

How does consumers' understanding of CSR influence their sustainable consumption
behaviour during the COVID-19 pandemic in China?

Focus on Chinese e-commerce companies

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Table of Contents

Abstract and keywords

1. Introduction.....	6
1.1 Relevance	9
1.2 Chapter outline	9
2. Theoretical framework.....	11
2.1 Theoretical studying points	11
2.2 Effect of CSR on online purchase intention	12
2.3 Mediating role of consumer trust	13
2.4 Effect of online purchase intention on sustainable consumption behaviour	15
2.5 Moderating role of perceived consumer effectiveness	17
2.6 Moderating role of pandemic fear	19
3 Methodology.....	22
3.1 Measures	22
3.2 Sampling strategy and procedure.....	25
3.3 Data analysis	26
3.4 Validity and reliability.....	27
4 Result	28
4.1 Demographic description.....	28
4.2 Control variables.....	29
4.3 Control variables	29
4.4 Factor analysis and reliability test.....	30
4.5 Hypothesis testing.....	35

5	Conclusion and discussion.....	42
5.1	Discussion.....	43
5.2	Consumers’ understanding of CSR has a positive impact on their online purchase intention	45
5.3	Consumers’ online purchase intention has a positive impact on sustainable consumption behaviour.....	47
5.4	The moderating effect of pandemic fear	50
5.5	Implications.....	51
5.6	Limitations and future research	52
	Reference	54
	Appendix 1.....	66
	Appendix 2.....	76

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ABSTRACT

The occurrence of serious social events, such as a pandemic, often has an unimaginable impact on the transformation of the business model, consumers' purchase intention and behaviour. As a rare period in history, the impact of the COVID-19 pandemic is worth exploring, thus it is the original intention of this study. By the end of January 2020, COVID-19 spread rapidly in Wuhan, China, forcing the city to be locked down. It has caused an unexpected negative impact on social development, especially economics. Notably, Internet technology provides a new way for people to maintain their daily activities, for instance, consumers can satisfy their needs by shopping online. Therefore, during the period of lockdown in China due to COVID-19, e-commerce has developed greatly, giving e-commerce companies new opportunities to grow.

In recent years, more and more consumers are accustomed to shopping online, which is more convenient. However, people have different preferences for different e-commerce companies, thus these companies are always looking for ways to attract more consumers. As known to us all, CSR has always been regarded as an important part of corporate behaviour, which is concerned by stakeholders and even all sectors of society and is related to the reputation and long-term development of enterprises. Based on the theory of rational behaviour (TRA), many previous studies have proved that consumers' understanding of CSR has an impact on their purchase intention and following consumption behaviour, especially when they trust the companies. What's more, due to the COVID-19 pandemic has exacerbated the instability of the social situation, there are some changes in perceived consumer effectiveness and the fear of the pandemic, thus consumers pay more attention to the environmental and social development, and their online purchase intention has a more significant influence on sustainable consumption behaviour.

To get more insights into the significance of CSR activities and the changes in consumers' online purchase intention and behaviour, consumers' understanding of CSR, consumer trust, online purchase intention, perceived consumer effectiveness, pandemic fear

and sustainable consumption behaviour were used to build the conceptual model in this study. Specifically, the relationship between consumers' understanding of CSR, consumer trust and online purchase intention were tested in this study through moderation analysis, and perceived consumer effectiveness, pandemic fear and sustainable consumption behaviour were tested in this study through mediation analysis.

According to the results of the studies, it was found that consumers' understanding of CSR has a positive influence on their online purchase intention during the COVID-19 pandemic, while consumer trust has no mediating effect on the relationship between them. Moreover, consumers' online purchase intention has a positive impact on sustainable consumption behaviour during the COVID-19 pandemic. Notably, pandemic fear has a moderating effect on the relationship between the two variables while perceived consumer effectiveness is not a moderator, thus it can be reckoned that changes in consumer sentiment during the pandemic affect their sustainable consumption behaviour. Therefore, it is significant for e-commerce companies to pay more attention to their CSR during the pandemic, which can contribute to improving consumers' shopping intentions. In addition, consumers are more concerned about the environment and social development, which may be beneficial to environmental protection and socially sustainable development in the future.

KEYWORDS: *e-commerce, CSR, online purchase intention, sustainable consumption behaviour, COVID-19 pandemic*

1. Introduction

The development of information technology has changed the traditional business model and promoted the improvement of e-commerce, which has become a new model of business trade, enriching the ways of consumers' shopping (Gunasekaran et al., 2002). The increase of e-commerce companies provided people with online trading channels, and the two-way communication between buyers and sellers was more convenient and efficient, which increased brand engagement of consumers (Kim, 2002). Through e-commerce platforms, companies could effectively contact existing customers directly and even explore potential customers at the same time (Wang et al, 2000). Besides, the shopping process of consumers was much simpler, they could purchase products and services they need at any time, and then discuss and evaluate the products with other consumers online (Degeratu et al, 2000).

China has the largest online population in the world and a huge e-commerce market. Over the past decade, the Chinese government has aggressively supported the development of e-commerce, and many companies have expanded their business operations online (Bruckermann, 2021). With the rapid development of e-commerce, the number of e-commerce companies in China continues to grow and these companies has occupied a large proportion in the economy. E-commerce has reached a mature stage and become an important part of China's national economy (Liu et al., 2020). At present, most e-commerce companies are trying to explore new marketing model to meet the diverse needs of consumers and build their own competitive advantage.

At the beginning of 2020, the COVID-19 was discovered in Wuhan, China, and led to a nationwide pandemic. The COVID-19 pandemic disrupted production and supply chains, destabilized financial markets, and constantly changed business model (Hynes et al., 2020). Since the COVID-19 pandemic has disrupted the offline market, more and more companies have expanded their business to e-commerce to reduce loss during the lockdown through online sales (Shafi et al, 2020). Besides, due to the inconvenience of going out for shopping and the possible risk of infection in contact with others, many consumers tended to choose online shopping to meet their personal needs (Morganosky & Cude, 2020). For this reason, it can be acknowledged that it is an opportunity for Chinese e-commerce companies to develop,

and they need to consider how to respond to the changes in the market.

CSR activities have always been considered an important part of corporate behaviour. During the COVID-19 pandemic in China, many companies have carried out a variety of CSR activities such as supporting environmental governance and donating materials to poverty-stricken areas (Karine, 2021). For example, the CSR activities of Alibaba, one of the most famous e-commerce companies in China, greatly contributed to the fight against the COVID-19 and improved its social reputation, and the company's e-commerce platforms also won the trust of many consumers (Chan et al., 2020). In the face of a social crisis, CSR activities have been given more importance and attract more attention since they are closely related to environmental and social development.

It was found that consumers' understanding of CSR has a positive impact on their purchase intention. Just as Sen and Bhattacharya (2001) have mentioned, when consumers thought that the behaviour of companies showed that they actively undertake social responsibility, they would have higher purchase intention. Consumer trust was often considered to play an important role in the relationship between consumers' understanding of CSR and their purchase intention. Kassim and Abdullah (2002) mentioned that the establishment of consumer trust was the basis for the survival and development of e-commerce companies and increasing consumers' trust was crucial to improving their purchasing intention. Moreover, Lee and Shin (2010) suggested that consumer trust was a mediator of the relationship between consumers' understanding of CSR and their online purchase intention. Consumers who had a better understanding of CSR were more likely to increase their trust in the company due to its CSR activities, and then they would have a higher purchase intention. Actually, consumers had higher expectations for CSR activities during the COVID-19 pandemic since it was a social crisis, which was a challenge but also an opportunity for companies to increase consumer trust and build stronger relationships with stakeholders (Ahn et al., 2021). Therefore, when consumers learn that an e-commerce company contributed to anti-epidemic through its CSR activities in the COVID-19 pandemic, they will increase their trust in the company and have higher purchase intention.

What's more, it has been proved that consumer behaviour would be different with changes in political, economic, and social developments, and after serious social events such

as earthquakes and pandemics, consumers reflect on the impact of their behaviour and are willing to adjust their shopping habit, becoming more inclined to sustainable consumption behaviour (Spaargaren, 2003). It can be believed that consumers reevaluate their consumption behaviour during the COVID-19 pandemic and prefer to choose sustainable consumption behaviour, which is conducive to environmental and social development.

Studies have proved that perceived consumer effectiveness has a moderating effect on the relationship between purchase intention and behaviour. Berger and Corbyn (1992) mentioned that perceived consumer effectiveness had an impact on consumers' attention to the environment and sustainable development. After evaluating their own consumption behaviour, consumers with high perceived consumer effectiveness pay more attention to the value and influence of their behaviour and prefer to choose behaviour conducive to environmental and social development (Cheah & Phau, 2011). Additionally, the psychological and emotional changes of consumers are key factors affecting their behaviour, and both excitement and panic would change their consumption behaviour (Pitafi et al., 2021). Laato et al. (2020) proved that during the COVID-19 pandemic, consumers' fear of the virus changes their consumption behaviour, in other words, consumers who are more fearful of a pandemic are more concerned about environmental and social development and choose sustainable consumption behaviour.

Above all, the research question of the study is “How does consumers’ understanding of CSR influence their sustainable consumption behaviour during the COVID-19 pandemic?” Based on the process of making a purchase decision from intention to behaviour (Carrington et al., 2014), there are two sub-questions of the research. The first sub-question explored the impact of consumers’ understanding of CSR on their online purchase intentions, and the second sub-question aimed to know the relationship between consumers' online purchase intentions and their sustainable consumption behaviour. The main research question was answered through these two sub-questions:

1. To what extent and how does consumers’ understanding of CSR affect their online purchase intention during the COVID -19 pandemic?
2. To what extent and how does the online purchase intention of consumers influence their sustainable consumption behaviour in the COVID -19 pandemic?

1.1 Relevance

The purpose of this study is to answer and explain the research questions, providing a new supplement for studies in related fields. The negative impact of the COVID-19 on economic development has been well recognized, and many companies are trying to find new ways to remain profitable when locked down. Due to the inconvenience of going shopping during the COVID-19 pandemic in China, more and more consumers choose online shopping to avoid face-to-face connection, and e-commerce platforms become the most ideal choice for them. Therefore, e-commerce companies have gained more opportunities for development. Besides, consumers' purchase intention and behaviour are changing with the social change. Given the ongoing COVID -19 pandemic, it is of great significance to learn more about CSR, consumers' purchase intention and behaviour, which may contribute to future development of e-commerce companies.

Moreover, although there were a lot of studies in the field of e-commerce, CSR and consumers' intention and behaviour, few of them were based on the COVID-19 pandemic. The study aims to fill the gap in existing studies on consumers' online purchase intention and behaviour during the COVID-19 pandemic. Given the ongoing COVID -19 pandemic and its possible long-term impact, the findings of this study might provide inspiration for future research on e-commerce, CSR and marketing during the pandemic.

1.2 Chapter outline

There were five chapters of this study. The first chapter was an introduction which introduced the background of the study including the development of e-commerce, e-commerce in China and a description of how the research question was posed and divided into two sub-questions. The second chapter aimed to demonstrate the theories and conceptual model used in the study, and hypotheses were put forward in this chapter as well. Next, in the third chapter, the methodological approach of the studies was introduced and the operationalization of all the factors was described in detail. As for the fourth chapter, the data analysis results of the studies were reported. According to the data analysis results, all the

hypotheses were proved to be accepted or not. Finally, in the fifth chapter, the research question of the study was answered, and a thorough discussion was provided according to significant findings. Based on it, some result-related implications were given to contribute to future research.

