

The Impact of COVID-19 on Frozen Meat Business Operators in the Tamale Metropolis of Ghana

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Article Information	Abstract
<p>Received: 20.08.2020 Accepted: 08.10.2020 Published: 09.10.2020</p> <hr/> <p>Keywords: Business COVID-19 Ghana Frozen meat Impact</p>	<p>This study determined the impact of COVID-19 among frozen meat business operators in the Tamale metropolis, Ghana. A semi-structured questionnaire was used to collect data from 65 frozen meat business operators/respondents. The results showed that, most of the respondents had secondary education (50.8%), engaged in the business on full time (84.6%) and started it with their own capital (96.9%). COVID-19 had a negative impact on respondents (73.8%), most importantly low sales (64.6%). This was due to financial challenges of clients/customers (43.1%) and close-down of the hospitality industry (20.0%). Three of the respondents laid off workers due to COVID-19. Some (24.6%) of the respondents were not prepared for COVID-19 because they least expected it will cause such crises. Their businesses will collapse (44.6%) or they will close down their business themselves (43.1%) if lockdown due to COVID-19 lasts for more than 5 months. The respondents suggested the reduction of tax at the harbour (69.2%) as a potential means of assisting them during COVID-19 and massive reduction in the price of meat (41.3%) as a means of assisting their business post COVID-19. The study concludes that COVID-19 had negative effect on frozen meat operators in Tamale, Ghana.</p>

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1. Introduction

Frozen meat business, also referred to as cold store business in Tamale metropolis, Ghana is a trade which deals in mainly frozen meats (meat, fish, and meat products). The meats are beef, chicken, lamb and pork, the fishes include red fish, catfish, salmon and tilapia, and the meat products are mainly sausages. These are mainly imported from countries such as Brazil, USA, and some European countries into Ghana. These frozen meats are stored in cold stores, refrigerated rooms, refrigerated containers and/or deep freezers for sale. Frozen meat business operators own and operate these cold stores, refrigerated rooms, refrigerated containers and/or deep freezers. These frozen meat business operators transport the frozen meats from southern Ghana to the northern Ghana for wholesale or retail. Besides fresh meats sold in the Tamale metropolis and Ghana as a whole; frozen meat importation play an important role in the protein intake and food security of Ghanaians. In 2019, Ghana imported meat and edible offal of poultry, fresh, chilled or frozen from Belgium with a share of 43% and at a cost of USD 33 million, USA with a share of 22% and at a cost of USD 22 million, Poland with a share of 9.44% at a cost of USD 7.29 million and from Brazil with a share of 7.7% at a cost of USD 5.94 million [1].

Meat processing companies experienced substantial sales in retail just before lockdowns were announced, as consumers rushed to stock up food; however, substantial losses were made due to closure of restaurants and food service companies [2]. Unlike other businesses that experienced negative growth, the pharmaceutical companies experienced positive growth on the stock market mainly due to demand for personal protection equipment (PPE) and drugs to combat COVID-19 [3]. Closure of borders and rapid search for PPE distorted international trade including the importation of frozen meats into Ghana, making it harder for traders to conduct their business in the usual manner [4]. COVID-19 restrictions and outbreaks have impacted processing facilities, with meat production globally running below maximum capacity [5,6]. These difficulties were compounded by operational barriers such as refrigerated container availability, disruptions to air freight and slow customs clearance [7].

COVID-19 was first reported in Wuhan, China and has since spread across the globe affecting millions of people. The current situation as reported by World Health Organization [8] stands at 21,732,472 confirmed cases and 770,866 deaths (10:33 Am CEST, 18th August, 2020). Currently (as at 18th August, 2020), Ghana has 42,653

confirmed cases, 40,567 recoveries and 239 deaths [9] meaning that the number of active cases stands at 1847, a situation which is far better than most countries in the world. This presents opportunity for the country to ease some restrictions to boost economic activities including the frozen meat/cold store business. Food and Agriculture Organization [10] indicated that the condition of food security and sustenance was at the point of disturbing before the episode of COVID-19. Therefore, better performances in terms of the incidence of COVID-19 is necessary to open up the world to reduce food insecurity especially in low in countries.

