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COVID-19 IMPACT ON THE FOOD CHAIN INDUSTRY AND CONSUMER DEMAND IN MALAYSIA

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Abstract

All aspects of manufacturing and delivering products or services, from raw material procurement to end-user delivery, are widely accepted as part of the supply chain. Consumer demand refers to a consumer's desire to purchase a product or service. During the pandemic outbreak, however, it was discovered that Covid-19 has an impact on the overall operation of one of the most critical sectors of the economy, the food supply chain, and that this has implications for public health. The food industry's critical functions include food security, food safety, public health, and nutrition. Food production, postharvest management, processing, manufacturing, packaging, transportation, and consumption are all included in this industry. As a result, this study examines the relationship between food supply chain activities in Malaysia during the Covid-19 pandemic and the pandemic's impact on the Malaysian food chain industry and consumer demand. Additionally, this study examined how well the food chain industry met consumer demand during the pandemic Covid-19.

Keywords: Consumer, covid-19, demand, food industry, supply chain

1. Introduction

The supply chain encompasses all processes involved in manufacturing and delivering products or services, from raw material procurement to end-user delivery. Consumer demand is a term that refers to a consumer's desire to acquire a good or service. During the pandemic outbreak, however, it was discovered that Covid-19 has a detrimental effect on the overall operation of one of the most critical sectors of the economy, the food supply chain. As a result, this study aims to examine the relationship between food supply chain activities in Malaysia during the Pandemic Covid-19 and the impact of the pandemic on the Malaysian food chain industry. Additionally, this study evaluated the food chain industry's ability to meet consumer demand during the Pandemic Covid-19.

Over the last few decades, global food production and consumption patterns have shifted dramatically (Santeramo, 2019). Food production is critical to the survival of each country. It is critical for public health, food safety, security, and social and nutritional development. Food safety, product quality, and sanitation are top priorities for employees and customers in the food industry. Numerous activities fall under the umbrella term "food industry," including food production, harvesting, processing, packaging, transportation, distribution, consumption, and waste disposal (Sadiku et al., 2019). Multiple countries worldwide have declared a public health emergency in response to the rapid spread of the COVID-19 disease across six continents caused by a novel coronavirus. The entire world, including the food industry, is waiting to see how the COVID-19 outbreak will affect manufacturing.

Compared to other industries, the food industry is unique in that it produces essential products for daily life (Aday & Aday, 2020). As a result, those working in the food industry cannot work from home and must adhere to their regular office hours (Nicola et al., 2020). The report states that certain food companies are facing a variety of challenges due to revenue declines, while others are working tirelessly to meet retailer demand (Aday & Aday, 2020). Consumer demand refers to the material desires and requirements of a large group of people. This graph depicts individuals' purchasing habits and trends across the United States' various geographical regions and socioeconomic groups. Numerous factors influence these desires, needs, habits, and trends, including income, social interests, status symbols, and other external forces (Rana & Paul, 2017).

COVID-19 caused ripple effects throughout the food supply chain, affecting farm production, food processing, transportation and logistics, and end-user demand. Disruptions have occurred throughout the supply chain, affecting a diverse range of industries and products (OECD, 2020). Numerous factors, such as sociodemographic characteristics, household preferences and attitudes, and the effect of the Pandemic Covid-19 on consumer behavior, have been identified (Borsellino et al., 2020). These changes, however, are frequently influenced by external factors and are more closely linked to local, national, and international decisions and policies.

2. Problem Statement

The recent spread of the Covid-19 virus has set off an unprecedented global crisis. The World Health Organization (WHO) declared a pandemic on March 11, 2020, after discovering that SARS-CoV-

2 caused Covid-19 in late December 2019. Global health and the economy have been devastated by the Pandemic Covid-19. The Pandemic Covid-19 is the most critical time to prepare for food supply crises.

Human history has been devastated by one of the most devastating pandemics known to man. Although it directly impacts the global economy, it has a more significant impact through indirect means. This study found that Covid-19 significantly affects the overall supply chain process. As a result of the Pandemic Covid-19, Malaysia will begin a 14-day "lockdown" on movement restrictions on March 18, 2020. The Malaysian government has announced a 14-day national lockdown beginning at midnight on March 18.