2. Theoretical framework

2.1 Theoretical studying points

Some theories were used to help to build the theoretical model, including the theory of rational action (TRA), signal theory, and the theory of planned behaviour (TPB). Since the main purpose of the study was to figure out the impact of consumers' understanding of CSR (CSR) on their purchasing intention and sustainable consumption behaviour, the theory of rational action (TRA) was the basis of the study. The theory of rational action (TRA) was put forward to predict consumers' intention and behaviour for both online and offline (Ajzen & Fishbein, 1980). With the development of interconnection technology, online consumption has become a new trend, and the theory of rational action (TRA) has been shown to be effective in explaining the impact of consumer attitudes and understandings on online shopping (Lee and Shin, 2014), thus the current study used this theory as the basis and aimed to sufficiently explain consumers' understanding of CSR (CSR) on their purchasing intention and sustainable consumption behaviour.

Besides, the signal theory was used in order to explore the mediating effect of consumer trust (CT) on the relationship between consumers' understanding of CSR (CSR) on their purchasing intention. Connelly (2011) mentioned that signal theory is extensively used in various fields, based on it, some scholars have explained the different choices and intentions of consumers from the perspectives of the sender (companies), receiver (consumer) and trust. Boateng (2019) noted that the information between sellers and consumers in e-commerce was unequal. Considering that trust is one of the decisive factors for the success of companies' online marketing, companies are required to send more positive signals to consumers to improve their trust and purchase intention. In China, many e-commerce companies are often involved in various CSR activities, especially online CSR activities, and often publicizes activities on their website or mobile app to prove that it is a trustworthy enterprise. Consequently, the signal theory was suitable in this study.

Finally, the theory of planned behaviour (TPB) gave the inspiration to explore the moderating effect of perceived consumer effectiveness (PCE) and pandemic fear (PF) on the

relationship between online purchase intention (OPI) and sustainable consumption behaviour (SCB). The theory of planned behaviour (TPB) was the expansion and development of the theory of rational action (TRA) (Ajzen and Fishbein, 1980), which was mainly focused on how the behaviour intention affects the actual behaviour, George (2002) acknowledged that it could explain that how does consumer's online shopping intention influence their shopping behaviour, therefore, it would be workable in this study.

2.2 Effect of CSR on online purchase intention

A core point of the theory of rational action (TRA) was that individuals are rational and had the ability to decide their behaviour since their purchase intention always emerged from rational thinking and evaluation of their actions and consequences (Hansen et al., 2004). As mentioned before, the theory of rational action (TRA) can be the basis of studies associated with e-commerce, especially online shopping intention, and it is able to explain the effect on individuals' attitudes and understanding on their online purchase intention. Based on the theory of rational action (TRA), Moran and Juster (1968) noted that consumers' understanding and evaluation of companies' activities has an impact on their purchase intention, and consumers are more likely to have purchase intention when they had a positive evaluation of companies' activities. Moreover, Zheng et al. (2018) reckoned that consumers' online purchase intention required to be driven by companies, in the process that companies positively communicated and interacted with consumers and conveyed affirmative information, companies were able to increase their reputation and enhance consumer trust. Particularly, Internet technology provided a more convenient two-way communication channel for companies and stakeholders, thus positive online behaviour had been attached much more importance and even regarded as an effective marketing method. For this reason, it could be concluded that consumers' understanding of companies' positive activities would significantly affect their online purchase intention.

The theory of rational action (TRA) could be used to explain the influence of consumers' understanding of CSR on their purchase intention (Creyer, 1997). As a recognized way to

improve the corporate image and reputation, CSR activities were one of the positive communication behaviour of enterprises. Wood et al. (2009) defined CSR as a business model of a company that not only conformed to laws and morals, but also met social expectations. It could demonstrate that companies care not only about profits, but also about stakeholders and social development (Renouard & Ezyan, 2018). Pavlíček and Doucek (2015) mentioned that CSR activities could improve the reputation of companies and expanded the competitive advantage of the companies. Since CSR was a necessary strategic effort for an organization, nowadays, companies were more willing to invest in CSR activities in order to maintain a good reputation and attract potential consumers (Lee, 2014). Moreover, Chu and Chen (2019) mentioned that consumers tend to support companies that regularly conduct CSR activities, buying products and services that meet individual needs. CSR activities involved many aspects, such as reducing the harm to the environment of business activities, charitable donations and so on, and these activities were more important especially in times of social hardship such as natural disasters and pandemics (Qiu et al., 2021). Obviously, CSR activities are of great significance during the COVID-19 pandemic and were paid more attention by stakeholders of companies.

Consequently, it can be reckoned that consumers' understanding of CSR has a positive impact on their online purchase intention in this study since the CSR activities during the COVID-19 pandemic was almost conducted online. During the COVID-19 pandemic in China, e-commerce companies that conducted many activities such as recruiting experts for online consultations and setting up an online medical fund that people can donate money to support Wuhan, showing its social responsibility (Xu, 2020), thus consumers would have higher online purchase intention. The hypothesis can be:

H1 Consumer's understanding of CSR has a positive impact on their online purchase intention

2.3 Mediating role of consumer trust

Signal theory included two aspects: signal transmission and discrimination, and signal

transmission referred to the transmission of exact information through behaviour that can be understood by people (Haykin et al., 1992). Companies conveyed a positive signal to consumers through their activities that could be regarded as a process of signal transmission. Atkinson and Rosenthal (2014) mentioned there were two main ways for e-commerce platforms to send positive signals to consumers, on the one hand, the web page layout and full description of each product could improve consumer's first impression, on the other hand, consumers needed to be provided with written promises, such as compensation if there are fake goods.

As a matter of fact, with more and more consumers paying more attention to the environment and social development, CSR activities has become an effective way for companies to send positive signals, which could show that they are concerned about social development and have a sense of social responsibility (Morsing & Schultz, 2006). Basoglu and Hess (2014) used signal theory to explain how companies used external cues to transmit positive information about themselves, so as to reduce consumers' uncertainty. Park et al. (2015) suggested that companies should convey positive information to consumers, which could increase consumers' perception of corporate reputation. Gatzert and Schmit (2016) mentioned that positive signals could change consumers' intentions even behaviour since positive information about a company could improve stakeholders' understanding of them and affect their trust. Under the current business loop model, the development of Internet technology made it more convenient for companies to send signals to consumers, and consumers paid more attention to the social behaviour of companies, being willing to support companies that send more positive signals to them (Dang et al., 2020). As has been noted above, some e-commerce companies conveyed positive signals through its CSR activities and was likely to increase consumer trust.

Lewis and Weigert (1985) defined trust as a psychological state that includes emotional and cognitive factors, it could come from strong emotions or perceptions based on objective facts, and the trust generated by consumers through CSR activities is their cognition of companies through facts. Consumer trust had an extreme impact on e-commerce, and since online shopping was riskier than face-to-face transactions, consumer concerns were able to affect their trust in e-commerce platforms (Chellappa & Pavlou, 2002). Hong and Cha (2013)

believed that consumer trust can effectively reduce consumers' worries about the risks of online shopping, thus consumer trust had a great impact on consumers' willingness to purchase online.

Nguyen and Pervan (1994) mentioned that consumer trust could be a mediator role in the relationship between consumers' understanding of CSR and their online purchase intention since consumers' understanding of CSR could effectively increase consumers' perception of positive behaviour of the companies and consumers trust in the companies, thus improving their purchase intention. Therefore, e-commerce platforms can improve consumers' trust through CSR activities to increase consumers' online purchase intentions. In this study, all CSR activities in the COVID-19 pandemic could be regarded as a signal to consumers, and when consumers received positive signals through its CSR activities that increased their trust, their online purchase intention would increase. The hypothesis can be:

H2 Consumer trust mediates the relationship between consumers' understanding of CSR and their online purchase intention.

2.4 Effect of online purchase intention on sustainable consumption behaviour

As mentioned above, the theory of planned behaviour (TPB) was often used to explore the relationship between consumer purchase intention and their consumption behaviour. He and Harris et al. (2020) mentioned that during the COVID-19 pandemic, consumers were more likely to avoid face-to-face contact with others in order to ensure personal health and safety, and they realized the safety of online shopping, tending to purchase products they need through e-commerce platforms. Moreover, Clement et al. (2021) proved that the stronger the consumer's online purchase intention, the more likely they have purchase behaviour, obviously, consumers' online purchase intention would influence their consumption behaviour.

However, consumers' consumption behaviour might be different during the COVID-19 pandemic. Shin and Hancer (2016) noted that one of the key factors of the theory of planned behaviour (TPB) was perceived behavioural control, which mainly depended on the

availability of resources and personal efficacy, and availability of resources included the amount of time, money and effort required for a certain behaviour while personal efficacy mainly referred to an individual's self-perception of the ability to carry out a behaviour and the evaluation of the likelihood of the success of the behaviour. There were huge changes in the market environment and government policies during the COVID-19 pandemic, which has affected the supply of commodities and purchasing convenience for consumers, and they were less confident in successfully purchasing products and services they need (Akar, 2021). Notably, when consumers experienced a decline in perceived shopping convenience during the COVID-19 pandemic, they paid more attention to sustainable development and hoped to reduce the possibility of similar viruses' outbreak that caused much inconvenience, as the result, they were more willing to choose behaviour conducive to the sustainable development of the environment and society (Donthu & Gustafsson, 2020).

It has been proved that consumers tend to choose sustainable consumption behaviour (SCB) during the COVID-19 pandemic. Peña-García et al. (2020) mentioned that shopping behaviour included sustainable consumption behaviour, luxury consumption behaviour and so on, it is worth noting that consumers consciously reflected on their previous consumption behaviour according to changes in the external environment during the COVID-19 pandemic and were more willing to choose sustainable consumption behaviour (SCB). Sustainable consumption behaviour (SCB) meant that people tried their best to minimize the damage to the environment and social development while purchasing products or services to meet their own needs with the aim to avoid negative impact on the carrying capacity of the earth and even the next generation (Seyfang, 2008). Tran (2021) showed that during the COVID-19 pandemic, consumers were buying more environmentally friendly products online, aiming to reduce the negative impact on society. Therefore, under the COVID-19 epidemic, when consumers want to shop online, they are more likely to generate sustainable consumption behaviour (SCB) and contribute to environmental protection and social development. The hypothesis can be:

H3 Online purchase intention has a positive impact on sustainable consumption behaviour

2.5 Moderating role of perceived consumer effectiveness

Perceived consumer effectiveness (PCE) was one of the consumer's personality traits, and it referred to the individual's assessment of the impact of their behaviour (Ellen et al., 1991). Berger and Corbin (1992) noted perceived consumer effectiveness (PCE) as the degree to which consumers believed that individual efforts could contribute to the solution of environmental and social problems, reflecting an individual's judgment of his or her own abilities. Roberts (1996) mentioned that the level of perceived consumer effectiveness (PCE) would affect people's perceptions and behaviour associated with the environment, specifically, when consumers believed that their behaviour was important to environmental development, they would pay more attention to environmental change and were more willing to contribute to environmental and social development. Similarly, McWilliams and Siegel (2001) reckoned that consumers with high perceived consumer effectiveness (PCE) level believed that they were allies with the companies they had consumed, thus they were more likely to have online purchase intention towards companies with high social responsibility. In fact, some companies often call on consumers to participate in CSR activities together with the slogan of jointly taking social responsibility and contributing to social development, for this reason, perceived consumer effectiveness (PCE) would make sense in this study to explain consumption behaviour of consumers.