Due to the huge importation of frozen meat and meat products into Ghana and the contribution of this to protein security of Ghana; assessing the impact of COVID-19 on frozen meat business operators is essential to unravel the extent at which operators of the business were hit. It will then present opportunities for home grown animal foods to ensure that sufficient protein is available to mitigate the effects of future pandemics. Thus, this study was conducted to determine the impact of COVID-19 on frozen meat business operators in the Tamale metropolis of Ghana.

2. Materials and Methods

2.1 Study area

This study was conducted in the Tamale metropolis of Ghana. The Tamale metropolis is the regional capital of the Northern region and the only metropolis in the five regions of the north of Ghana. The metropolis lies between latitude 9°16 and 9°34 north and longitudes 0°36 and 0°57 west, and shares boundaries with the Sagnarigu District to the west and north, Mion District to the east, East Gonja to the south and Central Gonja to the south-west [11].

2.2 Study design and questionnaire administration

The survey was conducted among frozen meat business operators using a semi-structured questionnaire (provided as supplementary data under appendix 1) to obtain data on the impact of COVID-19 on their frozen meat business activities. There are seventy-eight (78) frozen meat business operators in the Tamale metropolis (Personal Communication with the Secretary of Tamale Frozen Meat Association). Using sample size calculator at a confidence level of 95%, error margin of 5% and population portion of 50% [12], a population size of 65 was obtained. Random sampling was then used to select 65 frozen meat business operators and interviewed using questionnaire. The questionnaire sought to identify the demographic characteristics of frozen meat business operators, their source of funding, impact of COVID-19 on their business and preparedness towards COVID-19.

2.3 Ethics

The purpose of the study was first explained to the participants before they were interviewed based on their

consent. The confidentiality of each respondent's answers was guaranteed.

2.4 Data analysis

Statistical Package for Social Sciences version 20 (IBM SPSS, ver. 20, Armonk, NY) was used to analyze the data obtained from the survey. Chi Square test (χ^2) was used to determine the relationships among some of the parameters (sex, education, manner of engagement and source of working capital against impact and preparedness for COVID-19). Significant differences were assessed using P-values and all results were considered significant if $P < 0.05$. Results (frequencies and percentages) from the analyzed data were presented in tables.

3. Results and Discussion

3.1 Socio-demographic characteristics of frozen meat business operators

The socio-demographic characteristics of the frozen meat business operators expound their level of education, experience, acceptance of new things and activities. For instance, frozen meat business operators with high level of education will accept and understand the emergence of COVID-19 pandemic and practices propose protocols better, as compared with those without education. Table 1 shows the socio-demographic characteristics of the frozen meat business operators. The frozen meat business operators were males (56.9%) and females (43.1%). The dominance of males in the frozen meat business was similar to the findings of Sulleyman *et al.* [13] and Adzitey *et al.* [14]. They reported that all (100%) meat sellers were males. They attributed this to the strenuous and man power nature of the business. Nonetheless, the gender of the respondents had no influence on the impact ($X=8.546a$, $df=4$, $P=0.073$) and preparedness ($X=1.527a$; $df=3$, $P=0.676$) for COVID-19. People of the Akan (40.0%) tribe dominated the frozen meat business. In Ghana, the Akan's are noted to be business minded; this could contribute to their dominance in the frozen meat business amidst a Dagomba dominated community. However, the Dagombas dominates in the selling of fresh meat in Ghana [13-15]. Education and experience are essential requirements for better understanding of one's business and how to handle it, especially in times of crisis. In this study, the majority of the frozen meat business operators had secondary (50.8%) and tertiary (41.5%) education. The educational level of the frozen meat business operators had no influence on the impact ($14.138a$, $df=8$, $P=0.078$) and preparedness ($X=2.890a$, $df=6$, $P=0.822$) for COVID-19. The frozen meat business operators were engaged in their business on full time (84.6%) and part time (15.4%) bases. In the present study, the nature of engagement (full time or part-time) in the frozen meat business had no influence on the impact ($X=3.701a$, $df=4$, $P=0.448$) and level of preparedness ($X=1.752a$, $df=3$, $P=0.625$) for COVID-19. Adzitey *et al.* [14] also found that 85.0% of meat sellers operate on full

