UNIVERSITY OF CAPE COAST

THE IMPACT OF COVID-19 ON OIL MARKETING COMPANIES (OMCs): A STUDY IN THE GA WEST MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

REGINA ETSE

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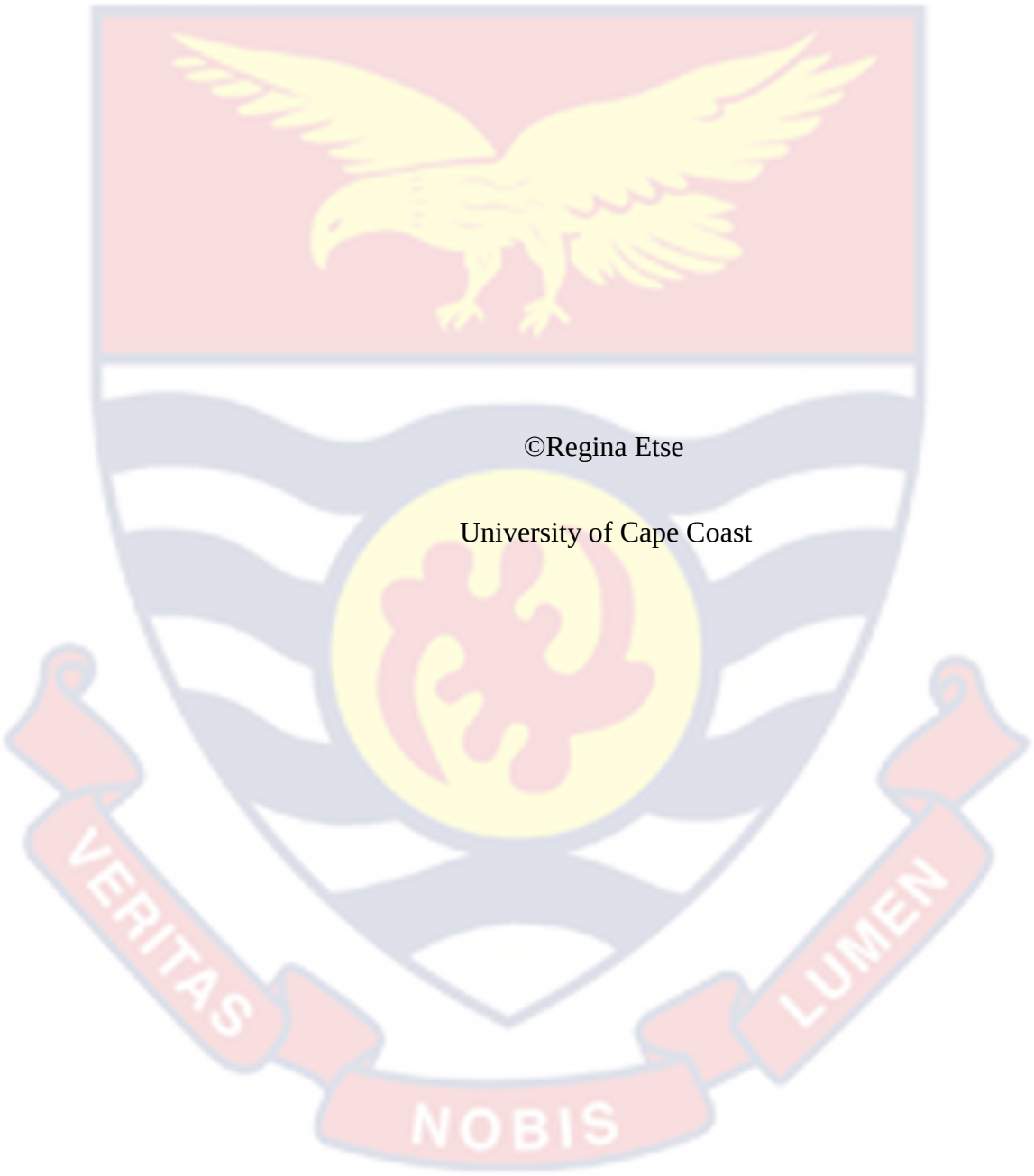

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THE IMPACT OF COVID-19 ON OIL MARKETING COMPANIES (OMCs): A STUDY IN THE GA WEST MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

BY

REGINA ETSE

Thesis submitted to the Institute for Oil and Gas Studies, the Faculty of Social Sciences, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfillment of the requirement for the award of Master of Philosophy degree in Oil and Gas Resource Management

SEPTEMBER, 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature…… Date……

Name: Regina Etse

Supervisors' Declaration

We hereby declare that the preparation and presentation of this thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature……. Date……

Name: Dr. Edward K. Nunoo

ABSTRACT

This study sought to examine the impact of COVID-19 on Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region, Ghana. The study employed the mixed method approach as the main research approach, and the sequential explanatory design as the main research design. Through quantitative and qualitative data, the study demonstrated that indeed COVID-19 had several effects on oil retail outlets in the municipality. The study established that COVID-19 negatively impacted oil marketing outlets, affecting customer inflow, overall sales, operations, workers, interpersonal contact, financial flow among others, and positively improved sanitary conditions, personal hygiene and reduced congestion at heavily packed fuel stations. Also, measures put in place to sustain OMCs in the face of COVID-19 were purely self-help and not government intervention in the Ga west Municipality.

It was recommended that the government of Ghana should offer some form of support to the OMCs in case any pandemic of this nature pops up in the near future. This will help release the burden of patronizing PPEs and other materials by the OMCs. Also, Staff members are encouraged to perform hand hygiene frequently, follow respiratory etiquette recommendations and regularly clean and disinfect surfaces at the work area, mainly office and forecourts. The study further recommended that there should be extension of the period of tax payment by Ghana Revenue Authority (GRA) in case any pandemic of this nature pops up in the future to help relieve some financial burden from the OMCs.