It was generally believed that sustainable consumption behaviour (SCB) was one of the typical behaviour of a green lifestyle. Zheng and Chi (2015) noted that people reevaluated their behaviour from a social and environmental perspective and would be more willing to choose a green lifestyle. Furthermore, Wesley et al. (2012) proved that perceived consumer effectiveness (PCE) has a positive impact on consumers' sustainable consumption behaviour, which implied that consumers with a higher perceived consumer effectiveness (PCE) believed that their online consumption behaviour had a greater impact on environmental and social development, for this reason, they had a stronger sense of social responsibility and pay more attention to the sustainable development. Moreover, Chung and Lee (2019) mentioned that consumer's understanding of CSR activities would influence consumers' evaluation of purchase intention, improving perceived consumer effectiveness (PCE) and changing

consumption behaviour. Actually, it has been proved by Mason et al. (2020) that most consumers had higher perceived consumer effectiveness (PCE) in the COVID-19 pandemic because the pandemic brought many inconveniences and made consumers reflect on the impact of their behaviour on the environment and social development. Consequently, it could be believed that during the COVID-19 pandemic, when consumers had a high perceived consumer effectiveness (PCE), they would preferably choose sustainable consumption behaviour (SCB).

Furthermore, Curras-Perez et al (2018) found in their research that perceived consumer effectiveness (PCE) has a moderating effect on the process of converting consumers' purchase intention into sustainable purchasing behaviour (SCB). To be specific, consumers with high perceived consumer effectiveness (PCE) are more likely to consider whether their consumption behaviour would have an impact on the environmental and social development, choosing sustainable products to make contributions to the society and the environment when having purchase intentions. On the contrary, consumers with a low perceived consumer effectiveness (PCE) do not care the impact of their consumption behaviour, and even purchase products that are harmful to the environmental and social development due to their material needs since they do not consider the influence of their consumption behaviour and its relationship with the environment and society. As a result, it could be inferred that consumer who had high perceived consumer effectiveness (PCE) during the COVID-19 pandemic were more likely to rethink their social responsibility and change their consumption behaviour, preferring to choose products conducive to environmental protection and social development when purchasing.

In sum, when consumers' understanding of CSR activities during the COVID-19 pandemic improve their online purchase intention, meanwhile, consumers with a high perceived consumer effectiveness (PCE) have a higher purchasing intention, the more likely they are to choose sustainable consumption behaviour (SCB) with the belief that their sustainable consumption behaviour support CSR activities, which would contribute to environmental and social development. While consumers with a low perceived consumer effectiveness (PCE) do not relate their purchasing behaviour to the CSR activities of the e-commerce platform they choose, and do not take environmental and social sustainability into

account when generating purchase decisions. The hypothesis can be:

H4 Perceived consumer effectiveness moderates the relationship between online purchase intention and sustainable consumption behaviour

2.6 Moderating role of pandemic fear

Pandemic fear refers to a disease that spreads throughout the world to which most people have no immunity. The spread of the virus not only endangers human life, but also has a serious negative impact on economic and social development (WHO, 2020). COVID-19 was discovered in China at the end of 2019 and has spread at an alarming rate. Since then, it has also been found in many parts of the world. Today, the COVID-19 pandemic has lasted for more than a year, with an unprecedented impact on political, economic and social development around the world. Based on it, this study focused on the economic impact of the COVID-19 pandemic, particularly the changes in consumers' purchase behaviour.

Actually, the psychological and spiritual effects of COVID-19 on consumers are noteworthy, which might affect their shopping behaviour. Riva et al. (2014) mentioned that fear is an adaptive defence mechanism of animals and one of the foundations of survival, which would increase individual anxiety and stress levels and change people's behaviour. In order to control the spread of the COVID-19 pandemic, many countries have introduced a series of measures, such as closing stores to reduce crowd gathering, which brings inconvenience to consumers in purchasing products and services (Chen et al., 2020). Chaudhary (2020) mentioned that although the COVID-19 pandemic increased consumers' fear, e-commerce platforms provided consumers with a channel to buy and interact socially, and they would be more likely to recognize the safety of e-commerce platforms. During the COVID-19 pandemic in China, online shopping has become the only choice of many consumers. As mentioned by Dein et al. (2020), the spread of COVID-19 has changed people's regular lives and their mental state. On the one hand, as many daily activities such as work and study have to be carried out on the Internet, outdoor activities are reduced, which may increase people's negative emotions. On the other hand, concerns about a COVID-19

pandemic have increased due to more and more people are infected. Hence, it could be reckoned that during COVID-19 pandemic in China, consumers have changed their consumption behaviour.

Actually, consumers may behave differently because of the fear of the pandemic. In view of the impact of social events such as disasters or pandemics on consumers, Keane and Neal (2021) mentioned the concept of panic buying, which means consumers buy a large number of products to hoard out of fear of material shortage or sharp price rise. This kind of irrational consumption behaviour is essentially caused by consumers' anxiety and fear, which may lead to waste. In contrast, Severo et al. (2020) demonstrated in their research that the changes in consumer behaviour during the COVID-19 pandemic that consumers are more inclined to choose sustainable consumption because of the increased environmental awareness and social responsibility caused by the fear of pandemic, which made sense in this study. Similarly, Tran (2021) mentioned that during the pandemic, consumers would compare the current socioeconomic situation with the past and become concerned about social development. In addition, the decline of purchasing convenience makes consumers aware of the consequences of environmental and social crises, as a result, they would reflect on their consumption behaviour and realize the importance of sustainable development, preferring to choose sustainable consumption behaviour. Therefore, during the COVID-19 pandemic in China, e-commerce platforms provided a channel for Chinese consumers to purchase products and services to meet their needs, and consumers with high fear of COVID-19 pandemic in China might be more willing to choose sustainable consumption behaviour to contribute to environmental and social development when their purchase intention increased. The hypothesis can be:

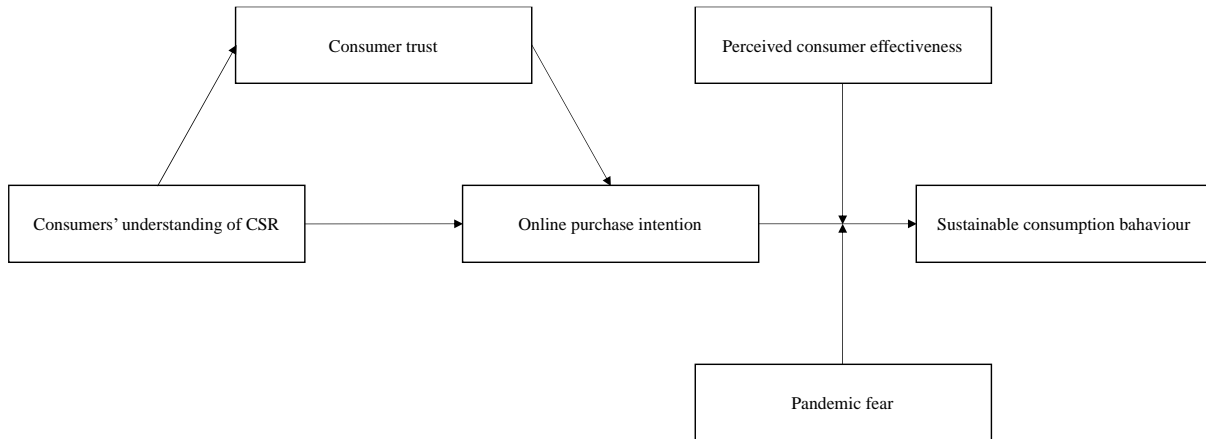
H5 Pandemic fear moderates the relationship between purchase intention and sustainable consumption behaviour.

Above all, there are 6 main concepts in this study: consumers' understanding of CSR (CSR), consumer trust (CT), online purchase intention (OPI), perceived consumer effectiveness (PCE), pandemic fear (PF), and sustainable consumption behaviour (SCB). The first sub-question is about relationship between CSR and online purchase intention (OPI) with consumer trust (CT) as the mediator, and the other sub-question is about the relationship

between online purchase intention (OPI) and sustainable consumption behaviour with perceived consumer effectiveness (PCE) and pandemic fear (PF) as moderators. The conceptual model of this research is shown in figure 2.1.

Figure 2. 1

Conceptual model of this research



3 Methodology

The main purpose of this study was to explore the relationship between consumers' understanding of CSR (CSR), consumers' online purchasing intention (OPI) and sustainable consumption behaviour (SCB) during the COVID-19 pandemic. Since the conceptual model of the study was constructed on the basis of factors from existing research, quantitative research was most suitable, which could explore the relationship between different factors and supplement relevant theories (Malterud, 2001). The study was aimed to investigate social phenomena using numerical data and explore the relationship between different factors and supplement relevant theories.

As for the choice of specific quantitative research methods, according to Pinsonneault and Kraemer (1993), survey could collect data from a predefined group of the population, gaining useful information and insights on the research question according to the results of data analysis and scientifically investigate and understand people's attitude, intention and behaviour. In the current study, the concept understanding of CSR (CSR) was about individuals' attitude, consumers' online purchasing intention (OPI) was intention and sustainable consumption behaviour (SCB) was behaviour. Moreover, they are all quantified led by existing studies. Therefore, an online questionnaire tool was used to collect data and SPSS was used to conduct regression analysis. Finally, the results and findings from the sample of the study were generalized to all populations.

3.1 Measures

As mentioned above, the research question of this study was divided into two sub-questions to explore the relationship between all the factors. Based on the logical order of the study model, participants answered questions about consumers' understanding of CSR (CSR), consumer trust (CT), online purchase intention (OPI), perceived consumer effectiveness (PCE), pandemic fear (PF) and sustainable consumption behaviour (SCB) in turn. Existing scales of each variable were used to develop the questionnaire of this study. Meanwhile, three

demographic variables (gender, age and educational background) were set in this study, and they were placed at the end of the questionnaire.

Consumers' understanding of CSR. The scale of consumers' understanding of CSR was derived from the scales proposed by Wendlandt Amezaga et al (2017). The scale was selected since the study of Wendlandt Amezaga et al (2017) was about CSR orientation and sustainability and the scale matched what this study wanted to measure. The existing scale contained 16 items such as "I believe that businesses must maximize profits", "I believe that businesses must ensure that their employees act within the standards defined by the law", and the reliability of the scale was proved to be good by Wendlandt Amezaga et al (2017), the value of Cronbach's α was .82. Considering the high reliability of the scale, the 16 items were used to measure consumers' understanding of CSR in this study with a seven-point Likert scale (1 = "strongly disagree" and 7 = "strongly agree").

Consumer trust. The scale measure consumer trust took from the scale put forward by Yoon and Occeña (2015), and their study was about C2C e-commerce. Given most e-commerce platforms in China are C2C platforms, the 4 items of the existing scale matched what this study wanted to measure, this study used it to measure consumer trust. There were 4 items such as "In general, I cannot rely on C2C e-commerce buyers/sellers to keep the promises that they make". The Cronbach's α value was proved by Yoon and Occeña (2015) and the value .97, which was extremely good. A seven-point Likert scale (1 = "strongly disagree" and 7 = "strongly agree") were used for answering each item for participants.

Online purchase intention. Online purchase intention was proposed by the scale suggested by Thamizhvanan & Xavier (2013). There were 5 items such as "I was happy with my online shopping", and all of them could make sense in this study to know online purchase intentions of consumers. The result in the existing study of Thamizhvanan & Xavier (2013) showed that the Cronbach's α value of the scale was .86, which was good. A seven-point Likert scale (1 = "strongly disagree" and 7 = "strongly agree") were used for participants to answer each item in this study.

Perceived consumer effectiveness. The scale for perceived consumer effectiveness was taken from the study of Currás-Pérez et al (2018) to know if the perceived consumer effectiveness makes a difference, which was workable in this study to measure perceived

consumer effectiveness. The scale included 4 items such as “I think the way I behave as a consumer affects the environment”, and the Cronbach's α value has been proved by Currás-Pérez et al (2018) as .69, which was acceptable, so it was used in this study to measure the perceived consumer effectiveness. All the items were measured on a seven-point Likert scale (1 = “strongly disagree” and 7 = “strongly agree”).

