age groups, and a balanced proportion of gender of respondents to obtain general consumers' responses. The analysis method used in this research did not allow us to get insight into how the mediation effect the constructs. Further research with different analytical methods (i.e., SEM or PLS-SEM) can be used to explore the mediation effect between constructs. Another limitation of this study is that the reliability score for some constructs is low. While this can be a sign that the construct is less reliable when it is applied in a different context, i.e. different country, it is also interesting to add more items to each construct to increase the reliability score for further research. While this study was conducted using an online survey, it was possible that the data gathered was limited to the respondents who had internet access. Further study can take into consideration to conduct the offline survey for the data collecting method.

5. CONCLUSION

This study confirms that product perception and behavioural intention to perform pro-environmental behaviour influence the consumption of organic vegetables among the respondents in Indonesia. Four segments were identified; '*enthusiastic*', '*reluctant'*, '*skeptical*', and '*disengaged'*. '*Enthusiastic'* was characterized by a high level of product perception and high behavioural intention. '*Reluctant'* has a more positive perception of organic vegetables but is low in behavioural intention. People with high behavioural intention yet did not perceive organic vegetables are good were found in '*skeptical'* group. Lastly, '*disengaged*' group has a low level of product perception and low behavioural intention. However, the overall score for product perception is higher than the neutral point, it shows that the respondents tend to have a positive perception of organic vegetables compared to conventional vegetables. Besides, a fifth of the total respondents have lower than a neutral point for behavioural intention. '*Enthusiastic'* is dominated by consumers with high consumption of organic vegetables. Understanding the characteristics of this group can be beneficial to tailor a good strategy for another group to improve organic vegetable consumption.

Socio-demographic factors also differ between segments. Perceived financial status and the presence of children were found to be significantly different between segments. Less-adequate financial status is mostly found in '*disengaged*' group. It has been known that price is a barrier for behavioural intention and actual pro-environmental behaviour. A tailoring strategy related to this matter would be beneficial to improving organic vegetable consumption. Families with children were mostly found in the '*enthusiastic'* segment, it could be that families with children perceived organic vegetables as healthier and better than conventional vegetables when it goes to feeding their children and they have more motivation to "preserve the environment for their children's generation".

About a fifth of the total respondents has increased their organic vegetable consumption during the COVID-19 pandemic. Respondents also experienced more difficulty to purchase organic vegetables. They also have a higher environmental concern during the pandemic situation, compared to their concern before the pandemic.

This study presents the originality of consumer segmentation based on the significant factors that influence organic vegetable consumption in Indonesia. Future research with a nationally representative sample would strengthen the generalizability of the conclusion.

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APPENDIXES

Appendix 1: Questionnaire

Research Survey: Consumer Responses to Organic Vegetables

Information for Respondents

Dear Respondent,

I am Nurina Izazi, a Masters student in the Rural Development program at Ghent University.

You are invited to participate in our research. Before you decide to participate in this research, please take sufficient time to read this information page carefully. Please take the time to ask questions if there is any uncertainty or if you require additional information. This process is called " *informed consent* ". You **must be over 18 years of age as of 1 June 2022** to participate.

If you decide to participate in this research, you will be asked to answer the questions at the end of this information.

A total **of 5 lucky respondents** will be randomly selected to receive compensation in the form of prizes with a total value of Rp. 500,000. If you successfully complete the questionnaire to the end, you are entitled to enter the sweepstakes by including your email address, but this is **optional**.

If you decide to participate, please note that you **cannot return to the previous page** to change your answer, so pay close attention to each question.

Description and Study Objectives
Department of Agricultural Economics, University of Ghent conducted a study to **study the response of Indonesian consumers to organic vegetables** . We kindly ask that you take the time to fill out the questionnaire for us. It will take about **10-15 minutes** of your time.

This data collection was carried out under the guidance of Prof. Christine Yung Hung, PhD, and as a research student is Nurina Izazi (nurina.izazi@ugent.be)

Approval and Rejection
Your participation in this research is completely free and voluntary. You **can refuse** to fill

out the questionnaire and you are free to withdraw from the study at any time, **without having to give reasons** for your decision.

Advantages and Risks
Participation in this research may not bring any benefits to you, but you **are eligible to enter the lucky draw** if you successfully complete this survey. Your participation in this study does **not require additional fees** .