KEY WORDS

COVID-19

Oil Marketing Companies

Oil and Gas

Ga West Municipality

Fuel Retail Outlets

Pandemic

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DEDICATION

To my beloved Parents, Mr. and Mrs. Nuamah, Siblings, Children, Husband, Godfather, Mr. Edmund S. Akomeah and my Super Dad and Mum, Mr. Frank Yaw Etse and Cecilia Kukuaa Arthur.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

OMCs	Oil Marketing Companies
NGLs	Natural Gas Liquids
LPG	Liquefied Petroleum Gas
WHO	World Health Organization
GNPC	Ghana National Petroleum Corporation
NOC	National Oil Company
PNDC	Provisional National Defense Council
GNPC	Ghana National Petroleum Council
AOMC	Association of Oil Marketing Companies
TOR	Tema Oil Refinery
RAGB	Revenue Agencies Governing Board
CEPS	Customs Exercise and Preventive Services
IRS	Internal Revenue Service
BOST	Bulk Oil Storage and Transportation
LPGMCs	Liquefied Petroleum Gas Marketing Companies
PWSL	Petroleum Warehousing and Supplies Limited
BDCs	Bulk Distribution Companies
UPPF	Unified Petroleum Pricing Fund
OPEC	Organization of Petroleum Exporting Countries
GDP	Gross Domestic Product
PMS	Premium Motor Gasoline
AGO	Automotive Gas Oil
IK	Illuminating Kerosene
TF	Total Factor Productivity

WTI	West Texas Intermediate
MMDAs	Metropolitan, Municipal and Districts Assemblies
CSOs	Civil Society Organizations
OGIO	Oil and Gas Industry
OHS	Occupational Health and Safety
SMEs	Small and Medium Enterprises
WFT	Work from Home
OTCs	Oil Trading Companies
BRV	Bulk Road Vehicle
NPA	National Petroleum Authority
MoEP	Ministry of Energy and Petroleum
IEA	International Energy Association
EIA	Energy Information Agency
IMF	International Monetary Fund
EI	Executive Instruments

CHAPTER ONE

INTRODUCTION

Background to the Study

The novel coronavirus whose outbreak originally began in Wuhan, China in 2019 otherwise referred to as the COVID-19 pandemic, has had both positive and negative implications on virtually all spheres of life (Rabi, Al-Zoubi, Kasasbeh, Salameh & Al-Nasser, 2020). Such impacts re-echoed in the Oil and Gas Industry. The Oil and Gas industry reinforces the survival of other vital industries through the provision of cardinal services such as; transportation services, the supply of power, including electricity, lubricants provision and also serves as a source of varied range of petrochemical products (Cai, Maguire & Winters, 2019).

Operating at three levels which comprises the upstream level, midstream level and the downstream segments, Oil and Gas Industry is phenomenal for the survival and welfare of individuals world-wide (Osoro, 2018). The Oil and Gas Industry's midstream sector primarily manages the storage, marketing, and transportation of products like crude oil, natural gas, natural gas liquids (NGLs, primarily ethane, propane, and butane), and sulphur from production sites to refineries via pipelines, trains, tankers, and trucks. The upstream sector includes the exploration and production of oil (Chege, 2013). The downstream section of the oil and gas industry includes petrochemical facilities, retail stores, natural gas distribution firms, and businesses involved in both the marketing and distribution of refined petroleum products (Longwell, 2002).

In general, the Oil and Gas industry like other key industries in the world have had a feel of the impacts of COVID-19 in all of their three sub-divisions such that COVID-19 had bearings on their activities (Barbosa, Bresciani, Graham, Nyquist & Yanosek, 2020). Nonetheless, Oil Marketing Companies (OMC) which fall under the downstream segment remain one of the notable segments within the Oil and Gas Industry which has been saddled gravely by the impacts of COVID-19 right from the onset of the pandemic till date. In this particular study, OMCs refer to oil and gas business outlets that markets refined petroleum products to both bulk and retail consumers through fuel station outlets. Kelland (2016), argued that, the functions of the OMCs include importing and marketing of petroleum products like petrol, diesel/gas oil, Liquefied Petroleum Gas (LPG), kerosene and lubricants to mention but few.

The COVID-19 has had and continue to pose effects when it comes to the discharge of the roles of OMCs since the pandemic in itself occurred at a time where competition for market share over supplied global energy markets existed among two member states of the Organization of the Petroleum Exporting Countries (OPEC) such that the pandemic had brought in its wake an unanticipated energy supply shock that caused a plunge in crude oil prices (Mazur, Dang & Vega, 2021). Akhtaruzzaman, Boubaker, Chiah and Zhong (2021) added that, prevailing factors of this kind were yet to receive solutions when as a result of the COVID-19 they became exacerbated with shelter-in-place and stay-at-home policies, which had impacts on the overall operations of OMCs. The initial phases of the pandemic were marked by the introduction of array of measures such as the implementation of full or partial lockdown

measures, the swift curtailing of commercial air travel and other measures of the kind which had impacts on the global economic system and in effects caused an unprecedented decline in demand for oil and gas (Prabheesh, Padhan & Garg, 2020).

The start of the COVID-19 pandemic was featured with cases where OMCs were faced with myriads of adverse impacts ranging from revenue losses, reduction in sales, increased costs of operation, value chain disturbances and funding withdrawals to severe trade contraction among others (Corbet, Goodell & Günay, 2020). Mhalla (2020) similarly posited that, at the initial stages of the contraction of COVID-19, operators of OMCs waited to see how the pandemic would play out due to the high level of uncertainty that was associated with the pandemic. This negatively impacted on transactional activities of the OMCs by way of reducing their marketing sales (Mhalla, 2020). The COVID-19 caused a reduction in demand for motor, air transport and other activities of similitude which were anchored on direct supplies from the Oil and Gas industry, and thus had negative impact on the OMCs (Padhan & Prabheesh, 2021). OMCs were met with setbacks in maintaining staff levels, OMCS had to lay off their workers amidst the pandemic since the indoor stay of workers and customers plummeted the sales of OMCs (Papanikolaou & Schmidt, 2020). More worrisome, Bernauer and Slowey (2020) indicated that, fuel supply stations used by OMCs served as one of the key centers of transmission and spread of coronavirus where staff members of OMCs contracted COVID-19.