Pandemic fear. The scale of pandemic fear was developed by Tran (2021) in conjunction with the COVID-19 pandemic, which was similar to the purpose of this study thus it could be used. There were 3 items with an example “I feel scared upon facing the Covid-19 pandemic”, and the result in the existing study of Tran (2021) showed that the Cronbach's α value was .81, which was good. A seven-point Likert scale (1 = “strongly disagree” and 7 = “strongly agree”) was used for participants to respond to all the items.

Sustainable consumer behaviour. The scale for sustainable consumer behaviour was taken from the study of Joshi and Rahmam (2017b) about the factors having impact on sustainable purchase intention, there were 4 items such as “When shopping, I deliberately check products for environmentally harmful Ingredients”. The Cronbach's α value was proved by Joshi and Rahmam (2017b) as .86, thus the 4 items could be used to measure sustainable consumer behaviour. Seven-point Likert scale for participants to respond in this study (1 = “strongly disagree and 7 = “strongly agree”).

Demographic variables. There were three demographic variables in this study (gender, age and educational background). The gender had three items, male, female, and prefer not to disclose. The age was input by the participants themselves, which were divided into 6 groups (18 to 20, 21 to 30, 31 to 40, 41 to 50, 51 to 60 and 61 or above). The educational background in this research was about the participants' highest educational level, which was based on the framework of the International Classification of Educational Standards (ISCED) developed by UNESCO. It contains ISCED 1(Primary education), ISCED 2 (Lower secondary education), ISCED 3 (Upper secondary education), ISCED 4(Post-secondary non-tertiary education), ISCED 5 (Short-cycle tertiary education), ISCED 6(Bachelor's degree or equivalent tertiary education level), ISCED 7 (Master’s degree or equivalent tertiary education level) and ISCED 8 (Doctoral degree or equivalent tertiary education level).

Variable coding. As mentioned in the part of the theoretical framework, there were six

concepts in this study which are measured by 36 items. The variables and items were recorded in this study to make the analysis clearer. The 16 items consumers' understanding of CSR was recorded as CSR, consumer trust was coded as CT, online purchase intention was coded as OPI, perceived consumer effectiveness was coded as PCE, pandemic fear was coded as PF, and sustainable consumption behaviour was coded as SCB.

3.2 Sampling strategy and procedure

This study aimed to know the consumers' understanding of CSR (CSR), their online purchase intention and sustainable consumption behaviour in the context of COVID-19 pandemic. Therefore, the population of this research was the Chinese people who had used e-commerce platforms during the COVID -19 pandemic, which started with the lockdown of Wuhan on January 23, 2020. Given the population of the study was all the consumers who have used e-commerce platforms during the COVID-19 pandemic in China, it was impossible to have probability sampling since the large population, non-probability sampling was the second-best choice.

Among all the non-probability sampling techniques, convenience sampling was used in this study, which is convenient to control sample characteristics and find enough samples in a short time (Johnston & Sabin, 2010), thus it was the ideal yet realistic choice. Firstly, Taobao app was used to find participants since it was the e-commerce platform with the most users in China and there was a social function on the Taobao app and consumers were able to add each other in their contact list and send messages (Feng et al., 2019). I have invited my contacts on the app to help find as many participants as possible through their social networking. However, the samples found through my personal social network were extremely similar due to the fact that most of them were the same age as me. It was necessary to find a more representative sample in order to reduce the bias of the results. Therefore, a questionnaire purchase service provided by a social investigation and information consulting company was to be used to assist the collection of samples, which was approved by the government and with information confidentiality agreement, thus the samples in this research

could cover a more diversified population. All questionnaires begin with the purpose of research and data use to ensure that the results are anonymous and would be kept confidential. WENJUANXING¹ was used to produce the questionnaire, which is the most authoritative tool in China that complies with data collection and confidentiality regulations.

The questionnaire was distributed fully online for some reasons. At first, most e-commerce platforms are essentially an IT company and have lots of online users. Secondly, many daily activities were conducted online due to COVID-19 such as working, studying and shopping, and consumers preferred to use online tools to keep social distance. Besides, it could quickly collect a large amount of data through the Internet, which was more efficient and convenient. The All questionnaires began with the purpose of the data and the commitment to participants that all information they fill in would be kept strictly confidential.

3.3 Data analysis

In order to prevent missing data and extreme data leading to errors in the final results, the data set collected was cleaned prior to all analysis in SPSS. First of all, to ensure there would not be duplicate or robot-filled data via professional survey data collection service, the following criteria were applied to clean and screening responses that are not filled carefully and need to be deleted. First, if duplicate IP addresses were checked to ensure no responses were filled with the same device, only one can be retained. Second, participants who fill in a very short time (less than one minute, because that's the minimum time to finish reading the question) should be deleted as well. Through data screening, it was found that none of these cases existed, thus all responses can be used for analysis.

Next, since outliers would lead to inaccurate results, the responses of consumers' understanding of CSR (CSR), consumer trust (CT), online purchase intention (OPI), perceived consumer effectiveness (PCE), pandemic fear (PF), and sustainable consumption behaviour (SCB) were cleaned up with the standard deviation within 3, and 19 responses that did not meet the standard were deleted.

¹ The most legal and authoritative online collection tool for academic data in China

3.4 Validity and reliability

All the scales used in this research are taken from existing studies about e-commerce or related fields, and the reliability has been proved in those existing studies. In this study, the reliability of the 6 variables (consumers' understanding of CSR, consumer trust, online purchase intention, perceived consumer effectiveness, pandemic fear, and sustainable consumption behaviour) was re-examined to ensure that the reliability of these scales in this study was acceptable.

As mentioned above, the scales of this research have been translated into Chinese before sending to participants. In order to ensure that the validity of the questionnaire would not be reduced in the process of translation such as accurate translation, two Chinese people with similar English proficiency with the author were invited to participate in the translation and examination of the questionnaire. One of them translated the questionnaire together with the author and the other compared the English version with the Chinese version to check for translation errors. Besides, 50 questionnaires were collected at first for the pilot test to check the reliability and validity. The analysis results showed that the reliability and validity of the questionnaire were acceptable, and no items needed to be deleted.

4 Result

4.1 Demographic description

The sample size of this study was 295, and there were 3 demographic variables (age, gender, and educational background). As for gender ($M = .75$, $SD = .66$), there were 99 male which accounted for 33.6% and 184 female which accounted for 62.4%. What's more, 12 participants did not want to reveal their gender.

As for the age ($M = 34.98$, $SD = 9.75$), the 295 participants were between 18 and 61 years old, and it was divided into 6 groups. 8 participants were between the ages of 18 and 20, accounting for 2.71% of the total participants. The number of participants aged 21-30 is the largest, with a total of 110 participants, accounting for 37.29%. There were 95 participants aged 31 to 40, and 60 participants aged 41 to 50, so there were 155 participants aged 31 to 50, accounting for 52.54% of the total. Finally, 21 participants were aged between 51 and 60, accounting for 7.12%, while only one participant was older than 60.

Regarding the participants' highest educational level ($M = 4.92$, $SD = 1.55$), there were 7 participants were at primary education level (2.2%), 41 participants were at secondary education level (13.1%) and 50 participants were at senior secondary education level (15.9%). 81 participants were at tertiary level (non-tertiary), accounting for 25.8%, 47 persons with short period higher education level, accounting for 15%, 69 persons with bachelor's degree or above, accounting for 22%, 16 persons with master's degree or above, accounting for 5.1%, accounting for 5.1%, and only 3 persons with doctor degree or equivalent college degree, accounting for 1%. Of the participants, 81 have received non-tertiary education which accounted for 25.8%, and 47 (15%) were from short tertiary level. There were 69 students with bachelor's degree or higher education, accounting for 22%, and 16 students with master's degree or higher education, accounting for 5.1%. Only three had a PhD or equivalent college degree.

4.2 Control variables

As mentioned before, there were 6 variables in this study, including consumers' understanding of CSR (CSR), $M = 5.26$, $SD = .77$, consumer trust (CT), $M = 4.93$, $SD = 1.35$, online purchase intention (OPI), $M = 5.31$, $SD = .94$, perceived consumer effectiveness (PCE), $M = 5.22$, $SD = 1.04$, pandemic fear (PF), $M = 5.10$, $SD = 1.19$, and sustainable consumption behaviour (SCB), $M = 5.14$, $SD = 1.09$.

Correlation analysis. Before conducting regression analysis, this study used correlation to understand the relationship between variables. As shown in Table 4.1, all independent variables and dependent variables, independent variables and mediator, mediator and dependent variables in the model were correlated, thus further test can be carried out.

Table 4.1

Results of correlation analysis

Measures	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. CSR	5.26	.77	1								
2. CT	4.93	1.35	.233***	1							
3. OPI	5.31	.94	0.516***	.137*	1						
4. PCE	5.22	1.04	.420***	.170**	.364***	1					
5. PF	5.10	1.19	.436***	.340***	.455***	.344***	1				
6. SCB	5.14	1.09	.458**	.279***	.299***	.481***	.389***	1			
7. Age	34.98	9.75	-.170**	.006	-.153**	-.019	-.126*	-.099	1		
8. Gender	.75	.66	.101	.016	.079	.109	.075	.137*	0.009	1	

Note. $N=295$. * $p < .050$, ** $p < .010$, *** $p < .001$

4.3 Control variables

Aderi et al (2013) mentioned that demographic variables such as gender, age had influence on the dependent variables. The criterions of two sub-questions in this study were online purchase intention (IPO) and sustainable consumption behaviour (SCB) respectively.

Through the correlation analysis, the influence of these two demographic variables on online purchase intention (IPO) could be seen in Table 4.1. First, age negatively affected online purchase intention (IPO) ($r = -.16, p = .007 < 0.05$), while gender had no correlation with online purchase Intention (IPO). Therefore, when using regression to understand the relationship between CSR and online purchase intention (IPO) and the mediating effect of consumer trust (CT) on the relationship between them, age was controlled while gender need not be controlled.

Besides, the impact of age and gender on sustainable consumption behaviour (SCB) can be seen in Table 4.1 as well. It could be seen that gender had significant impact on sustainable consumption behaviour (SCB), $r = .18, p = .002 < 0.05$, thus gender was controlled when measuring the relationship between online purchase intention (IPO) and sustainable consumption behaviour (SCB) and the moderating effect of perceived consumer effectiveness (PCE) and pandemic fear (PF) on the relationship between them.

4.4 Factor analysis and reliability test

Although all items were from the existing scales that had been tested for reliability, this study used Cronbach's alpha value to retest each item for confirmation, and the results showed that the scales of consumers' understanding of CSR (CSR), consumer trust (CT), online purchase intention (OPI), perceived consumer effectiveness (PCE), pandemic fear (PF) and sustainable consumption behaviour (SCB) are respectively .86, .89, .83, .80, .84 and .82. Hair et al (1998) has mentioned that Cronbach's alpha value should be more than 0.6, thus the reliability of all the scales in this study was accepted. What's more, KMO value in factor analysis was used to evaluate the validity of the scale. It was found by exploratory factor analysis that 16 items of consumers' understanding of CSR can be classified into different factors. For consumer trust (CT), online purchase intention (OPI), perceived consumer effectiveness (PCE), pandemic fear (PF), and sustainable consumption behaviour (SCB), confirmatory factor analysis was used since they only had one factor.