time basis. Since the majority engaged in the frozen meat business on full time basis, disruptions caused by COVID-19 will severely affect their business, income and ability to take care of their families. Food insecurity will be eminent among families of frozen meat business operators due to COVID-19. Also, majority of the frozen meat business operators had good educational level. This offered them the opportunity to speak English and read since the importation or buying of frozen meat, fish and their products especially from abroad requires a better level of education. Education will also contribute to the acceptance and knowledge acquisition as far as COVID-19 is concern. The majority of meat sellers in Accra, Ghana had elementary education (56.7%), followed by secondary education (15.3%) [13]. Furthermore, majority of meat sellers in Tamale, had elementary education (62.0), followed by non-formal education (31.1%) [14]. The majority of the respondents had 1-12 months working experience (46.2%) in the frozen meat business, followed

by 13-24 months (23.1%) and above 48 months (13.8%). The length of years in the frozen meat business had no influence on the impact ($X=20.660a$, $df=16$, $P=0.192$) and level of preparedness ($X=6.602a$, $df=12$, $P=0.883$) for COVID-19. Sulleyman *et al.* [13] found that the majority of the meat sellers in the Accra metropolis had more than 4 years of working experience. The frozen meat business operators started their business with their own working capital (96.9%) and 3.1% from loan and own equity. The source of working capital had no influence on the impact ($X=1.130a$, $df=4$, $P=0.889$) of COVID-19 among the frozen meat business operators, but had influence on the level of preparedness ($X=10.130a$, $df=3$, $P=0.017$) for COVID-19. This study revealed that, most of the frozen meat business operators have not been long in the business and started with their own income. Negative impact of COVID-19 on their business could mean loss of income necessitating government interventions.

Table 1: Socio-demographic characteristics and source of funding for frozen meat business operators in the Tamale metropolis of Ghana.

Variable	No. of respondents	Percentage
Gender		
Male	37	56.9
Female	28	43.1
Tribe		
Dagomba	12	18.5
Akan	26	40.0
Kasena	4	6.2
Mamprusi	5	7.7
Dagati	2	3.1
Others	16	24.6
Education		
Basic	5	7.7
Secondary	33	50.8
Tertiary	27	41.5
Manner of engagement		
Full time farmer	55	84.6
Part time farmer	10	15.4
Length of business		
1-12 months	30	46.2
13-24 months	15	23.1
25-36 months	9	13.8
37-48 months	2	3.1
above 48 months	9	13.8
Source of working capital		
Owners income	63	96.9
Loan and owners' equity	2	3.1

3.2 Impact of COVID-19 on frozen meat business operators in the Tamale metropolis and disruption of their businesses

According to 16 Haleem *et al.* [16] COVID-19 has rapidly affected our daily life, business and disrupted world trade. They also indicated that, economically COVID-19 has slowed down the manufacturing of essential goods, disruption in their supply chains, poor cash flow, losses in national and international businesses and slowed down growth or revenue. Importation of frozen meats, fish and their products play an important role in the protein supply chain in Ghana. Millions of dollars were spent in the importation of meat into Ghana [12]. The impact of COVID-19 among frozen meat business operators in Tamale metropolis is shown in Table 2. The impact of COVID-19 on the frozen meat business include low sales (64.6%), financial challenges (12.3%), shortage of some products (7.7%) and loss of working capital (3.1%). Interesting, 12.3% of the frozen meat business operators said COVID-19 had minimal impact on their business. Nonetheless, the majority of the frozen meat business operators rated the impact of COVID-19 on their business as negative (73.8%). The frozen meat businesses were affected negatively mainly because of financial challenges of clients (43.1%) and the close-down of hospitality industry (20.0%). In addition to these problems, frozen meat business operators were negatively hit because of customers' fears that they might contract COVID-19 from eating meat (12.3%), fear of breaking government regulations (4.6%) and shortage of frozen meat products (4.6%). It neutrally affected their business because people continued to eat meat (15.4%). The frozen meat business operators employed 1-5 workers (93.8%), 16-20 workers (3.1%), 6-10 workers (1.5%) and 11-15 workers (1.5%). Sixty (60) of the frozen meat business operators did not lay off workers, three (3) laid off some workers and two (2) laid off all workers.