In contrast to the above negative effects, Hawash, Abuzawayda, Mokhtar, Yusef and Mukred (2020) argued that, the COVID-19 pandemic had

positive effects on the OMCs such that, it gave OMCs a snapshot of how the market would look like should oil demand finally hit its peak. In a positive way, OMCs have experienced the probable conditions they are to face in a real shrinking market borne out of the experiences gained from this pandemic and have as a result seized the opportunity to redress the weaknesses exposed during the pandemic (Norouzi, 2021). Prasadja-Ricardianto, Mulyono and Sakti (2021) identified that, OMCs are therefore better prepared to face a real peak in oil demand scenario should the need arise in the future. More so, the pandemic has created a new sense of firmness to expedite the widespread application of technologies among OMCs (Iyke, 2020).

The COVID-19 plague has instigated OMCs to become privy of the need to utilise technology for their operations in order to get its indispensable benefits in the form of operational efficiencies, enhancement of safety of the assets of OMCs, the industry's appeal to the tech-savvy younger generation and the reduction of their carbon footprints (Serbulova, Morgunova & Persiyanova, 2020; Wang, Yang, Xuan & Jiao, 2020). Yaya, Otu, and Labonté (2020) were as such of the conviction that, the COVID-19 has not been entirely negative on the part of OMCs since it has reminded them of the need to invest in improving their online, digital and technological infrastructure.

Globally, OMCs have been riddled with both the positive and negative impacts that were associated with the Coronavirus pandemic because the pandemic permeated all continents (Hauser, Anke, López, Möst, Scharf, Schönheit & Schreiber, 2020; Iyke, 2020). In continents like Asia, Europe, America and Australia, OMCs have been subjected to positive and negative impacts in their sales, revenue and activities as a whole, all of which are

attributed to the Coronavirus pandemic. For example, in countries like Belgium, Ukraine, Canada, Italy, India, China and the United Kingdom where the rate of infections and death tolls linked to COVID-19 skyrocketed, OMCs continually experience the impacts of COVID-19 in the course of undertaking their duties (Åslund, 2020; Bernauer & Slowey, 2020; Ghiani, Galici, Mureddu & Pilo, 2020; Salisu, Ebuh & Usman, 2020).

Africa has also had its own share of the impacts of the Coronavirus on its Oil Marketing Companies (Rutayisire, Nkundimana, Mitonga, Boye & Nikwigize, 2020). For instance, in African countries like Nigeria, South Africa, Morocco, Tunisia and Mozambique that were hit hard by the Corona virus, OMCs have been embroiled with positive and negative impacts from the virus (Akrofi & Antwi, 2020; Mogaji, 2020; Padhan & Prabheesh, 2021). In Nigeria for example, OMCs like Adebayo Group of Company, Advo Oil and Gas Service Limited, Ajibat Petroleum Limited and Aliman Filling Station experienced the impact of COVID-19 in their operations (Farayibi & Asongu, 2020).

In Ghana, Oil Marketing Companies located in parts of the country that were declared as epicentres for the COVID-19 pandemic were been confronted with diverse impacts in their activities borne out of the pandemic. According to Baah-Acquah, Freeman and Ellis (2017) OMCs operating in Ghana are mainly multinationals and a couple of small-to medium-scale local OMCs. OMCs such Goil, Total, Shell, Star Oil Company, Kosmos Energy, Allied Oil, Glory Oil, Reliance Oil, Star Oil, Angio Company and others have achieved some strides in downstream activities like the promotion and supply of petroleum products to their customers and the general public in Ghana

(Vandapuye, 2018). However, Oil Marketing Companies across regions in Ghana that were epicentres of the pandemic, were met with impacts in their operations, financial transactions, sales and others as a result of the COVID-19 and the actions put in place to foreclose its spread and transmission (Asante & Mills, 2020). In an effort to save lives of Ghanaians and to reduce the impact of the pandemic on the part of the Ghanaian people, transport restrictions, stay-at-home orders and lockdowns were put in place by the Ghanaian government. Measures of this kind put in place by the Ghanaian government dramatically reduced personal transport activities leading to a decline in demand for oil by Ghanaians and its cascading effects on the operations of the OMCs (Insaidoo, Arthur, Amoako & Andoh, 2021). Fewer customers purchased fuels due to lock-down restrictions and stay-at-home orders leading to a decrease in their general sales level too.

In the Ga West Municipality of the Greater Accra Region, following the record of its first cases of the COVID-19 pandemic which caused the Government to institute means meant to reduce its spread, it has seen OMCs in Ghana's capital engulfed in its impacts too (Insaidoo, Arthur, Amoako & Andoh, 2021). For example, OMCs like the Goil Fuel stations and others located in areas like Amasaman, Pokuase, Ayawaso, Tantral Hill, New Achimota, Medie, Hebron, and Sapeiman were embroiled in the impacts of COVID-19 to the degree that, they had to re-strategize in order to meet the needs of their customers during the COVID-19 pandemic (Schotte, Danquah, Osei & Sen, 2021).

The Ga West Municipality of the Greater Accra Region of Ghana was chosen for this study because it was declared as one of the epicenters of the

COVID-19 pandemic (Asante & Mills, 2020). In the same way, Ga West Municipality hosts several OMCs which are multilateral and private in nature (Tawia, 2018; Vandapuye, 2018). There are also reports indicating the extent to which OMCs in the Ga West metropolis were grappled with positive and negative impacts from the COVID-19 in their operations, sales and way of discharging their roles in general (Amoako, Donkor, Kwarteng & Fordjour, E., 2022).

Statement of the Problem

Ghana's Oil Marketing Companies (OMCs) were plagued with both positive and negative impacts borne out of the COVID-19 pandemic (Lukman, Rauf, Abiodun, Oludoun, Ayinde & Ogundokun, 2020). The consequence of the COVID-19 pandemic on the part of these OMCs especially those ones that were geographically situated in urban parts of Ghana viewed as epicentres of the Corona Virus were experienced in terms of their operations, revenue, labour turnover, overall sales and in other acts of similitude (Asante & Mills, 2020). OMCs in Ghana saw plummet in their sales, laid of some of their workers, saw a decline in their revenue and change in their way of operations while some of their workers were directly infected by the COVID-19 (Insaidoo, Arthur, Amoako & Andoh, 2021). OMCs in Ghana have ever since equally adjusted their ways of discharging their duties including making efficient utilization of digital devices to improve their services offered to vendors as well as the strict adherence to laid down protocols for combating the COVID-19 (Insaidoo, Arthur, Amoako & Andoh, 2021).