CSR. The 16 items of CSR which were Likert-scale based were entered into factor

analysis using Principal Components extraction with Varimax rotation based on Eigenvalues (> 1.00), $KMO = .8$, $\chi^2 (N = 295, 6) = 639.84$, $p < .001$. The resultant model explained 66.88% of the variance in Factor loadings of CSR items onto the four factors found were presented in Table 4.2. The factors found were:

Economic. The first factor included four items about commercial interests like profit maximization, cost control etc.

Legal. The second factor included four items about business rules, contractual obligations, market norm etc.

Ethical. There are four items of the factor which were about the balance between economic interests and ethical norms.

Philanthropic. The fourth factor included four items about corporate participation in social activities, public affairs management, charity activities etc.

Table 4.2

Factor Loadings, explained variance and reliability of the four factors found for CSR

	Economic	Legal	Ethical	Philanthropic
I believe that businesses must maximize profits	.82			
I believe that businesses must control their production costs strictly	.75			
I believe that businesses must plan for their long-term success	.77			
I believe that businesses must always improve economic performance	.77			
I believe that businesses must ensure that their employees act within the standards defined by the law		.82		
I believe that businesses must refrain from putting aside their contractual obligations	(.42)	.60		
I believe that businesses must refrain from bending law even it this helps improve performance		.83		

I believe that businesses must always submit to the principle defined by the regulatory system					.74
I believe that businesses must permit ethical concerns to negatively affect economic performance					.77
I believe that businesses must ensure that the respect to ethical principles has priority over economic performance					.76
I believe that businesses must be committed to well-defined ethics principles					.84
I believe that businesses must avoid compromising ethical standards in order to achieve corporate goals					.76
I believe that businesses must help solve social problems					.80
I believe that businesses must participate in the management of public affairs					.79
I believe that businesses must allocate some of their resources to philanthropic activities					.84
I believe that businesses must play a role in our society that goes beyond the mere generation of profits					.76
<i>R</i> ²	.33	.14	.13	.08	
<i>Cronbach's α</i>	.79	.83	.82	.83	

Consumer trust. The 4 items of Consumer trust (CT) which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation and the number of factors was set as 1, $KMO = .82$, $\chi^2 (N = 295, 6) = 639.84$, $p < .001$. The resultant model explained 74.49% of the variance in Factor loadings of Consumer trust items (see Table 4.3).

Table 4.3

Result of confirmatory factor analysis for consumer trust

	Consumer trust (CT)
CT1	.85
CT2	.86
CT3	.88
CT4	.86
R^2	.74
<i>Cronbach's α</i>	.87

The 5 items of Online purchase intention (OPI) which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation and the number of factors was set as 1, $KMO = .85$, $\chi^2 (N = 295, 10) = 429.51$, $p < .001$. The resultant model explained 59.69% of the variance in Factor loadings of Online purchase intention items (see Table 4.4)

Table 4.4

Result of confirmatory factor analysis for online purchase intention

	Online purchase intention (OPI)
OPI1	.77
OPI2	.77
OPI3	.80
OPI4	.77
OPI5	.74
R^2	.60
<i>Cronbach's α</i>	.83

The 4 items of perceived consumer effectiveness (PCE) which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation and the number of factors was set as 1, $KMO = .75$, $\chi^2 (N = 295, 6) = 277.13$, p

< .001. The resultant model explained 58.17% of the variance in Factor loadings of Perceived consumer effectiveness items (see Table 4.5)

Table 4.5

Result of confirmatory factor analysis for perceived consumer effectiveness

	Perceived consumer effectiveness (PCE)
PCE1	.74
PCE2	.76
PCE3	.77
PCE4	.79
R^2	.58
<i>Cronbach's α</i>	.79

The 3 items of pandemic fear (PF) which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation and the number of factors was set as 1, KMO = .72, $\chi^2 (N = 295, 6) = 340.96, p < .001$. The resultant model explained 75.16% of the variance in Factor loadings of Pandemic fear items (see Table 4.6)

Table 4.6

Result of confirmatory factor analysis for pandemic fear

	Pandemic Fear (PF)
PF1	.87
PF2	.86
PF3	.88
R^2	.75
<i>Cronbach's α</i>	.86

The 4 items of sustainable consumption behaviour (SCB) which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax

rotation and the number of factors was set as 1, $KMO = .81$, $\chi^2 (N = 295, 6) = 407.12$, $p < .001$. The resultant model explained 65.52% of the variance in Factor loadings of Sustainable consumption behaviour items (see Table 4.7)

Table 4.7

Result of confirmatory factor analysis for sustainable consumption behaviour

	Sustainable consumption behaviour (SCB)
SCB1	.77
SCB2	.80
SCB3	.84
SCB4	.83
R^2	.66
<i>Cronbach's α</i>	.84

4.5 Hypothesis testing

Effect of CSR on online purchase intention. Hierarchical regression was used in this study to explore the relationship between consumers' understanding of CSR (CSR) and online purchase intention (IPO). As shown in table 4.8, in the block 1, age was entered since it was the control variable, $F (1, 293) = 7.00$, $p = .009$, $R^2 = .02$, which meant age had significant impact on online purchase intention (IPO). As shown in the block 2, the model with consumers' understanding of CSR (CSR) as predictor and online purchase intention (IPO) as criterion was significant, $F (2,292) = 54.25$, $p < .001$, $R^2 = .27$, and the coefficient is .61, thus consumers' understanding of CSR (CSR) positively impacts online purchase intention (IPO), therefore, H1 was accepted.

Table 4.8

Hierarchical regression of the relationship between CSR and OPI while controlling age

Model 1		Model 2	
β	p	β	p

Age	-.02**	.009	-.01	.188
CSR	.	.	.61***	.000
R ²	.02	.	.27	.
Δ R ²	.02	.	.25	.
F	$F(1,293) = 7.00, p = .009 < .05$		$F(2,292) = 54.25, p < .001$	

Note. N=295. Dependent variable: OPI. * $p < .050$, ** $p < .010$, *** $p < .001$

Mediating role of consumer trust. To explore the mediating effect of consumer trust (CT) of the relationship between the relationship between consumers' understanding of CSR (CSR) and online purchase intention (IPO), hierarchical regression was used in this study. Under the premise that age was controlled, first, the relationship between consumers' understanding of CSR (CSR) and consumer trust (CT), consumer trust (CT) and online purchase intention (IPO), consumers' understanding of CSR (CSR) and online purchase intention (IPO) should be tested. If all effects were significant, consumers' understanding of CSR (CSR) and consumer trust (CT) should be entered together as predictors with online purchase intention (IPO) as criterion, and the mediating effect of consumer trust (CT) was judged by whether the coefficient of consumers' understanding of CSR (CSR) changed.

As shown in table 4.9, in the block 1, age was entered since it was the control variable, $F(1, 293) = .01, p = .925 > .05, R^2 = .01$, which meant age had no significant impact on consumer trust (CT). As shown in the block 2, the model with consumers' understanding of CSR (CSR) as predictor and consumer trust (CT) as criterion was significant, $F(2,292) = 8.72, p < .001, R^2 = .06$, and the coefficient is .42, thus consumers' understanding of CSR (CSR) positively impacts consumer trust (CT).

Table 4.9

Hierarchical regression of the relationship between CSR and CT while controlling age

	Model 1		Model 2	
	β	p	β	p
Age	.01	.925	.006	.421
CSR	.	.	.42***	.000

R ²	.01	.06
Δ R ²	.01	.05
F	$F(1,293) = .01, p = .925$	$F(2,292) = 8.72, p < .001$

Note. N=295. Dependent variable: CT. * $p < .050$, ** $p < .010$, *** $p < .001$

What's more, as shown in table 4.10, in the block 1, age was entered since it was the control variable, $F(1, 293) = 7.01, p = .009 < .050, R^2 = .02$, which meant age had significant impact on online purchase intention (IPO). As shown in the block 2, the model with consumer trust (CT) as predictor and online purchase intention (IPO) as criterion was significant, $F(2,292) = 6.45, p < .001, R^2 = .04$, and the coefficient is .10, thus consumer trust (CT) positively impacts online purchase intention (IPO).

Table 4.10

Hierarchical regression of the relationship between CT and OPI while controlling age

	Model 1		Model 2	
	β	p	β	p
Age	-.02**	.009	-.02**	.008
CT	.	.	.10*	.017
R ²	.02		.04	
Δ R ²	.02		.02	
F	$F(1,293) = 7.01, p = .009 < .050$		$F(2,292) = 6.45, p < .001$	

Note. N = 295. Dependent variable: OPI. * $p < .050$, ** $p < .010$, *** $p < .001$

Finally, as shown in table 4.11, in the block 1, age was entered since it was the control variable, $F(1, 293) = 7.01, p = .009, R^2 = .02$, which meant age had significant impact on online purchase intention (IPO). As shown in the block 3, the model with both consumers' understanding of CSR (CSR) and consumer trust (CT) as predictor and online purchase intention (IPO) as criterion was significant, $F(2,292) = 36.12, p < .001, R^2 = .27$, and the coefficient is .61. It was worth noting that the coefficient of consumers' understanding of CSR (CSR) has no change compared to the result in table 4.8, which showed that consumer

trust (CT) does not have any mediating effect. Therefore, as shown in figure 4.1, there was no mediating effect of consumer trust (CT) and H2 was not accepted.

Table 4.11

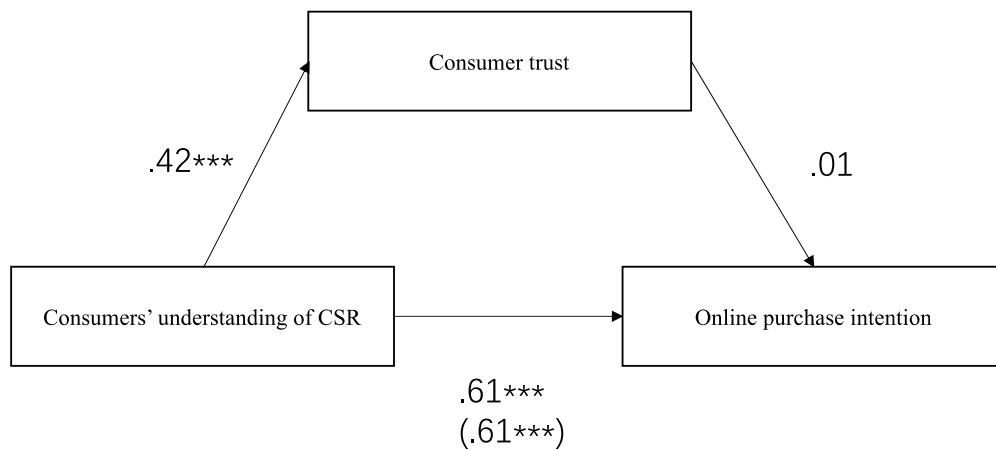
Hierarchical regression of the relationship between CSR, CT and OPI while controlling age

	Model 1		Model 2		Model 3	
	β	p	β	p	β	p
Age	-.02**	.009	-.01	.188	-.01	.183
CSR			.61***	.000	.61***	.000
CT					.01	.687
R ²	.02		.27		.27	
ΔR^2	.02		.25		.27	
F	$F(1,293) = 7.01, p = .009 < .05$		$F(2,293) = 54.25, p < .001$		$F(2,292) = 36.12, p < .001$	

Note. N=295. Dependent variable: OPI. * $p < .050$, ** $p < .010$, *** $p < .001$

Figure 4.1

Mediation model of the relationship between CSR and OPI with CT as mediator



Effect of online purchase intention on sustainable consumption behaviour. Since sustainable consumption behaviour (SCB), perceived consumer effectiveness (PCE) and pandemic fear (PF) were all continuous variables, they were standardized before analysis. As shown in table 4.12, in the block 1, gender was entered since it was controlled, $F(1, 293) =$

5.57, $p = .019$, $R^2 = .02$, which meant gender had significant influence on sustainable consumption behaviour (SCB). In the block 2, the model with standardized sustainable consumption behaviour (ZSCB) as criterion and standardized online purchase intention (ZIPO) as predictors was significant, $F(2, 292) = 16.66$, $p < .001$, $R^2 = .10$, thus standardized online purchase intention (ZOPI) positively impacted standardized sustainable consumption behaviour (ZSCB) and H3 was accepted.