Cold storage is important in maintaining freshness and preventing foods from going bad, since food is needed in large quantities especially during periods of pandemic. In Europe, Burke and McCloy [7] indicated that while majority of Europe has been in a state of lockdown, many cold storage businesses were still opened as the sector was classified as essential service. Many businesses all over the world have been affected by COVID-19, and the impact of COVID-19 particularly on the meat industry cannot be overemphasized. In the Canada, many meat processing and storage industries were shut down, reduced production or laid off workers due to COVID-19 [17]. Frozen meat business operators or cold store operators in this study were also negatively affected and this was manifested by low sales, shortage of some products and financial crises. Furthermore, disruptions in the income of consumers, close down of the hospitality industry, and fear of contracting COVID-19 from meat consumption affected the sale of frozen meat, fish and their products. Antolin

[18] stated that cold chain companies all over the world play very important role in the COVID-19 pandemic; and food manufacturers, distributors and cold storage warehouses are still operating with skeletal workforce to ensure continuous flow of foods. In the USA, major meat companies also closed down temporarily or reduced work force affecting the supply of meat and exportation to countries such as Ghana that imports frozen meat, fish and their products from the USA [2].

The frozen meat businesses operators ranked the disruptions caused by COVID-19 in terms of severity as follows: sale of products (frozen meats) has gone down (1th), I am considering increasing my price (2th), the products are there, but expensive (3rd), prices of products have increased (4th), I do not get products to buy (5st), a few products are available, but expensive (6rd), and sale of products have gone up (7th). Disruptions in all sectors of the economy as a result of COVID-19 have been widely reported [2,7,16-18]. Disruptions in businesses as a result of COVID-19 could pose a major challenge to financial stability worldwide [19].

Table 2: Impact of COVID 19 on frozen meat business operators in the Tamale metropolis of Ghana.

Variable	No. of respondents	Percentage
Impact of COVID-19 on business		
Low sales	42	64.6
Minimal impact	8	12.3
Financial challenges	8	12.3
Loss of working capital	2	3.1
Shortage of some products	5	7.7
Rate the impact		
Negative	48	73.8
Neutral	17	26.2
Why is the impact negative or neutral		
People continue to eat	10	15.4
Financial challenges of clients	28	43.1
Fear of breaking government regulations	3	4.6
Shortage of frozen meat products	3	4.6
Close-down of hospitality industry	13	20.0
Fear of eating meat	8	12.3
How many people have you employed?		
1-5	61	93.8
6-10	1	1.5
11-15	1	1.5
16-20	2	3.1
How many people have you laid off?		
There was no lay off	60	92.3
I have laid of all employees	2	3.1
I have laid off some workers	3	4.6

3.3 Preparedness and potential interventions for COVID-19 according frozen meat business operators in the Tamale metropolis

Table 3 shows the preparedness and potential government interventions proposed by frozen meat businesses operators during the COVID-19 period. The majority (75.4%) of the frozen meat business operators were prepared for COVID-19, however, 24.6% of the frozen meat business operators were not prepared for COVID-19. They were prepared by making sure that they had safety measures in place (75.5%), stored meat in advance for their clients (22.5%) and stopped selling meats on credit (2.0%). Some of the frozen meat business operators were not prepared for COVID-19 because they least expected that COVID-19 will cause havoc for their business.

The frozen meat business operators admitted that, if lockdowns continued for more than five months, their business will collapse (44.6%), they will close down their business (43.1%), they will run into debt with my financiers (6.2%), they will be out of working capital (4.6%), and some workers will be laid off or some products will expire (1.5%). Similar, observations were

made by Purdy [2] 17 Bogart [17] and Antolin [18], who reported close down and reduction in workforce in meat businesses due to COVID-19.

Frozen meat business operators expected the Government of Republic of Ghana to reduce taxes at the harbor (69.2%), support them with working capital (20.0%), manage the exchange rate (7.7%) and 3.1% wanted both taxes reduced at the harbor and the exchange rate managed during COVID-19 period. The Government of Ghana on her own has provided measures to prevent the spread of COVID-19 and its effects on businesses during COVID-19. Some of these measures are partial lockdowns, closure of borders, provision of tax relief for health workers and provision of a stimulus package for some business operators including frozen meat business operators to provide some financial relief for their businesses.

With regards to the potential government interventions to ensure the survival of frozen meat business post COVID-19 period, the frozen meat business operators proposed that, the Government should 1) ensure that meat prices are massively reduced in the country (41.3%),

2) provide financial support for the meat business (23.8%), 3) increase education on hygiene in meat businesses for them to increase their operations (20.6%) and 4) others like improve healthcare, increase local production of meat, and equal distribution of resources among the regions of Ghana (14.3%). The provision of financial services,

facilities for large scale production of animals and processing, large refrigerated storage facilities, and backyard and home rearing of animals have been suggested as long term strategies to combat future pandemics in the livestock and meat industry [10,20,21].