In spite of the above, literature only abounds with studies that focus mostly on the effect of the COVID-19 pandemic on the upstream oil and gas

industry in general, and some part of the downstream sector precisely at the refinery aspect and the response of such upstream bodies on the impacts of COVID-19, with majority of the studies even done beyond the Ghanaian setting (Hanieh, 2021; Iyke, 2021; Prasadja-Ricardianto, Mulyono & Sakti, 2021; Yamini, 2020).

Even in the Ghanaian society, the few studies that attempted looking at the effect of COVID-19 on the oil and gas industry either emphasised on the upstream segment and their response to pandemic or looked at the impact of the pandemic on all sectors of the economy in general without unveiling its influence on downstream segments like OMCs (Akrofi & Antwi, 2020; Asante-Poku & Van-Huellen, 2021; Insaidoo, Arthur, Amoako & Andoh, 2021; Ofori, Frimpong & Babah, 2020).

But similar studies have been done in Europe and Canada, with regards to the impact of the pandemic at the downstream sector. The study wanted to use the same methodology used in conducting such research to see if the same results will be replicated if the same research is conducted in Ghana. The current study intends filling this gap in literature by examining the impact of COVID-19 on oil marketing companies in the Ga West Municipality of the Greater Accra Region of Ghana.

Objectives of the Study

The main objective of the study is to examine the impact of COVID-19 on Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region of Ghana. The specific objectives are:

1. Assess the effects of COVID-19 on sales at marketing outlets (Fuel stations).

2. Analyse the effects of COVID -19 on fuel marketing operations in relation to health and safety.
3. Evaluate measures in place to sustain OMCs in the face of COVID-19.

Research Questions

The purpose of this study as stated above could be achieved by navigating through the following research questions:

1. What are the effects of COVID-19 on sales at marketing outlets (Fuel Stations)?
2. What are the impacts of COVID-19 on fuel marketing operations in relation to health and safety?
3. What are the measures in place to sustain OMCs in the face of COVID-19?

Significance of the Study

In spite of the institutional and other mechanisms put in place by various stake holders in the Oil and Gas firm to foreclose this phenomenon, OMCs continue to bear the brunt of the COVID-19. This research therefore seeks to reveal the impacts of the COVID-19 on OMCs (Fuel Retail Outlets) so as to offer deep meanings to the root issues responsible for them. In addition, by unmasking these impacts borne out of the COVID-19 on OMCs via this study, the findings would go a long way to help OMCs prepare adequately to mitigate such impacts on the part of their companies, should impending pandemics occur. There have been recommendations made based on the findings from this study which would also serve as a useful source of information for the various stakeholders such as the OMCs

that were already engaged in advocating and in peaking efforts to end such impacts of the COVID-19. This would also ensure their efforts will be enhanced in a manner that will cause them to arrive at effective perpetual ways of foiling its ramifications on the part of their customers and staff. The results of this study would be an addition to the subsisting knowledge on COVID-19 pandemic and also complement the minimal literature on COVID-19 and its impact on OMCs.

Finally, the outcomes may serve as a baseline for policy formulation and serve as a basis for further research works to be conducted on COVID-19 and its impact on OMCS as well as their associated fields of study by other researchers too.

Delimitations of the Study

Geographically this study was delimited to the oil marketing companies in the Ga West Municipality of the Greater Accra Region of Ghana. In terms of content, the study was delimited to the effect of COVID-19 on oil marketing outlets, effect of COVID-19 on fuel marketing operations in relation to health and safety and the measures to sustain OMCs in the face of COVID-19.

Limitations of the Study

This study should have included all oil marketing companies in the Country. The study was restricted to the Ga West Municipality and some selected OMCs in the Municipality as well as the literacy rate of the respondent with regards to filling of the questionnaires. Thematically, the focus was on the impact of COVID-19 on oil marketing companies.

However, steps were taken to ensure that these limitations do not affect the reliability and credibility of the outcomes of the study.

Organisation of the Study

This research is organized into five main sections so as to ensure chronological presentation and an easy grasp of issues. Chapter One sets the tone for the other aspects of the study, and deals with the introduction which encompass the background of the study, statement of the problem, objectives of the study, research questions, significance of the study, delimitation and limitation and organisation of the study. Relevant literature to the topic under investigation is reviewed in chapter two. Under this, the literature on the impact of COVID-19 on Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region of Ghana was extensively discussed. It offered the theoretical, conceptual and empirical framework for the study.

Chapter three discusses the procedures and techniques that were employed in conducting the study. It therefore described the study area, research design, target population, sampling procedure, sources of data, data collection methods, instruments, data processing and data analysis procedure, ethical issues and field challenges. Chapter four dealt with analysis of data as well as the interpretation and discussion of findings of the study in reference to the literature/previous findings. The final chapter focused on the summary, conclusions, and recommendations and made suitable suggestion for further research based on the findings obtained from the study.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

Literature review is relevant to every research as it provides a justification for the study. It also offers a background that supports the study and lays a foundation towards understanding the research and drawing implications (Bernauer & Slowey, 2020). This chapter reviewed related literature on theoretical, conceptual and empirical studies on the effect of COVID-19 on oil marketing companies in the Ga West Municipality of the Greater Accra Region of Ghana. The Institutional theory, the General Equilibrium theory and the Game theory were reviewed to support this research. The concept of downstream petroleum sector was also examined along with empirical findings on the subject matter. The perspectives and overview of the petroleum sector were also appraised.

Understanding the COVID-19 Pandemic

COVID-19 has halted all activities on a global scale in all economic sectors and industries. Since it emerged in January 2020, the COVID-19 pandemic has had a profound impact on a variety of nations and continents. The lockdown policies enacted and put into effect by nations all over the world and circulated throughout the populace are mostly to be blame for the disturbances. Production halts, commodity and person movement limitations, border closures as a health precaution to decrease the pandemic's effects, logistical difficulties, as well as a slowdown in trade and economic activity, are all consequences of the COVID-19 lockdown measures. However, devastation to major cities has been the most severe. This is amply

demonstrated by the fact that major cities have developed into the COVID-19 disease's epicenters, acting as the primary hubs for worldwide travel. In Nigeria, Ghana, and South Africa, major cities like Lagos, Accra, and Johannesburg, for example, have had the highest incidence of COVID-19 sickness cases. Their daily social, economic, and political lives have been impacted by this (Kanason, 2022).