Barichello (2020) reports that manufacturers in the food industry are bracing themselves for the Pandemic Covid-19. Unlike other sectors of the economy, the food industry creates products necessary to our daily existence. If a food-processing plant is shut down, Staniforth (2020) predicts food shortages and starvation. As many people refuse to work because of their fear of coronavirus, food companies are concerned about the health of their employees and the ability to maintain a sufficient workforce.

- Thus, the current endeavour emphasizes the importance of examining the relationship between consumer demand and the Malaysian food chain industry during the Pandemic Covid-19.

3. Research Questions

What is the relationship between consumer demand and the food chain industry in Malaysia during the Pandemic Covid-19?

4. Purpose of the Study

The purpose of the study is to examine the relationship between consumer demand and food chain industry in Malaysia during Pandemic Covid-19.

5. Research Methods

The path a researcher must take to complete their research is the research methodology. The methodology for this study will be discussed in this chapter. Among the topics covered in this chapter are the research design and data collection method, instrument development, unit of analysis, and sampling frame.

5.1. Research Design

According to Yin (1994), a research design is a plan that directs the researcher through collecting, analyzing, and interpreting observations from participants. It is essential to understand research design because it includes sampling techniques and the data collection methods used in this study. In this study, a correlational research design was used. It is a non-experimental design technique that helps researchers establish the relationship between two closely linked variables.

5.2. Instrument Development

This research used an online questionnaire method which is Google Forms. The questionnaire link has been distributed to the respondents through social media applications such as Instagram, Facebook, and Email. The function of using a quantitative questionnaire is to measure the reliability and validity to determine the method used is valid and reliable. 150 respondents answered the questionnaire, distributed to the food producer, retailer, and workers in a food chain industry between the ages of 18 to 60. This unit of analysis for this study is the individual level. The questionnaire will consist of sections A, B, and C. There is demographic question in section A such as gender, age, and race. Next, in section B, the questions are about the dependent variable (DV), whereas section C questions are about the independent variable (IV). The questions on sections B and C are answered on a scale basis of 1 to 5 (Strongly disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly agree = 5). Table 1 will show the question of the dependent variable and dependent variable.

Table 1. Instrument Development

VARIABLES	QUESTIONS	SOURCE
Dependent Variable: Food Chain Industry during Covid-19 Pandemic	1. The changes of selling price effected my financial during pandemic. (DV1) 2. The pandemic has affected the distribution and sales of products in food chain industry. (DV2) 3. The staff awareness in terms of health becomes higher since pandemic. (DV3) 4. During pandemic, there is a positive increment of sales in food chain industry. (DV4) 5. Major international food companies should play a major role in addressing the impending lack of access to food during pandemic. (DV5)	Adapted by: (Chowdhury et al., 2020; Galanakis, 2017)
Independent Variable: Consumer Demand	1. During pandemic, the consumer purchase food more often compared to before pandemic. (IV1) 2. I believe that consumer have a specific plan in mind about what purchase before going to the store. (IV2) 3. Consumer is more preferred to purchase their groceries during Covid-19 pandemic using online platform. (IV3) 4. There is an increment is sales during pandemic. (IV4) 5. Consumer demands on frozen food are decreasing during pandemic. (IV5) 6. Since the Covid-19 pandemic became serious in Malaysia, consumers are more prefer their groceries being delivered directly to their house. (IV6)	Adapted by: (Butu et al., 2020; Svajdova, 2021)

6. Findings

This section will find the results and analysis of the SPSS version 26 research data. In order to determine the relationship between the independent and dependent variables.

6.1. Descriptive Statistics of Respondents That Influence to Consumer Demand

Questions were asked on 5-point Likert scales to measure the food chain industry during the pandemic Covid-19. Based on the descriptive statistics, the Table 2 shows that the average mean of the food chain industry during the Pandemic Covid-19 was between 3.65 to 4.03. The Table 2 showed that DV1, DV3, and DV5 share the same highest mean of respondents. For DV1, the respondents agreed that the selling price changes in the food chain industry during the pandemic Covid-19 had affected their financial living (M=4.03, SD=.976). DV3 follows it stated that "The staff awareness in terms of health becomes higher since pandemic." (M=4.03, SD=.919). In the same opinion in DV5, they also stated that "Major international food companies should play a major role in addressing the impending lack of access to food during Pandemic Covid-19." (M=4.03, SD=.983). Next, DV2 is the second-highest mean after DV1, DV3, and DV5. The respondents agreed that the food chain industry during the Pandemic Covid-19 had affected the distribution and sales of their products (M=3.83, SD=1.041). Lastly, the lowest mean is DV4 that is "During Pandemic Covid-19, there is a positive increment of sales in food chain industry." (M=3.65, SD=1.087).