Confidentiality
In accordance with the General Data Protection Regulation (or GDPR) (EU) 2016/679 on the protection of personal data (GDPR 27 April 2016), **your privacy will be respected** .

If you agree to participate in this research, we will process your data according to the purpose of the research. This data processing is provided for by law under Articles 6, 1, (b), (e) or (f) and Articles 9, 2 (j) of the General Data Protection Regulations.

All information collected during this research will be **processed under pseudonyms** . In the pseudonymization process, the code key that identifies you **is only accessible** to the investigator or a designated surrogate.

If you are willing to enter the sweepstakes, you will be asked to provide an email address **optionally** and without association with your response.

Only **pseudonymized data** will be **used for analysis and in all types of documentation, reports or publications** regarding this research. Both personal data and data about you / data for other study purposes will be processed and stored for at least 20 years. The data controller is the main researcher of this research, Prof. Christine Yung Hung, PhD (yung.hung@ugent.be). Its research team will gain access to your personal data.

In the context of data protection, data under your pseudonym may become publicly available after research, therefore any interested party may have access to, process and/or further analyze your pseudonymous data.

If you need it, the Data Protection Officer can provide you **with more information** about the protection of your personal data. Please contact **privacy@ugent.be** .

Representatives of the promoter, auditors, Ethics Committee and competent authorities, all parties bound by professional confidentiality, may have direct access to your data under the responsibility of the investigator (or one of his collaborators) to examine the study procedures and/or the data, **without violate confidentiality** . This is done within the limits of the relevant legislation. You are deemed to agree to the above by answering

several questions regarding this agreement and after receiving an initial explanation.

You have the right to lodge a complaint about how your data is processed with the Data Protection Authority:
Data Protection Authority (DPA)
Rue de la Presse 35 – 1000 Brussels
Tel: +32 2 274 48 00
E-mail: contact@apd-gba.be
Website: www.dataprotectionauthority.be

Confirmation of Willingness to Fill in Questionnaire

Select **YES** , if you

1.
Have **read and understood** this "Information Page for Respondents". You have been informed of the nature of the study, its purpose, its duration and what is expected of you.
2.
Agree to participate in this research.
3.
Understand that participation in this research **is voluntary** and that you can withdraw from this research at any time **without giving reasons for this decision** .
4.
Knowing that participating or not participating in research **does not have any negative consequences** for you.
5.
Knowing that you **have the option to ask the researcher for a summary of the results** after the research is complete and the results are known.
6.
Agree that your data **may be used for further analysis** by other researchers after complete anonymization.
7.
Agree that **UGent is the responsible entity** with respect to personal information collected in this research. You acknowledge that **the data protection officer can provide more information** about the protection of personal information.

- YES (1)
- NO (2)

Start of Block: Screening

How would you describe your gender?

- Boys (1)
- female (2)

In which province do you live?

- Banten (1)
- DKI Jakarta (2)
- West Java (3)
- Central Java (4)
- IN Yogyakarta (5)
- East Java (6)
- Bali (7)
- Not in selection (8)

Skip To: End of Survey If In which province do you live? = Not in the options

Are you over 18 years old?

- Yes (1)
- no (2)

Skip To: End of Survey If Are you over 18 years old? = No

Do you eat vegetables at home?

- Yes (1)
- no (2)

Skip To: End of Survey If Do you eat vegetables at home? = No

What is your role in shopping for daily necessities at home?

- I am responsible for shopping for daily necessities (1)
- I share a role with a family member in shopping for daily necessities (including: participating in giving input / suggestions) (2)
- I am not responsible for shopping for daily necessities (3)

Skip To: End of Survey If What is your role in shopping for daily necessities at home? = I am not responsible for shopping for daily necessities

End of Block: Screening

Start of Block: Objective Knowledge on Organic Food

Below are some statements regarding organic products.
Please rate whether the statement is True/False.

	True (1)	False (2)	I don't know (0)
Organic farmers do not use synthetic pesticides (1)	•	•	•
Organic farmers are not allowed to use synthetic fertilizers, except for some substances that are allowed but restricted in their use (2)	•	•	•
Organic farmers may use genetically modified seeds (3)	•	•	•
Eco-friendly organic vegetables (4)	•	•	•
Organic products have special certification (5)	•	•	•

End of Block: Objective Knowledge on Organic Food

Start of Block: Organic Vegetables Consumption

The following is the definition of organic food based on the Indonesian National Standard (SNI 6729:2016):

Organic Food is food originating from an organic farm that applies management practices aimed at maintaining ecosystems in order to achieve sustainable productivity, and controlling weeds, pests and diseases, through various means such as recycling plant and livestock remains, selection and rotation of plants, water management, land

management and planting and use of biological materials.