The COVID-19 pandemic, which began in Wuhan, China, was first reported to the World Health Organization's (WHO) headquarters in China on December 31, 2019. As of August 17, 2020, there were roughly 22.1 million cases that had been registered (Pwc, 2020). The flow of finished and semi-finished goods into the numerous countries that rely on China for commerce was impacted by its rise in China, one of the key centers for manufacturing and distribution in the globe. African oil-producing and reliant countries have been among the hardest hit by the COVID-19 pandemic and declining oil price. With the potential for economic ramifications, Ghana, Senegal, Nigeria, and Angola in particular continue to face new challenges every day (Ogundokun, Lukman, Kibria, Awotunde & Aladeitan, 2020). The COVID-19 has affected 215 countries and territories around the world and two (2) international conveyances (Afaha et al., 2020).

On March 12, 2020, the first two cases of COVID-19 were reported in Ghana culminating in the subsequent lockdown of Accra and surrounding towns as well as Greater Kumasi. The key impact of the pandemic on the economy was measured by employment and livelihood effect. In essence, the epidemic has affected a number of significant participants in the labor market, including workers, independent contractors, and the government (both as an

employer and regulator). Ghana's government had to make changes to its financial year budget to retain public sector workers on the payroll while also pursuing social intervention techniques to lessen the pandemic's adverse social consequences on the populace through rebates on utility charges (mainly water and electricity) (Baah-boateng, 2021).

At the height of the plague, the state also implemented a stimulus plan worth one billion Ghana cedis to aid struggling businesses. Private employers also used a variety of strategies, including working from home or running on shift, reducing working hours, and reducing salary, to lessen the consequences of COVID-19 on their businesses. These steps were taken in lieu of using the redundancy clause in the employer-employee relationship to prevent the probable collapse of businesses. Other employers were forced to let their employees go. The loss of 1,531 jobs from eight businesses in the Timber, Food, and Agro-processing industries of the manufacturing sub-Ceramics sector between April and June 2020 demonstrates the severity of the employment challenges and labor market restrictions brought on by the pandemic (Baah-Boateng, 2021).

Before the COVID-19 epidemic broke out, it was projected that Ghana's economy would grow by 6.8 percent in 2019, up from a provisional projection of 6.5 percent. This was significantly decreased to 0.9 percent after the epidemic hit Ghana in March 2020. In reality, the predicted growth for each sector in 2020 was significantly lowered, with the growth for the services sector being lowered from 5.8% to -0.8%. The forecast increase for industry was drastically cut by 7.8 percentage points to 0.8 percent, while the expected

growth for agriculture was reduced by 1.4 percentage points to 3.7 percent (Baah-boateng, 2021).

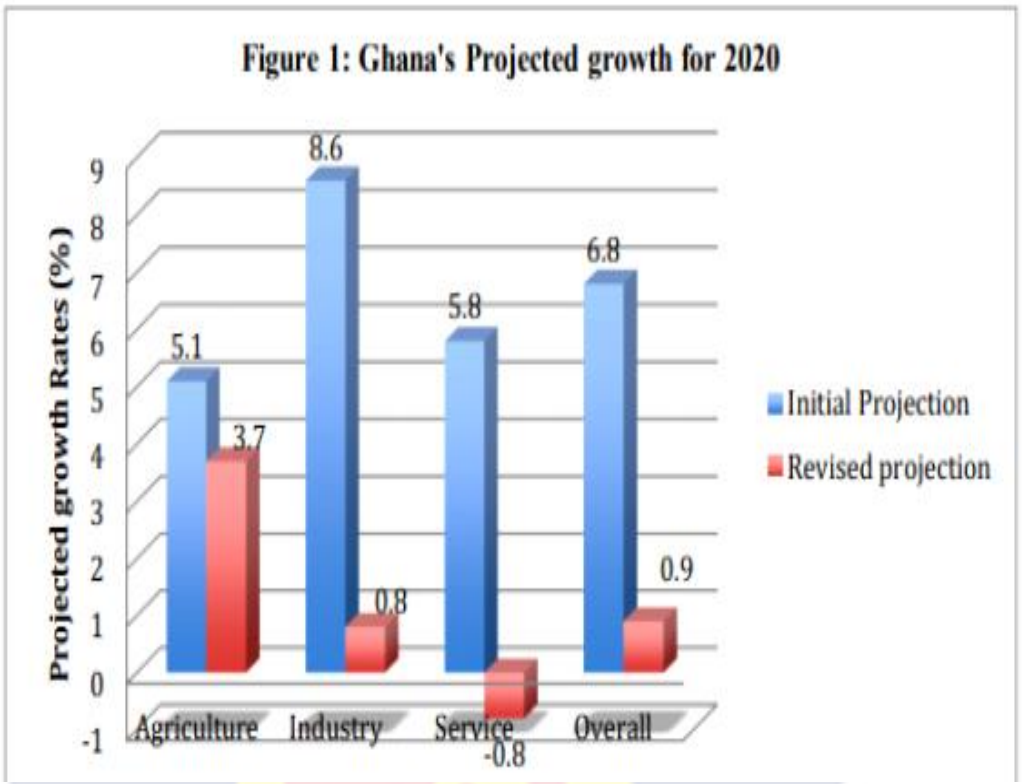

Figure 1: Represent the projected growth in Ghana for 2020.

Source: Baah-Boateng, 2021.

Services activities such as hotels and restaurants, trade, transport and storage, as well as real estates and oil and gas in the industrial sector were revised to negative (Figure 2). Oil and gas, and electricity in the industrial sector (hotel and restaurants) and health and social work in the services sector saw a downward revision of projected growth by 10.5–17 percentage points with information and communication, finance and insurance and cocoa revised downwards by less than 1 percentage points. This is represented in Figure 2 below.