Table 2. Food Chain Industry during Covid-19 Pandemic (DV)

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
DV1	150	1	5	4.03	.976
DV2	150	1	5	3.83	1.041
DV3	150	1	5	4.03	.919
DV4	150	1	5	3.65	1.087
DV5	150	1	5	4.03	.983
Valid N (listwise)	150				

6.2. Consumer Demand (IV1)

Questions were asked on 5-point Likert scales to measure the consumer demand of food chain industry during Pandemic Covid-19. The results in the descriptive statistics Table 3 shows that the average mean of consumer demand is in the range of 3.01 to 3.87. IV1.1 is the highest mean of the respondents that agreed that they purchase food more often during pandemic compared to before pandemic (M=3.87, SD=1.143). Furthermore, the statement in IV1.2 stated that "I believe that consumer have a specific plan in mind about what to purchase before going to the store." (M=3.79, SD=1.072). Next, in IV1.3, the respondents agreed that during Pandemic Covid-19, they preferred to purchase their groceries using online platform rather than going outside and purchase store to store (M=3.74, SD=1.089). Followed by the statement in IV1.6 that is "Since the Pandemic Covid-19, most of the consumers preferred their groceries to be delivered directly to their house." (M=3.73, SD=1.164). In

IV1.4, the respondents also agreed that during pandemic, there is an increment in sales (M=3.66, SD=.954). The lowest mean for consumer demand is IV1.5 stated that "Consumer demands on frozen food are decreasing during pandemic." (M=3.01, SD=1.232). Finally, Table 4 will show the hypothesis of this study.

Table 3. Consumer Demand (IV1)

	N	Minimum	Maximum	Mean	Std. Deviation
Descriptive Statistics					
IV1.1	150	1	5	3.87	1.143
IV1.2	150	1	5	3.79	1.072
IV1.3	150	1	5	3.74	1.089
IV1.4	150	1	5	3.66	.954
IV1.5	150	1	5	3.01	1.232
IV1.6	150	1	5	3.73	1.164
Valid N (listwise)	150				

Table 4. Overview of Hypothesis

No	Hypothesis	Proposed Relationship	Decision
1	H1	There is significant relationship between food chain industry and consumer demand.	Supported

7. Conclusion

According to the research findings, consumer demand influenced the food chain industry during the Pandemic Covid-19 period. First, it is necessary to examine the impact of Pandemic Covid-19 on the Malaysian food chain industry and consumer demand. Due to the Covid-19 crisis's impact on demand, food supply, and production and distribution capacity, consumer behavior has already shifted. Already, the crisis has altered food systems, resulting in panic buying, shortages of specific food categories, and food waste and loss. The Pandemic Covid-19 has particularly hard hit retail due to the shift to online shopping and work-from-home opportunities, which has resulted in a decline in demand and business volume. Retailers face a severe threat from new shopping approaches that capitalize on technological advancements while simultaneously increasing consumers' desire for lifestyle experiences while shopping. The pandemic Covid-19 had disrupted 360 traditional shopping, forcing people to adopt new norms and practises. Malaysia's response to the pandemic has resulted in positive opportunities for digitalization in areas such as online shopping, food handling, and courier services (Naszariah et al., 2021). 80% of Malaysians make purchases online. Buyers are increasingly willing to make online purchases due to the convenience provided by websites, such as practicality and the reduction in time and energy required (Hurriyati et al., 2020).

Researchers conducting similar studies in the same field of study in the future will have new information to draw from, especially those that will impact Malaysia's food chain industry during the Pandemic Covid-19. ' A better understanding of the food supply chain during the Pandemic Covid-19 will also benefit consumers, employers, and employees. When Covid-19 struck the food industry, the pandemic harmed consumers, employees, and business operations. In the event of a Covid-19 outbreak,

consumers, employees, and food producers will benefit from this research because of the better understanding it provides of the current state of the food chain industry. Covid-19's impact on the food chain industry is far from over, despite its demise. An investigation into the Pandemic Covid-19 can help protect Malaysia's food supply from its adverse effects by developing strategies for reducing its impact on Malaysia's food supply.