Moderating role of perceived consumer effectiveness. As shown in block 4 of table 4.12, the interaction item (ZOPI*ZPCE) was not significant ($\beta = .09$, $p = .121$), which means there was not moderating effect between standardized online purchase intention (ZOPI) and standardized sustainable consumption behaviour (ZSCB), thus H4 was not accepted.

Table 4.12

Moderating effect of PCE

	Model 1		Model 2		Model 3		Model 4	
	β	p	β	p	β	p	β	P
Gender	.20*	.019	.17*	.042	.12**	.080	.11	.144
ZOPI			.31***	.000	.15*	.011	.14*	.014
ZPCE					.43***	.000	.43***	.000
ZOPI*ZPCE							.09	.121
R ²	.02		.10		.26		.26	
ΔR^2	.02		.09		.15		.01	
F	$F(1,293) = 5.57$, $p = .019 < .050$		$F(2,292) = 16.66$, $p < .001$		$F(3,291) = 33.28$, $p < .001$		$F(4,290) = 25.69$, $p < .001$	

Note. N=295. Dependent variable: SCB. * $p < .050$, ** $p < .010$, *** $p < .001$

Moderating role of pandemic fear. In the block 1 of 4.13, gender was entered since it was controlled, $F(1, 293) = 5.57$, $p = .019$, $R^2 = .02$, which meant gender had significant influence on sustainable consumption behaviour (SCB). The result of the moderating effect between online purchase intention (IPO) and sustainable consumption behaviour (SCB) was shown in block 4. After entering standardized pandemic fear (ZPF) as moderator, the model

was significant, $F(4,290) = 18.50, p < .001, R^2 = .20$. The interaction item was significant ($\beta = .15, p = .004$), which meant standardized pandemic fear (ZPF) moderates the relationship between standardized online purchase intention (ZOPI) and standardized sustainable consumption behaviour (ZSCB), thus H5 was accepted (see figure 4.2).

Table 13

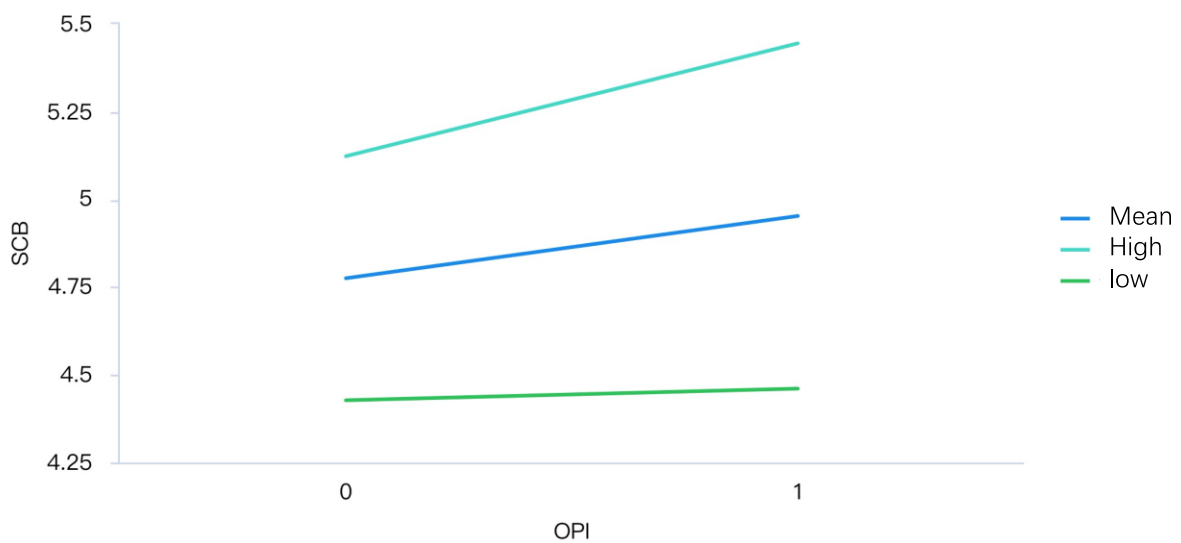
Moderating effect of PF

	Model 1		Model 2		Model 3		Model 4	
	β	p	β	p	β	p	β	P
Gender	.20*	.019	.17*	.042	.15	.059	.13	.088
ZOPI			.31***	.000	.16*	.013	.16*	.011
ZPF					.33***	.000	.32***	.000
ZOPI*ZPF							.15**	.004
R ²	.20		.10		.18		.20	
ΔR^2	.20		.09		.08		.02	
F	$F(1,293) = 5.57, p = .019 < .050$		$F(2,292) = 16.66, p < .001$		$F(3,291) = 21.36, p < .001$		$F(4,290) = 18.50, p < .001$	

Note. N=295. Dependent variable: ZSCB. * $p < .050$, ** $p < .010$, *** $p < .001$

Figure 4.2

Moderation model of the relationship between OPI and SCB with PF as mediator



Above all, consumers' understanding of CSR (CSR) had positively impact on online

purchase intention (OPI), perceived consumer effectiveness (PCE) had no moderating effect on the relationship between online purchase intention (IPO) and sustainable consumption behaviour (SCB) while pandemic fear (PF) moderates the relationship between these two variables.

5 Conclusion and discussion

Through exploring of the relationship of consumers' understanding of CSR (CSR), consumer trust (CT), online purchase intention (OPI), perceived consumer effectiveness (PCE), pandemic fear (PF), and sustainable consumption behaviour (SCB) during the COVID-19 pandemic in China, this study got some inspired findings about the impact of CSR on consumers' online purchase intention and sustainable consumption behaviour during the COVID-19 pandemic. As mentioned in the part of introduction, the research question of the study was divided into two sub-questions with the aim of making the research logic clearer, and the overarching research question could be answered according to the results of the two sub-questions.

First of all, the first sub-question which was about the relationship of consumers' understanding of CSR (CSR) and their online purchase intention (OPI) and the mediating effect was analyzed by hierarchical regression. The results of the first sub-question indicated that consumers' understanding of CSR (CSR) had a positive impact on their online purchase intention (OPI) during the COVID-19 pandemic. Many companies regularly conducted various online CSR activities during COVID-19 pandemic, which significantly contributed to the increasing of consumers' online purchase intention (OPI). However, it was a pity that although consumers' understanding of CSR (CSR) had a positive effect on consumer trust (CT) and consumer trust (CT) had a positive effect on consumers' online purchase intention (OPI), there was no mediating effect of consumer trust between consumers' understanding of CSR (CSR) and their online purchase intention (OPI). In other words, consumers' understanding of CSR (CSR) had a direct and positive impact on online purchase intention (OPI), when consumers had better understanding of CSR activities of an e-commerce platform, they would have high intention to use it to purchase products and services during the pandemic.

In addition, the result of the second sub-question showed how consumers' online purchase intention (OPI) affected their sustainable consumption behaviour (SCB) and the moderating effect of perceived consumer effectiveness (PCE) and pandemic fear (PF). According to the

result of hierarchical regression in the previous part, consumers' online purchase intention (OPI) has a positive impact on their sustainable consumption behaviour (SCB). That is to say, during the COVID-19 pandemic, the higher consumers' online purchasing intention consumers had, the more likely they were to have sustainable consumption behaviour. However, what was contrary to expectation was that perceived consumer effectiveness (PCE) had no moderating effect on the relationship between consumers' online purchase intention (OPI) and their sustainable consumption behaviour (SCB). In addition, the interaction item of consumers' online purchase intention (OPI) and pandemic fear (PF) was significant, which means when consumer fear of a COVID-19 pandemic was higher, their online purchase intention (OPI) has a more significant impact on sustainable consumption behaviour (SCB).

In a word, the research question of the study could be answered by these two sub-questions. During the pandemic, consumers' understanding of CSR (CSR) has a positive impact on their sustainable consumption behaviour (SCB) by increasing their online purchase intention (OPI), and consumers who are more afraid of the COVID-19 pandemic, their online purchase intention (OPI) will significantly affect their sustainable consumption behaviour to a greater extent.

5.1 Discussion

As has already been mentioned, generally, consumers' purchase intention and behaviour were affected by changes in the external environment, especially when serious social events happened that have an impact on economic development (Joshi & Rahman, 2015a). At the end of 2019, the COVID-19 was discovered in Wuhan, China, and quickly spread across the country in just a few months, and Wuhan was completely locked down by the end of January in 2020. The COVID-19 has also been discovered in many countries around the world, resulting in a global pandemic that has had a negative impact on the world economy, politics, society especially human health (Mofijur et al., 2020). Obviously, the COVID-19 has become a global pandemic that was rare in history. Since COVID-19 was highly transmissible and harmful to human health, many countries have had to take a number of measures to control

the situation, such as lockdown, and lots of companies have to close their offline stores even face the crisis of bankruptcy. Moreover, people's daily life has changed as well, most of the time, people work remotely and attend classes at home to reduce their outings.

Undoubtedly, with consumers shopping online more frequently, e-commerce as a new business model is developing during the COVID-19 pandemic. Just as Tran (2021) mentioned, e-commerce has become a choice for more and more companies to maintain profits, and many companies carried out business activities online during the COVID-19 pandemic. In addition, in the period when it is impossible to go out for shopping, e-commerce platforms have become the main way of shopping, thus consumers preferred to purchase online, which could ensure the safety of them by reducing face-to-face contact with others when meeting their material needs (Colla & Lapoule, 2012). Therefore, it can be said that e-commerce gained popularity and development during this period.

Besides, it was necessary to understand how CSR activities affect consumers' online purchase intention and purchase behaviour during the pandemic to give e-commerce companies inspiration for future operation. Actually, the transformation of the business model has changed consumers' purchase intention and behaviour. It has been mentioned in the theoretical part of the study that corporate behaviour has been of particular concern to consumers during the COVID-19 pandemic especially CSR, since CSR activities are closely related to the environment and social development, which is a main concern of consumers during a pandemic (Hassan & Soliman, 2021). According to the finding in the study that consumers' understanding of CSR can increase their online purchase intention, it can be believed that CSR activities are an essential part for corporate behaviour during pandemic, and Chinese e-commerce companies should pay more attention to CSR, which is able to enhance their reputation and has a positive impact on consumers' purchase intention and behaviour. What's more, the focus of this study on consumer behaviour is on sustainable consumption behaviour, and the results prove that when consumers have higher online purchase intention, they will have more sustainable consumption behaviour. Hence, it can be inferred that people pay more attention to sustainable development of the environment and society, and some environmental and social issues possibly can be improved in the future.

Last but not least, it can be concluded according to the findings of the study that the emotion of consumers during a pandemic should not be overlooked since it has great influence on their purchase intention and behaviour. The COVID-19 spreads quickly and causes great harm to human health, even causing the death of many people, so many consumers are worried and even extremely afraid of it. Notably, it has been suggested that individuals' negative emotions would lead to irrational behaviour, but there were some different opinions that consumers' fear for viruses during the COVID-19 pandemic might increase their focus on environmental and social development (Addo et al., 2020). Therefore, in this study, pandemic fear was used as a moderator in the relationship between online purchase intention and sustainable consumer behaviour, and the result prove that when consumers are more fearful of a pandemic, their online purchase intentions have a more positive impact on sustainable consumption behaviour.