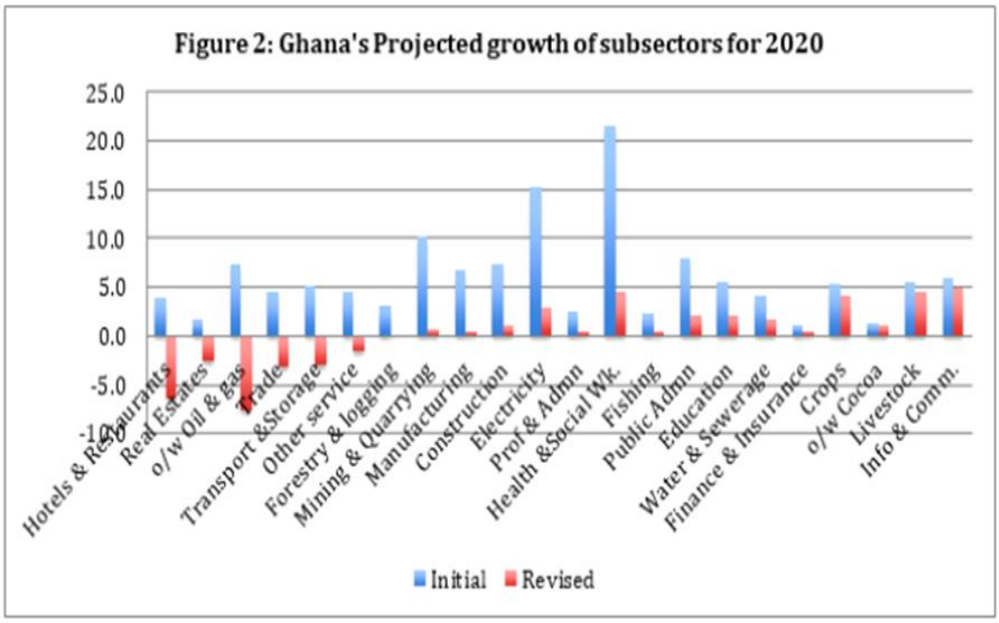

Figure 2: Ghana's projected growth of subsectors for 2020

Source: Baah-Boateng, 2021

Most prominent economists concur that the coronavirus pandemic would result in a global economic downturn. Gita Gopinath and Kristalina Georgieva, two prominent IMF economists, projected that the COVID-19 epidemic would cause a global recession (Qun et al., 2020). From February 24 to February 28, the value of the world's stock markets fell by over $6 trillion (Afaha et al., 2020). The World Health Organization disclosed regional data on the coronavirus disease's spread as of May 17, 2020, showing that Europe had the most infected patients, followed by America, Asia, Africa, and Oceania (Peterson & Thankom, 2020). The statistics are shown in Table 1. The likelihood that the infected virus would be entirely eradicated was increased by the fact that the African regions seem to be doing well and that the virus recovered more frequently.

Table 1: World Region Situation in Numbers as of 17th May 2020

Region	Confirmed case	Active Cases	Total Death	Total Recovered
Europe	1,761,352	844,155	161,672	755, 525
North America	1,662,832	1,138,254	101,950	422,628
South America	425,165	255,557	22,557	147,172
Asia	79,766	309,243	24,342	446,181
African	83,363	48,534	2,726	32,103
Oceania	3,647	631	119	7,897

Source: (Peterson & Thankom, 2020)

The lockdown kept the transportation industry, which is essential to the operation of the global supply chain, partially shut down. According to statistics, lockdowns was in effect since March 2020 in at least 90 different countries, and at their height in April 2020, more than 3.9 billion individuals were under lockdown (Sam, 2020). The worldwide supply chain had difficulties as a result, which had a negative influence on international trade and industrial production. It has caused a historic drop in oil prices for the global energy market, far below national government budgets and many oil-based company's predictions. Thus, implications for revenues, debt financing, development, and output arise.

According to Wood Mackenzie, the epidemic prevented roughly 33 percent of upstream investments from happening in Africa, including Ghana. This has repercussions for small industries connected to or dependent on the oil and gas value chain (Teinor, 2020). Even though Ghana is less dependent on crude oil than its sub-Saharan neighbors Nigeria and Angola, the impact of the decline in the price of oil on the nation's economy has been disastrous. Due

to COVID-19, the second-largest economy in West Africa was expected to expand at its slowest rate in 37 years due to the short- to long-term effects (Teinor, 2020). There were two types of effects the COVID-19 epidemic had on the global economy. One claimed that the spread of the virus encouraged societal alienation, which eliminated demand for crude oil and led to price drops from $70 per barrel to as little as $20 per barrel. Additionally, it resulted in the closure of financial markets, corporate offices, businesses, and significant global events (Teinor, 2020). Two, investors and consumers fled for safety in their spending and investment due to the virus's quick growth and the growing uncertainty about how bad things could get (Ozili & Arun, 2020).

As the demonic plague and widespread fear about the COVID19 outbreak continue to sweep the world, a lot of negative feeling hangs over the markets. According to the Energy Information Agency (EIA, 2020), the demand for oil would drop in major importers like China and European countries. This is because the EIA has revised its forecast for the world's oil demand downward ((Afaha et al., 2020). The latter has followed the pattern of the industry's output, which has slowed as the virus has impeded the production of products like waxes, scents, colors, shaving creams, shampoos, and conditioners that are dependent on refined oil. Even more pronounced was the downward trend in industrial production for all fuel types, from gasoline to diesel, which also decreased by 2.9 percent and 3.8 percent, respectively (Afaha et al., 2020). Figure 3 below shows the monthly crude oil and oil product price changes.