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References

Aday, S., & Aday, M. S. (2020). Impact of COVID-19 on the food supply chain. *Food Quality and Safety*, *4*(4), 167–180. https://doi.org/10.1093/fqsafe/fyaa024

Barichello, R. (2020). The COVID-19 pandemic: Anticipating its effects on Canada's agricultural trade. *Canadian Journal of Agricultural Economics/Revue Canadienne d'agroeconomie, 68*(2), 219–224. https://doi.org/10.1111/cjag.12244

Borsellino, V., Kaliji, S. A., & Schimmenti, E. (2020). COVID-19 drives consumer behaviour and agro-food markets towards healthier and more sustainable patterns. *Sustainability*, *12*(20), 1–26. https://doi.org/10.3390/su12208366

Butu, A., Brumă, I. S., Tanasă, L., Rodino, S., Vasiliu, C. D., Doboș, S., & Butu, M. (2020). The impact of COVID-19 crisis upon the consumer buying behavior of fresh vegetables directly from local producers. Case study: The quarantined area of Suceava County, Romania. *International Journal of Environmental Research and Public Health*, *17*(15), 1–25. https://doi.org/10.3390/ijerph17155485

Chowdhury, M. T., Sarkar, A., Saha, P. K., & Anik, R. H. (2020). Enhancing supply resilience in the COVID-19 pandemic: a case study on beauty and personal care retailers. *Modern Supply Chain Research and Applications*, *2*(3), 143–159. https://doi.org/10.1108/mscra-07-2020-0018

Food Supply Chains and COVID-19: Impacts and Policy Lessons. (2020, January 2). *OECD*. https://doi.org/10.1111/1746-692X.12297

Galanakis, C. M. (2017). The Food Systems in the Era of the Coronavirus (COVID-19) Pandemic Crisis. *MDPI*, *43*, 445–472.

Hurriyati, Ratih, A., A., Minghat, A. D., & Sangswang, T. (2020). Model of purchase impulsive behavior of online consumers: case in Indonesia. *International Journal of Advanced Science and Technology*, 290-298.

Naszariah, R., Naseri, N., Zamratul, N., Ahmad, A., Shariff, S., Hussin, H., & Norazmi Bin Nordin, M. (2021). Issues And Challenges Of Online Shoppingactivities On The Impact Of Corona Pandemic :A Study On Malaysia Retail Industry. *Turkish Journal of Computer and Mathematics Education*, *12*(10), 7682–7686. https://www.abeam.com/my/en/topics/insights/covid19_retail

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, *78*, 185–193. https://doi.org/10.1016/j.ijsu.2020.04.018

Rana, J., & Paul, J. (2017). Consumer behavior and purchase intention for organic food: A review and research agenda. *Journal of Retailing and Consumer Services*, *38*(June), 157–165. https://doi.org/10.1016/j.jretconser.2017.06.004

Sadiku, M. N. O., Ashaolu, T. J., & Musa, S. M. (2019). Food Marketing: A Primer. *International Journal of Trend in Scientific Research and Development*, *3*(4), 131–133. https://doi.org/10.31142/ijtsrd23640

Santeramo, F. G. (2019). Agri-food trade and non-tariff measures. *Agrekon*, *58*(4), 387–388. https://doi.org/10.1080/03031853.2019.1679478

Staniforth, J. (2020). COVID-19 Update: Worker Health, Absenteeism Present Largest Risks to U.S. Food Supply Chain. *Food Quality & Safety*. https://www.foodqualityandsafety.com/article/covid-19-update-worker-health-and-absenteeism-present-largest-risk-to-u-s-food-supply-chain/

Svajdova, L. (2021). Consumer Behaviour during Pandemic of COVID-19. *Journal of International Business Research and Marketing*, *6*(3), 34–37. https://doi.org/10.18775/jibrm.1849-8558.2015.63.3005

Yin, R. K. (1994). Discovering the Future of the Case Study. Method in Evaluation Research. *Evaluation Practice, 15*(3), 283–290. https://doi.org/10.1177/109821409401500309