Table 3: Preparedness for COVID-19 among frozen meat business operators in the Tamale metropolis of Ghana.

Variable	No. of respondents	Percentage
Were you prepared for COVID-19?		
Yes	49	75.4
No	16	24.6
If yes, how?		
Stored meat for my clients	11	16.9
Stopped selling on credit	1	1.5
Took safety measures	37	56.9
If no, why?		
Least expected its nature of crisis	16	24.6
If this lockdown continues for more than 5 months how will it affect your business		
It will collapse my business	29	44.6
I will be out of working capital	3	4.6
I will run into debt with my financiers	4	6.2
Some workers will be laid off and some products will expire	1	1.5
Closedown business	28	43.1
Potential government intervention during COVID-19 period		
Reduce taxes at the harbor	45	69.2
Support them with working capital	13	20
Manage exchange rate	5	7.7
Reduce taxes and manage exchange rates	2	3.1

4. Conclusions

The frozen meat business was dominated by males. Frozen meat business was mainly on a full-time basis. The gender, education, nature of engagement (full or part-time bases) and length of being in the frozen meat business had no significant influence ($P < 0.05$) on the impact and level of preparedness for COVID-19 among frozen meat business operators. The source of working capital had no influence ($P > 0.05$) on the impact of COVID-19, but did influence ($P < 0.05$) the preparedness of the frozen meat business operators for COVID-19. Low sales were the most important current impact and disruptive effect of COVID-19 on the frozen meat business. Frozen meat business operators were also negatively affected by COVID-19. Frozen meat business operators laid off some workers and pay cuts due to COVID-19. Most of the frozen meat businesses will collapse if COVID-19 with its associated lockdown lasts for more than 5 months. The majority of the frozen meat business operators were prepared for COVID-19. As a long term help for COVID-19 pandemic,

frozen meat business operators wanted the Government of Ghana to reduce taxes at the port and support them with income after the pandemic in the country.

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APPENDIX 1: SUPPLEMENTARY DATA The Impact of COVID-19 on Frozen meat Business and the Effect on Food Security in Tamale Metropolis

This survey is carried out by a group of researchers in University for Development Studies to study **the impact of COVID-19 on frozen meat business operators in Tamale metropolis**

- Gender: a. Male [] b. Female [].
- Educational background: a. None [] b. Basic [] c. Secondary [] d. Tertiary [] e. Others (specify).
- Tribe: a. Dagomba [] b. Akan [] c. Kasena d. Mamprusi e. Dagati f. Others.
- How long have you been in the frozen meat business
a. 1-12 months [] b. 13-24 months [] c. 25-36 months [] d. 37-48 months [] e. above 48 months [].
- Source of working capital a. Owners income [] b. equity [] c. loan from family and friends' [] d. loan from bank [] e. loan and owner's income [].
- How will you describe the current impact of COVID-19 and lockdown policies on your business?.
- How do you rate the impact of COVID-19 on your business revenue? a. Negative [] b. Neutral [] c. Positive [].
- Why is it so?.

9. Are you engaged in frozen meat business as Full-time business Part-time business .
10. How many people have you employed?. a. 1-5 b. 6-10 c. 11-15 d. 16-20 e. others (specify).
11. Have you laid off some workers as a result of COVID-19?. a. Yes b. No .
12. If yes why?.
13. If no why?.
14. How will you describe the disruption of COVID-19 on your business?.

Rank from highest to lowest (1-7)

Description	Ranking (1 = lowest to 7 = highest)
I do not get products (frozen meat) to buy	
The products are there, but expensive	
The products are few and expensive	
Sale of products has gone down	
Sale of products has gone up	
Prices of products have increased	
I am considering increasing my price	

15. Were you prepared for COVID-19 pandemic?. a. Yes b. No .
16. If yes, what did you put in place?.
17. If no, why?.
18. What will be the impact on your business if the lockdown continues for 5 months.
19. What would you have wanted the government to do for the frozen meat business this period?. a. Control the exchange rate b. Reduced taxes at the port c. Make resources available (working capital) d. Others (specify).
20. What do you want the government to do for frozen meat business after COVID-19 period to ensure that you survive future pandemics?.