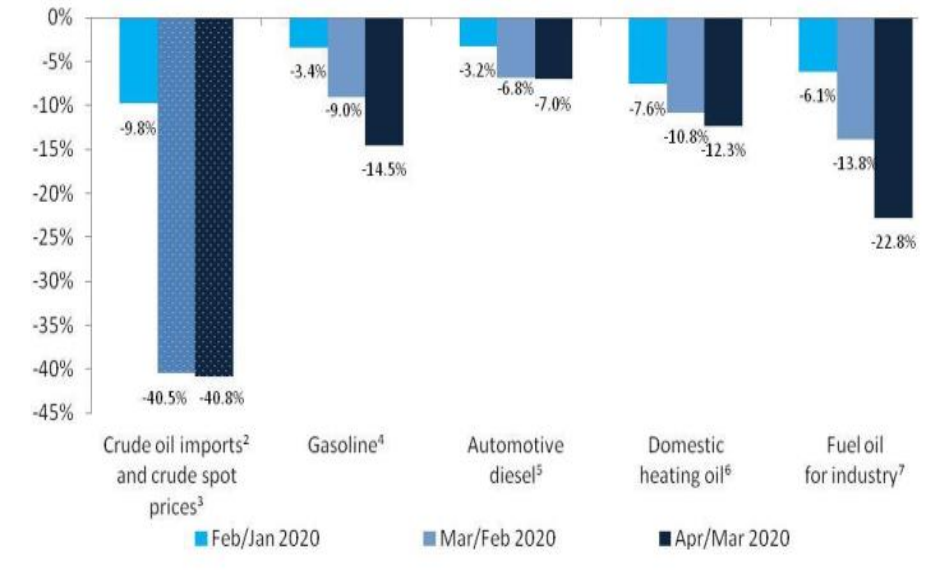

Figure 3: Latest International Energy Association (IEA) Monthly Crude Oil and Oil Product Price Changes

Source: Afaha et al., 2020

As a result, the effects on developing countries were much more obvious in the near future as tighter budgets were made worse by a weaker currency and higher interest rates. Crude oil imports were decreased by 13.4% (figure 3), which resulted in a slower rate of economic expansion.

The effects of COVID-19 on the global economy and the oil and gas industry were unprecedented. The measures implemented by nations worldwide to lessen the effects of COVID-19 have considerably decreased economic activity, leading to a historic drop in global GDP. Despite current predictions indicating a recovery was under way and turning positive in the final months of 2020 and into 2021, COVID-19 will have a lasting impact, with GDP down 2.1 percentage points in 2023. A big second wave could also increase the impact on GDP (Afaha et al., 2020).

Additionally, its effects and the required government responses will make the upcoming one to two years at the very least extremely difficult for the

global economy and social progress. Globally and in Africa, the oil industry is one of the sectors that will face substantial problems. The COVID-19 has different negative job and/or employment effects in Ghana depending on different economic activity and talents. The effects range from agriculture to industry, building, trade, hospitality, education, and finance. Different effects are produced by the formal (public and private) and informal sectors.

Downstream Petroleum Sector

Literature relating to oil, gas and other petroleum products marketing especially in the downstream petroleum is scanty. However, with a realization of effective linkage between marketing and supply chain management, the trend is increasingly changing. Lewin (2003) asserts that the sector's significance in meeting the bulk of transportation demands, supplying power, and acting as a base for the petrochemical industry supports the existence of other crucial businesses.

The exploration and production of oil goes through several processes before getting to the final consumer. The last process that crude oil goes through is the downstream sector. According to Addae (2020), the downstream sector of the oil industry is the area of the industry responsible for cleaning crude oil and processing it into various oil products. Crude oil is purified and treated during refining to extract the useable components from the undesirable ones. Refining is accomplished through separation, conversion, and treatment (Amponsah & Opei, 2017). Figure 4 below shows how the downstream petroleum activities are carried out.

Figure 4: Ghana's Downstream Crude and Products Supply Chain.

Source: Amponsah and Opei, 2017

Addae (2020), classifies the downstream petroleum sector to include the transportation and marketing of crude oil and its products. The transportation and marketing comprise the transfer of crude oil to consumers and the distribution and sale of the products made from crude oil. Delivering oil from a well to a refinery and getting the finished goods to service stations are the main concerns of the downstream sector, which necessitates a sophisticated system of storage and transportation (Addae, 2020). It entails capital-intensive and sophisticated engineering work that involves moving oil barrels across 14 pipeline networks, a fleet of tankers, railway tanks, and vehicles (Blamah, Vivian, Tagwi & Ezemokwe, 2021).

According to Ofosu-Peasah and Ackah (2017), the downstream petroleum sector includes oil and gas operations that take place from the point of production to the point of sale. By refining petroleum crude oil and natural gas processors and turning them into finished oil products that may be used by end users or final customers, the downstream petroleum industry is the last

stage in the production process of oil. The marketing and distribution of products made from crude oil and natural gas is also added to the downstream industry (Addae, 2020). Therefore, it follows that the downstream petroleum industry is the one that deals with the operations related to crude oil and natural gas postproduction. Diesel, natural gas, gasoline, heating oil, synthetic rubber, plastics, anti-freeze, fertilizers, lubricants, insecticides, medicines, and propane are some of the end goods refined in the downstream industry (Delsaut, 2014). According to Addae (2020), the downstream sector of the oil and gas industry is the one that people can most easily relate to, since it offers goods that are intimately linked to consumers.

Additionally, according to Ehinomen and Adeleke (2012), the downstream sector includes enterprises involved in the supply, trading, and marketing of goods. They added that some fuel products, such as gasoline, diesel, kerosene, jet fuels, heating oils, and asphalt for constructing roads, are refined in the downstream sector. In addition to being utilized to create synthetic rubber, fertilizers, preservatives, containers, and plastics for parts in countless items, some of the refined compounds found in both oil and natural gas are also used to generate synthetic rubber. The downstream sector also plays a key role in other sectors of economies including the medical and agricultural fields (Miron, Dima & Vasilache, 2010). This is so because, the sector provides the material used in some of the products and equipment needed and used by medical officers. In terms of agriculture, the downstream sector has a relationship with products used for pesticides and fertilizers, as well as the fuel needed to power farm equipment. The downstream sector includes activities such as loading of crude oil at the terminal, transportation,

supply trading, refining distribution and marketing of petroleum and the activities of filling stations or petroleum outlets (Addae, 2020).

Delivering the most value and client pleasure at the lowest cost is the aim of marketing. As a result of improved information and communication systems as well as technology, there are currently more options for coordinating marketing and supply chain activities across oil and gas enterprises (Chima, 2007). According to Ekperiware (2011), the downstream oil distribution is increasingly implementing a range of dynamic marketing activities and supply chain solutions, from crude oil selection to product distribution at the retail outlet, in response to uncertainty-related issues like oil prices, refining margins, and lengthy lead times associated with crude purchasing as well as product trading.