The next question will be related to your vegetable consumption pattern.

How often did you eat organic vegetables **before** the COVID-19 pandemic?

- Never eat organic vegetables (0)
- Every day (5)
- 5 - 6 times a week (4)
- 3-4 times a week (3)
- 1 - 2 times a week (2)
- Less than once a week (1)
- I don't know (6)

How has the COVID-19 pandemic changed the frequency with which you consume organic vegetables per week?
(1 serving = 100 grams)

- Never eat organic vegetables (0)
- Consumption of equal amounts (5)
- Up 1 - 6 servings (4)
- Up > 6 servings (3)
- Down 1 - 6 servings (2)
- Down > 6 servings (1)
- I don't know (6)

If you eat organic vegetables, where do you or your family members buy organic vegetables?
(can choose more than 1)

3.4.1. Supermarkets (1)
3.4.2. Minimarket (2)
3.4.3. Traditional market (3)
3.4.4. Small-large-scale grocery store (4)
3.4.5. *Online* shop (5)
3.4.6. Community Market (6)
3.4.7. Farmer (7)
3.4.8. Others: ... (specify) (8)

What kinds of organic vegetables do you usually buy?
(can choose more than 1)

3.4.9. Onion (1)

3.4.10. Spinach (2)
3.4.11. Broccoli (3)
3.4.12. Beetroot (4)
3.4.13. Chili (5)
3.4.14. Scallion (6)
3.4.15. Corn (7)
3.4.16. Long Beans (8)
3.4.17. Kale (9)
3.4.18. Kangkung (10)
3.4.19. Cauliflower (11)
3.4.20. Potato (12)
3.4.21. Pumpkin (13)
3.4.22. Lettuce (14)
3.4.23. Celery (15)
3.4.24. Tomato (16)
3.4.25. Carrots (17)
3.4.26. Others: ... (specify) (18)

End of Block: Organic Vegetables Consumption

Start of Block: Perceptions on Organic Vegetables

The next question is about your perception of organic vegetables in the market.

In general, how difficult was it for you to find organic vegetable products on the market **before** the COVID-19 pandemic?

Scale 1 = Very Easy
Scale 5 = Very Difficult

- Very Easy 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- Very difficult 5 (5)
- I don't know (0)

In general, how difficult has it been for you to find organic vegetable products on the market **since** the COVID-19 pandemic?

Scale 1 = Very Easy
Scale 5 = Very Difficult

- Very Easy1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- Very difficult5 (5)
- I don't know (0)

Read the statement below:

"Compared to non-organic vegetables, organic vegetables ..."

Choose the extent to which you agree or disagree with each response below by choosing the answer that best describes how you agree or disagree with the response…

Scale 1 = Strongly disagree
Scale 5 = Strongly agree

	1 Strongly disagree (1)	2 Disagree (2)	3 Neutral (3)	4 Agree (4)	5 Strongly agree (5)
Better (Q11_1)	•	•	•	•	•
Healthier (Q11_2)	•	•	•	•	•
More attractive in appearance (Q11_3)	•	•	•	•	•
More secure (Q11_4)	•	•	•	•	•
Better for the environment (Q11_5)	•	•	•	•	•
Fresher (Q11_6)	•	•	•	•	•
More trendy and contemporary (Q11_7)	•	•	•	•	•
More expensive (Q11_8Rev)	•	•	•	•	•
The benefits are proportional to the costs incurred to purchase (Q11_9)	•	•	•	•	•

End of Block: Perceptions on Organic Vegetables

Start of Block: Trust

The following are statements regarding consumer confidence.
Choose the extent to which you agree or disagree with the following statements.

Scale 1 = Strongly disagree
Scale 5 = Strongly agree

	1 Strongly disagree (1)	2 Disagree (2)	3 Neutral (3)	4 Agree (4)	5 Strongly agree (5)
I think organic companies/producers are aware of their responsibilities. (Q12_1)	•	•	•	•	•
I believe those who sell certified organic products do sell organic quality products. (Q12_2)	•	•	•	•	•
I believe in organic food labels/logos (Q12_3)	•	•	•	•	•
I believe in institutions that certify organic food products. (Q12_4)	•	•	•	•	•

End of Block: Trust

Start of Block: Environmental Problem

Which environmental issues (if any), do you think are the **most important** in Indonesia?