5.2 Consumers' understanding of CSR has a positive impact on their online purchase intention

Nowadays, the ever-changing business landscape is both an opportunity and a challenge for the company's development. The emergence and development of Internet technology undoubtedly provides the possibility for companies to expand business channels, especially through e-commerce. In China, the number of e-commerce companies has been increasing in recent years, and online shopping has become an important part of people's lives. Since e-commerce companies do almost all of their business online, it is more convenient for them to interact with consumers and convey positive signals about themselves to consumers which can attract consumers' online engagement (Chan & Wolter, 2018). They can even expand their business to all parts of the world through the Internet and have more opportunities to look for potential consumers. However, online participation through the Internet has enhanced the awareness of stakeholders. Through the Internet, information of a company can be spread widely in a short period of time (Pfeffer et al., 2011), however, negative information about the compaines will be transmitted faster as well, which will reduce the

trust of stakeholders in a short period of time. Just as mentioned by Coombs (2007) that once the behaviour of companies does not meet the expectations of stakeholders, it is likely to damage the reputation of companies in a short time and make companies in crisis. For e-commerce, Zhang et al. (2013) mentioned that e-commerce platforms have the function of consumer evaluation, and when there are a lot of negative comments, consumers are likely to view e-commerce companies as unreliable, reducing their trust. Meanwhile, their willingness to using the platforms of the companies to purchase would reduce. Therefore, how to maintain a good social reputation and consumer trust has become a problem that needs to be solved for all e-commerce companies.

It is not easy for companies to be truly considered as a socially responsible organization, especially to meet the expectations of stakeholders. The importance of CSR activities for a company's long-term development is often emphasized, it has been proved as an effective approach for organizations to improve reputation and gain stakeholder's trust (Ioannou & Serafeim, 2012). ~~Hurst and Ihlen (2018) mentioned that CSR activities are the basis for a company to carry out business.~~ For this reason, nowadays, more and more companies are beginning to pay attention to global issues such as environmental governance and sustainable development (Liczmańska et al., 2019). It was sensational that more and more companies actively conducted or participated in CSR activities, which contributes to anti-epidemic (Giacalone et al., 2021). The results of the study prove that consumers' understanding of CSR (CSR) has a positive impact on consumers' online purchase intention (OPI), therefore, it was of great significance for the e-commerce companies to conduct CSR activities to convey positive information about the companies, increasing consumers' positive understanding and purchasing intention, which will help companies to attract more consumers and keep profit.

What's more, given the effects of the COVID-19 may last for a long time, the finding of the study can give companies an inspiration that showing their social responsibility will contribute to their future development. Just as Donthu and Gustafsson (2020) mentioned that although the COVID-19 pandemic has changed the globe market to some extent, and many industrial chain terminals are facing the crisis, but huge profit loss is not inevitable. Similarly, Jaworski et al. (2020) mentioned that the market is dynamic, and the COVID-19 pandemic

shows that there is a delicate balance in the commodity market. As most consumers have to stay at home for a long time, the tourism industry and catering industry are under great pressure, but online business is flourishing. The current outbreak of COVID-19 can be seen as a serious global crisis that has rarely happened in history. Since the COVID-19 is highly contagious, almost every country in the world has been severely affected, which changed the pace of world economic development (Gössling et al., 2020), it is of great significance for both enterprises and citizens to participate in activities conducive to fighting the virus. CSR activities send a positive signal that the companies care about social affairs and have social responsibility to stakeholders, increasing their trust in the company and enhances consumers' purchase intention.

With consumers getting used to using the Internet to get information and interact with others during the COVID-19 pandemic, online CSR campaigns would be an effective way for companies to draw consumers' attention (He & Harris, 2020). In China, some e-commerce companies not only actively conduct online CSR activities during COVID-19, but also call on consumers to participate. It is gratifying that most CSR activities make outstanding contributions to China's fight against the virus, and consumer satisfaction with these companies has increased. Therefore, the improvement of consumers' understanding of CSR has increased their willingness to purchase products and services online on these e-commerce companies. Personally, the successful experience of those e-commerce companies has an important reference value to how to carry out business operations during the COVID-19 pandemic.

5.3 Consumers' online purchase intention has a positive impact on sustainable consumption behaviour

According to the result of the study, consumers' understanding of CSR has a positive impact on their online purchase intention, and consumers' purchase intention has a positive impact on their sustainable consumption behaviour. It proved what has been mentioned by Creyer (1997) that the higher the purchase intention of consumers, the more likely they are to

make a purchase decision. In this study, the consumption behaviour was focused on sustainable consumption behaviour since consumers paid more attention to the environment and social development and hoped that their consumption behaviour would not bring negative influence during the COVID-19 pandemic. Therefore, as the results of this study showed, when consumers are more willing to buy online, they are more willing to choose sustainable consumption behaviour.

It is undeniable that the negative impact of COVID-19 on global economic development is almost unprecedented. In the early stage of the COVID-19 outbreak, many companies were under tremendous financial pressure and fell into crisis due to the failure to formulate perfect response measures in time. The supply chain for many products has been disrupted, leading to the shortage of resources in the whole society in the short term (Steenkamp, 2020). Among them, essential materials during the pandemic, such as masks and disinfectants, had become rare and precious commodities, even in short supply in some countries during a long period (Mont et al., 2021). As a part of the market, supply chain crisis directly affects consumers' shopping. In the face of strict blockade measures and short-term shortage of goods, the convenience for people to purchase needed products and services was greatly reduced. Before the pandemic, consumers' material needs were easily satisfied because they had many choices and purchasing channels, and many of them even were not satisfied with their basic needs and had higher material pursuits such as luxury goods. The stark contrast between the inconveniences during the COVID-19 pandemic and those before it changed the minds of some consumers, making many people begin to realize the serious negative impact of social crisis on individual life and paid more attention to environmental and social development (Meisenbach, 2020). Many consumers began to reflect on their consumption habits to avoid damaging the environment and society, and even hoped to contribute to the environmental and social development.

At the same time, companies' behaviour has an influence on consumer's consumption behaviour. Just as mentioned above in the study, more and more companies have realized that long-term development can not only pursue immediate interests, thus investing more in CSR activities. These CSR activities not only show the social responsibility of the companies,

improving the reputation of the company and increasing the purchase intention of consumers, but also encourage consumers to participate in actions that contribute to environmental and social development (Sajko et al., 2020). Laudability, many e-commerce companies carried out many online CSR activities during the COVID-19 pandemic in China, meanwhile, it asked consumers to get involved. For example, some top e-commerce companies have donated a lot of materials needed to fight the epidemic to Wuhan, and at the same time set up a special section on its e-commerce platforms, allowing consumers to donate money or materials to those in difficulty during the pandemic while using its platforms to purchase products or services. It greatly increased consumer participation and also let consumers know that they was supporting the country in the fight against the epidemic, improving their reputation and consumers' positive understanding of its CSR. At that time, many consumers actively participated in all kinds of CSR activities conducted by them, hoping to contribute to the country's fight against COVID-19, and their understanding of CSR of these companies increased their online purchase intention. Moreover, they focused more on social development, preferring to choose a healthier lifestyle, which made them be more willing to choose sustainable consumption behaviour. Just as noted by Dwivedi et al. (2020) that during the COVID-19 pandemic, many consumers became more rational and even showed altruistic behaviour, such as resisting panic buying and providing materials for vulnerable people, and they were more willing to increase engagement with companies that always conducted CSR activities.

When consumers' online purchasing intentions increase during the COVID-19 pandemic, they tend to be more active in taking social responsibility, and take action to show their social responsibility (Van et al., 2020). Therefore, consumers' sustainable consumption behaviour in the period of COVID-19 was selected as an example to analysis in the study to know the change in people's consumption behaviour. It can be found according to the average value and standard deviation of sustainable consumption behaviour that most participants had positive perception of sustainable consumption behaviour. They are willing to check whether the products are harmful to the environment, whether they are environmentally friendly packaging, and prefer to buy sustainable products even if they are expensive than others.

Therefore, it can be believed that COVID-19 pandemic has raised people's awareness of environmental protection, which may be beneficial to the development of the environment and society in the future.

5.4 The moderating effect of pandemic fear

Ford and Richardson (1994) proposed that individual decisions are influenced by both external situations and their own emotion. In order to understand whether people's emotional changes have a moderating effect on the relationship between their online purchase intention and sustainable consumption behaviour during the COVID-19 pandemic, this study used the new concept of pandemic fear proposed by Tran (2021) in response to the COVID-19 pandemic and found that it has a significant moderating effect on the relationship between consumers' online purchase intention and sustainable consumption behaviour. That is to say, when Chinese consumers are more afraid of COVID-19, their purchasing intention will be stronger, and they are likely to choose sustainable consumption behaviour.

Pandemic makes people fearful but learn to reflect on the effect of their own actions on the sustainable development of the environment and society. In the early stage of the COVID-19 outbreak in China, stores were suddenly closed due to the lockdown, which caused inconvenience for people to shop. As the COVID-19 continued to spread, people's concern and fear of a pandemic were growing, leading to the changes of their consumption behaviour. Actually, the consumers' fear may cause irrational consumer behaviour, as Arafat et al. (2020) mentioned, people could not make rational consumption decisions during a pandemic and were likely to buy in panic. Surprisingly, both some recent studies and this study proved that pandemic fear of COVID-19 caused consumers to think more rationally about their consumption behaviour and make sustainable consumption choices. As for the reason, He and Harris (2020) mentioned that COVID-19 has lasted for a long time, which might provide consumers with a buffer period to calmly consider whether their consumption behaviour has an impact on themselves, others or even the society. Due to the sudden outbreak of the COVID-19 pandemic, the short-term shortage of essential goods is

inconvenient, but on the positive side, it can be seen as a reminder that let consumers know the material, their needs can be met but material will not be produced endlessly (Osland et al.,2020). Consequently, many consumers no longer blindly pursue higher material needs, but begin to pay attention to the sustainable development of the environment and society.

Besides, the COVID-19 pandemic has brought various crises, and it shows that the future development of society is uncertain, which has changed the "hedonistic" attitude of some people, thus they re-evaluate their consumer behaviour (Guetto et al., 2021).

Consumers who are afraid of the pandemic may be more likely to try their best to help solve the social crisis and reduce the harm to the environmental and social development through sustainable consumption behaviour. Therefore, although consumers' fear of the COVID-19 pandemic has led to anxiety and suppressed negative emotions, more people choose sustainable consumption behaviour that are beneficial to the environment and social development.

5.5 Implications

As shown above, this study has drawn some valuable conclusions. On the one hand, the findings of the study filled the gap in the field of e-commerce and marketing during the ongoing COVID-19 pandemic, especially consumers' purchase intention and behaviour. On the other hand, the findings of the study provide valuable inspiration for e-commerce companies to deal with the negative impact brought by COVID-19 pandemic. It has been proved that CSR activities is of great importance for e-commerce companies during the COVID-19 pandemic and consumers' understanding of CSR will increase their online purchase intention. Hence, it provides new ideas for the business development of e-commerce companies during the pandemic that it is necessary to take social responsibility. Although it is a difficult time for many companies to keep profit during this period, they cannot just focus on purchase profit. Companies need to undertake social responsibilities, conveying positive information about them to consumers through CSR activities to improve consumers' positive understanding and trust of the company. Furthermore, with the development of e-commerce,

new e-commerce companies may continue to emerge, and actively participating in CSR activities to increase consumers' purchase intention may create a competitive advantage for them.