Rank your **top 3 answers** from the list of problems below, provided that ranking 1 is the most important problem in your opinion.

Enter the 3 items of your choice in the box on the right. You **can only enter a maximum of 3 items** in the box provided.

If you select the "None" option, then you do not need to enter any other items.

Rank 1 - 3
_____ Water scarcity (1)
_____ Land / land damage (2)
_____ Deforestation (4)
_____ Natural resource depletion (3)
_____ Erratic change of seasons (5)
_____ Water pollution (6)
_____ Air pollution (7)
_____ None (8)

Which environmental problem (if any), do you think has the **most impact on you and your family's life** ?

Rank your top 3 answers from the list of problems below, provided that **ranking 1 is a problem most important** in your opinion.

Enter the 3 items of your choice in the box on the right. You **can only enter a maximum of 3 items** in the box provided.

If you select the "None" option, then you do not need to enter any other items.

Rank 1 - 3
_____ Water scarcity (1)
_____ Land / land damage (2)
_____ Deforestation (4)
_____ Natural resource depletion (3)
_____ Seasonal changes are erratic (5)
_____ Water pollution (6)
_____ Air pollution (7)

_____ None (8)

End of Block: Environmental Problem

Start of Block: Subjective Environmental Knowledge

Following are some **environmental issues** :

- Water scarcity
- Land/soil destruction
- Deforestation
- Depletion of natural resources
- Seasons change erratically
- Water pollution
- Air pollution

Below are a number of statements regarding environmental issues.

Choose the extent to which you agree or disagree with the following statements.

Scale 1 = Strongly disagree

Scale 5 = Strongly agree

	1 Strongly disagree (1)	2 Disagree (2)	3 Neutral (3)	4 Agree (4)	5 Strongly agree (5)
I feel I know the cause of the above environmental problems (Q16_1)	•	•	•	•	•
I feel I know the solution to the above environmental problems (Q16_2)	•	•	•	•	•
I have a hard time knowing if my way of life is helping or damaging the environment (Q16_3Rev)	•	•	•	•	•

End of Block: Subjective Environmental Knowledge

Start of Block: Environmental Risk Perception

In this section, you will find a number of statements related to the environment.

What do you think is the danger level of the following statements.

Scale 1 = Not at all dangerous

Scale 5 = Very dangerous

	1 Absolutely harmless (1)	2 Harmless (2)	3 Quite dangerous (3)	4 Dangerous (4)	5 Very dangerous (5)
In general, I think if the air pollution caused by cars... (1)	•	•	•	•	•
In general, I think if the air pollution caused by industry... (2)	•	•	•	•	•
I think that pesticides and the use of chemicals in agriculture ... (3)	•	•	•	•	•
I think if the pollution of rivers and lakes in Indonesia ... (4)	•	•	•	•	•
In general, I think if the increase in the earth's temperature is caused by the climate crisis... (5)	•	•	•	•	•

End of Block: Environmental Risk Perception

Start of Block: Environmental concern

In general, how concerned were you about environmental issues **prior** to the COVID-19 pandemic?

Scale 1 = Not at all concerned
Scale 5 = Very concerned

- Not at all concerned 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- Very concerned 5 (5)

In general, how concerned are you about environmental issues **since** the COVID-19 pandemic?

Scale 1 = Not at all concerned
Scale 5 = Very concerned

- Not at all concerned 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- Very concerned 5 (5)

The following are statements regarding environmental issues.

Choose the extent to which you agree or disagree with the following statements.
Scale 1 = Strongly disagree

Scale 5 = Strongly agree

	1 Strongly disagree (1)	2 Disagree (2)	3 Neutral (3)	4 Agree (4)	5 Strongly agree (5)
We worry too much about the future of the environment, but not enough about the current prices of goods and jobs (Q20_1Rev)	•	•	•	•	•
Society has excessive concern with human behaviour which is increasingly damaging the environment (Q20_2Rev)	•	•	•	•	•
Many things are more important in life than protecting the environment (Q20_3Rev)	•	•	•	•	•

End of Block: Environmental concern

Start of Block: Environmental Efficacy

Read the statement below:

"While considering whether to buy organic vegetables or not, I made the decision because ..."

Choose the extent to which you agree or disagree with each response below by selecting the answer that best describes how you agree or disagree with the response.

Scale 1 = Strongly disagree

Scale 5 = Strongly agree

	1 Strongly disagree (1)	2 Disagree (2)	3 Neutral (3)	4 Agree (4)	5 Strongly agree (5)
I love finding new ways to help the environment. (Q21_1)	•	•	•	•	•
I often consider how things will be in the future and try to influence those things with this kind of everyday behaviour. (Q21_2)	•	•	•	•	•
I think sacrifices made now (such as buying a less preferred or more expensive product), need not be made because the future consequences can be handled at a later time. (Q21_3Rev)	•	•	•	•	•
I don't think my efforts made much of a difference. (Q21_4Rev)	•	•	•	•	•
I usually ignore warnings about possible future environmental problems, assuming that they will be resolved in the future. (Q21_5Rev)	•	•	•	•	•

End of Block: Environmental Efficacy

Start of Block: Behavioural intention

Read the statement below:

"How willing are you...?"

Choose the extent to which you are willing or unwilling with each of the responses below by selecting the answer that best describes how you feel about that response.

Scale 1 = Very unwilling

Scale 5 = Very willing

	1 Very unwilling (1)	2 Not ready (2)	3 Neutral (3)	4 Willing (4)	5 Very willing (5)
Paying a higher price to protect the environment. (1)	•	•	•	•	•
Reducing the allocation of lifestyle expenditures and using them to contribute to the environment (2)	•	•	•	•	•
Purchase organic vegetables within the next 2 weeks. (3)	•	•	•	•	•

End of Block: Behavioural intention

Start of Block: Socio-demo

The questions below are socio-demographic related.

Q23 What year were you born?

2005 (18) ... 1941 (81)

Q25 In which area do you live?

- Urban area (1)
- Rural areas (2)

Q26 What was your last education level?

- Elementary School (1)
- Middle School (2)
- high school (3)
- S1 (4)
- S2 (5)
- S3 (6)
- Not in school (7)

Q27 What is your employment status?

- Entrepreneur (1)
- Government workers/employees (2)
- Private workers/employees (3)
- Unpaid family workers (eg helping the family business without being paid) (4)
- Freelancer on farm (5)
- Freelancers in non-farm (6)
- Student / Student (7)
- I don't work (8)

Q28 What is your monthly income range?

- < 2,000,000 (1)
- 2,000,0000 – 6,000,000 (2)
- 6,000,000 – 10,000,000 (3)
- > 10,000,000 (4)

Q29 What do you think about your current financial condition?

- Not enough for my needs (1)
- Enough for my needs (2)
- More than adequate for my needs (3)

Q30 How many people live in your house, including yourself?

1 (1) ... >10 (11)

Q31 Do you have children?

- Yes (1)
- no (2)

Q32 How many children do you have and live in the same house with you?
Answer by age category by sliding the slider based on the number of children.
If you have no children in a certain age category, select 0.

	0 1 2 3 4 5
12 years ()	
13 - 17 years old ()	
18 years old ()	

End of Block: Socio-demo

Start of Block: Email draw

Q39
Congratulations, you have successfully completed this questionnaire!

If you are **interested in participating in the lucky draw** in filling out this questionnaire, please fill in your email for notification of winners.
***optional**

Your email:

_____

End of Block: Email draw

Appendix 2: Stepwise Summary

Model	Action	Effect(s)	Model Fitting Criteria	Effect Selection Tests		
			-2 Log Likelihood	Chi-Square[b]	df	Sig.
0	Entered	<all>[a]	866.659			
1	Removed	OBJ_KNO_Construct Score	866.736	0.077	2	0.962
2	Removed	EE_mean	866.998	0.261	2	0.877
3	Removed	TRUST_mean	867.681	0.683	2	0.711
4	Removed	BI_mean * EC_mean	871.875	4.194	2	0.123
5	Removed	SUBJ_mean	876.239	4.364	2	0.113

Stepwise Method: Backward Elimination

a. This model contains all effects specified or implied in the MODEL subcommand.

b. The chi-square for removal is based on the likelihood ratio test.