Besides, in the face of a social crisis similar to the COVID-19 pandemic, there is no need to be totally passive, since the impact of the social crisis may have two sides. The crisis posed by the pandemic is serious and cannot be ignored since COVID-19 pandemic has brought about a negative impact on global development and slowed down the speed of economic development. However, the results of this study proved that the social crisis brought by the COVID-19 pandemic makes consumers reflect on their consumption behaviour and pay more attention to environmental and social development. Due to the inconvenience of consumption and the fear of the pandemic, consumers want to reduce the negative impact on the sustainable development of the environment and society, and they are more willing to choose sustainable consumption behaviour. Therefore, it can be reckoned that consumers' awareness of environmental protection and sustainable development has been improved in COVID-19, which is beneficial to future social development.

5.6 Limitations and future research

As mentioned in 5.4, there are some significant findings in this study that are able to give some meaningful implications in the field of e-commerce and marketing, while it is unavoidable to have some limitations. First, although probability sampling was the best sampling choice, non-probability sampling was selected in this study since there was a larger population and it was impossible to use probability sampling. However, non-probability sampling might cause the lack of representativeness and generalizability (Levy and Lemeshow, 2013). As for specific sampling techniques, convenient sampling was used to collect responses. Just as Biernacki & Waldorf (1981) mentioned that in the process of sample selection when using convenient sampling, what was first taken into consideration was whether the potential participants were easy to find. Since such judgment is generally based on the subjective idea of the researchers, the convenient sampling may lead to selection

bias and excessive sample similarity, which have a negative impact on the generality of research results, samples found through my personal social network might have excessive sample similarity. However, it was my best choice since there is a large population and limited conditions. In order to minimize the errors caused by the sampling method, as mentioned, I used the service provided by a professional and legal data collection company to help collect a part of the samples, so as to expand the sampling range and obtain more representative samples.

Second, this study focuses on e-commerce companies in China as the research object, and the population was Chinese consumers, getting the findings that consumers' understanding of CSR had a positive impact on their sustainable consumer behaviour by increasing their online purchase intention. However, the conclusions of this study might lack generality due to the differences in economic and e-commerce development level and consumers' ideas in different countries. Therefore, in further studies, consumers in different countries could be taken as population and generally used e-commerce platforms such as Amazon can be selected to obtain more general conclusions and provide more valuable inspiration for the development of e-commerce platforms during the period of COVID-19.

Finally, through factor analysis, this study found that there were 4 factors of consumers' understanding of CSR (economic, legal, ethical and philanthropic). However, the difference of the influence of these four factors on the online purchase intention was not studied. Therefore, in the further study, the different influences of these four different factors of consumers' understanding of CSR on consumers' online purchasing intention and purchasing behaviour could be explored, getting more in-depth and inspired conclusions.

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Appendix 1

Online survey

Welcome!

Dear participants,

Thank you for taking the time to participate in this survey! The survey is a part of a Master thesis research project at the Erasmus University Rotterdam. The study is related to e-commerce, and it aimed to learn more about consumers' understanding of CSR, and their online purchase intention and sustainable consumption behaviour during the COVID-19 pandemic. If you have used Taobao during the pandemic, welcome to finish the questionnaire.

It can be assured that the all the information you fill in will be kept strictly confidential and used only for this study, so feel free to reveal your true thoughts. The whole survey should take no more than 10 minutes to fill in.

If you need any additional information regarding the survey or recommendations about it, please don't hesitate to contact me.

Ran Tao at 557341rt@student.eur.nl

Please click the arrow to begin.

1. Have you used Taobao during the COVID-19 pandemic (The COVID-19 pandemic in this study began at the end of January 2020 in Wuhan, China)?

- Yes
- No

2. The first part is about the consumers' understanding of CSR. Please indicate the extent to which you agree or disagree with the following statements:

I believe that businesses must maximize profits I believe that businesses must maximize profits.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must control their production costs strictly.

- Strongly disagree

- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must plan for their long-term success.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must always improve economic performance.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must ensure that their employees act within the standards defined by the law.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must refrain from putting aside their contractual obligations.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree

- Agree
- Strongly agree

I believe that businesses must refrain from bending law even if this helps improve performance.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must always submit to the principle defined by the regulatory system.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must permit ethical concerns to negatively affect economic performance.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must ensure that the respect to ethical principles has priority over economic performance.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree

- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must be committed to well-defined ethics principles.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must avoid compromising ethical standards in order to achieve corporate goals.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must help solve social problems.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I believe that businesses must participate in the management of public affairs.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree

- Strongly agree

I believe that businesses must play a role in our society that goes beyond the mere generation of profits.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

3. Here you will be introduced to some questions about consumer trust for C2C e-commerce platform. Please indicate the extent to which you agree or disagree with the following statement:

C2C e-commerce is unreliable.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

C2C e-commerce cannot be trusted, there are just too many uncertainties.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

In general, I cannot rely on C2C e-commerce buyers/sellers to keep the promises that they make.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree

- Somewhat agree
- Agree
- Strongly agree

Anyone trusting C2C e-commerce is asking for trouble.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

4. This section is about online purchase intention. Please indicate the extent to which you agree or disagree with the following statements.

I was happy with my online shopping.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I was pleased with my online shopping.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I was satisfied with my online shopping.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree

- Somewhat agree
- Agree
- Strongly agree

I like online shopping.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Online shopping web sites are a fit means to buy products.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

5. Here you will be presented with a few statements about perceived consumer effectiveness.

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

I think the way I behave as a consumer affects the environment.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Each consumer's behaviour can influence how companies treat their employees.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree

- Agree
- Strongly agree

I think a consumer cannot influence how a company behaves to society and so it doesn't matter what I do.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Each consumer can have a positive influence on society by buying products from socially responsible companies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

6. In this section of the survey you will be introduced to some statements about pandemic fear. Please indicate the extent to which you agree or disagree with the following statements.

I feel scared upon facing the Covid-19 pandemic.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I feel dread upon facing the Covid-19 pandemic.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree

- Somewhat agree
- Agree
- Strongly agree

I feel fearful upon facing the Covid-19 pandemic.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

7. This section will introduce statements about your sustainable consumption behaviour. Please indicate the extent to which you agree or disagree with the following statements.

When shopping, I deliberately check products for environmentally harmful Ingredients.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

When shopping, I deliberately choose products with environmentally friendly packaging.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

I'll prefer to buy sustainable products even if they are expensive than others.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree

- Strongly agree

The final part is about some you personal information, including age, gender and your highest educational level.

8. What is your age?

-

9. What is your gender?

- Male
- Female
- Prefer not to disclose

10. What is your highest educational level (The items are based on the framework of the International Classification of Educational Standards (ISCED) developed by UNESCO) ?

- Primary education
- Lower secondary education
- Upper secondary education
- Post-secondary non-tertiary education
- Short-cycle tertiary education
- Bachelor's degree or equivalent tertiary education level
- Master's degree or equivalent tertiary education level
- Doctoral degree or equivalent tertiary education level

Thank you again for your time spent finishing all the questions!

Your response has been recorded.

Appendix 2

亲爱的参与者，您好！

感谢您在百忙之中抽出时间参与本次调查！这项调查是鹿特丹伊拉斯谟大学硕士论文研究项目的一部分。本研究与电子商务相关，旨在了解新冠肺炎大流行期间消费者对企业社会责任的理解、网上购买意愿和可持续消费行为。如果您在疫情期间使用过淘宝，欢迎您填写问卷。

请务必放心，您填写的所有信息将被严格保密，仅用于本次研究，所以请没有任何顾虑地透露您的真实想法。整个调查的填写时间不应超过 10 分钟。

如果您需要关于调查的任何其他信息或建议，请随时与我联系。

陶然：557341rt@student.eur.nl

请在打勾后开始填写。

您在疫情期间使用过淘宝吗？（本研究中疫情期间指的是 2020 1 月初武汉封城开始）

- 有
- 无

第一部分是有关消费者对 CSR 的理解的问项，请选择您的赞成/不赞成的程度。

我认为从事商务活动必须追求利益最大化

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为从事商务活动必须严格控制成本

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为商业必须规划长远利益

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为商业活动一定能促进经济发展

- 非常不同意
- 不同意

- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为公司应要求员工严格按照规章制度行事

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为公司必须履行合同义务

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为企业不能为了业绩而违法法律

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为企业必须始终遵守市场监管体系和原则

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为企业为了遵守道德规范可以牺牲经济利益

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意

非常同意

我认为对于企业来说道德原则比经济绩效更重要

非常不同意

不同意

比较不同意

一般

比较同意

同意

非常同意

我认为企业必须不断完善和明确其道德原则

非常不同意

不同意

比较不同意

一般

比较同意

同意

非常同意

我认为企业不能为了达到目标而破坏道德准则

非常不同意

不同意

比较不同意

一般

比较同意

同意

非常同意

我认为企业必须为解决社会问题提供帮助

非常不同意

不同意

比较不同意

一般

比较同意

同意

非常同意

我认为企业必须参与国家公共事务的管理

非常不同意

不同意

比较不同意

一般

比较同意

同意

非常同意

我认为企业必须将部分资源用于慈善活动

非常不同意

不同意

- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为企业必须在社会中发挥除了创造经济利益之外的作用

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

这一部分是有关消费者信任的问题，请选择您的赞成/不赞成的程度。

C2C 电子商务不可靠

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

C2C 电子商务不可信任，因为不确定性太多

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

一般情况下，我不期望 C2C 电子商务买家/卖家会履行他们的承诺

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

任何信任 C2C 电子商务的人都在自找麻烦

- 非常不同意
- 不同意
- 比较不同意

- 一般
- 比较同意
- 同意
- 非常同意

这一部分是有关在线购物意愿的问项，请选择您的赞成/不赞成的程度。

网购令我开心

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

网络购物使我获得满足感

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我对网络购物的经历很满意

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我很喜欢网络购物

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

网络购物平台是购买产品的合适途径

- 非常不同意
- 不同意
- 比较不同意
- 一般

- 比较同意
- 同意
- 非常同意

这一部分是有关感知消费者价值的问题，请选择您的赞成/不赞成的程度。

我认为消费者的行为会影响环境

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

每个消费者的行为都会影响公司对待员工的方式

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我认为消费者无法影响企业的社会作为，所以我做什么都不重要

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

通过从有社会责任心的公司购买产品，每个消费者都可以对社会产生积极影响

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

这一部分是有关对疫情的恐惧的问题，请选择您的赞成/不赞成的程度。

面对 Covid-19 大流行，我感到害怕

- 非常不同意
- 不同意

- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

面对 Covid-19 大流行，我感到恐惧

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

面对 Covid-19 大流行，我感到担心

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

这一部分是有关可持续消费行为的问题，请选择您的赞成/不赞成的程度。

购物时，我特意检查产品中是否含有对环境有害的成分

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

购物时，我特意选择带有环保包装的产品

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

我宁愿购买可持续的产品，即使它们比其他产品更昂贵

- 非常不同意
- 不同意
- 比较不同意
- 一般

- 比较同意
- 同意
- 非常同意

在购买产品之前，我会注意环保和公平贸易标签

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

任何信任 C2C 电子商务的人都在自找麻烦

- 非常不同意
- 不同意
- 比较不同意
- 一般
- 比较同意
- 同意
- 非常同意

最后的部分是人口统计学变量的相关问题，包括年龄，性别和最高学历
您的年龄是？

您的性别是？

- 男性
- 女性
- 不想透露

您的最高学历是？（以下选项遵循联合国教科文组织(UNESCO)制定的《国际教育标准分类法》框架）

- 小学教育
- 初中教育
- 高中教育
- 中等以上非高等教育(包括职业培训等)
- 短线高等教育（短线自考）
- 学士学位或同等学历
- 硕士学位或同等学历
- 博士学位或同等学历

再次感谢您的参与！

您的回答已经被记录。