Challenges of Downstream Petroleum Sector

The downstream petroleum sector continues to be one of the important driving forces for the global economy. Despite the importance of the sector, downstream petroleum companies face a number of challenges due to the difficult operational environment. The variation or volatility in the prices of petroleum products is one of the major difficulties the downstream petroleum sector faces, as shown by Addae (2020) in her study. She claims that both direct and indirect forces influence oil prices, including internal industry factors (production and consumption, operational costs, logistics and transportation, etc.) that have a direct impact on oil prices as well as external factors (political affairs, currency strength, economic growth, etc.) that have an indirect impact. Additionally, it has been shown that price volatility and deregulation in the petroleum industry have sparked fierce competition in the

market for oil supplies, which has resulted in price declines (Bimha, Hoque & Munapo, 2017).

According to Amponsah and Opei's (2017) study, the inability to keep different quality of the same product separately and the absence of defined regulations for imported refinery petroleum products are challenges faced by downstream petroleum industry enterprises. Other challenges have been identified to include difficulty of matching the imported refine downstream petroleum pump price against its quality and difficulty in achieving maximum compliance of the National Fuel Standard Quality (Gruenspecht, 2012) as well as Poor forecasting leading to fuel and other petroleum products shortage and Inability of OMCs to refine crude oil locally (Amponsah, & Opei, 2017).

Another issue that Dugar (2007) highlights in his research is the downstream petroleum sector's lack of sufficient funding to timely implement, monitor, and assess certain energy policy concerns, particularly laws and technical geological research. Additionally, the regulation of the downstream petroleum sector suffers from a lack of human and technical expertise and from weak local currency and frequent exchange rate fluctuations (Manneh, Kozhevnikov & Chazova, 2020).

According to Addae's work from 2020, another issue that downstream petroleum sector companies must deal with is the mounting pressure from shareholders to focus on value creation rather than output due to low returns on investments. Other issues include shifting fiscal policies, managing expanding data volumes and knowledge management (Bratianu & Bolisani, 2015), safeguarding social license to operate, rising demand for oil and gas in most regions, adherence to an environment of volatile prices, and cost-saving

measures (Neill, 2017), as well as difficulties in research and development (Hall & Vredenburg, 2003).

The challenges of the oil and gas industry as described above have hit some major oil and gas producing companies that are in the process of employing sustainable development policies (Addae, 2020). The challenges of sustainable development also affect the oil and gas industry, including safety, subsidence, spills, increased profitability, water treatment or disposal, managing drilling muds and fluids, disposing of oil storage tanks, flaring and venting, decommissioning of oil and gas installations, and calculating and validating greenhouse gas emissions (Tomlinson, 2017). According to Addae (2020), the provision of sustainable energy has raised the risk potentials in business operations, resulting in greater investment costs. Additionally, since it continues to deteriorate each year, climate change poses significant risks to the industry (Neill, 2017). Global climate change is having disastrous effects on the world. More importantly, over the past few years, regional, cultural, and security disputes have developed, peaking in recent years, and there is insufficient infrastructure, security, and integrity of product supply, all of which pose serious challenges to the oil and gas sector (Atta-Kesson, 2013).

The various challenges, such as divergent government policies on primary distribution margin levels that prevent the business from investing in infrastructure expansion to meet the rising demand and improve efficient product movement between depots, as well as a lack of customer loyalty, have created a risky and tense business environment (Addae, 2020).

In conclusion the implementation of analysis on current data and future planning efforts based on such analyses may have great significance for the

world's downstream oil sector, including the Ghanaian sector, as challenges in the downstream petroleum sector are expected to change the flow of crude oil and petroleum products in the world as well as the business environment for the oil refining sector.

Perspectives on the Downstream Petroleum Sector in Ghana

The downstream petroleum sector in Ghana operates in the second configuration. In the second classification, the petroleum supply chain is split into the upstream and downstream parts, with the midstream activities carried out in petrochemical and refinery plants falling under the downstream category (Atta-Kesson, 2013). By incorporating the conventional mid-stream sector into the downstream sector, it divides the petroleum sector into upstream and downstream sectors. Therefore, the downstream sector activities also include the transportation of crude oil and refinery operations in addition to the more conventional downstream activities like the storage, transportation, distribution, and retailing of finished commodities. Because Ghana's downstream petroleum sector is being studied and follows the second configuration, this study concentrates on the second configuration. A description of the major stakeholders in Ghana's downstream petroleum business is provided in the following sections.

Ministry of Energy and Petroleum (MoEP)

The Ministry of Energy is in charge of formulating, implementing, monitoring, and evaluating energy policies. It is also in charge of supervising and coordinating the operations of agencies working in the energy sector. The Ministry of Energy and Petroleum (MoEP) is the government agency in charge of expanding and guaranteeing a consistent supply of energy services

to every sector of the Ghanaian economy in a way that is both energy sufficient and ecologically friendly (Amponsah & Opei, 2017). It serves as the industry's supervisor. The division of Energy, on the other hand, was established in 1957 to carry out governmental policies in connection to the provision of electricity, water management, petroleum products, and renewable energy. The Ministry's mission is to guarantee a sustainable and secure supply of energy for Ghana and beyond. Its objective is to increase accessibility and availability of energy services to all people in an environmentally responsible manner (Akosa, 2016).

The Ministry of Energy has undergone restructuring and name changes over the years. The Ministry of Energy and Petroleum was established on February 27, 2017, by Executive Instrument (E.I. 28). The division of Petroleum under the Ministry of Energy and Petroleum is in charge of petroleum exploration as well as the development and production of crude oil in Ghana. The Ministry's name was changed from Ministry of Energy to Ministry of Energy and Petroleum in 2012 (Ofori, 2015). In November 2014, the Ministry of Energy and Petroleum was divided into Ministries of Petroleum and Power (Energy Commission, 2013). The current Ministry of Energy was formed by the merger of the Ministries of Petroleum and Power (Amponsah & Opei, 2017). The purpose of the Ministry of Energy is to "keep the lights on, keep transportation moving" by developing a reliable supply of high-quality energy services for the Ghanaian economy and for export (Ofori, 2015).

In order to support economic growth and the eradication of poverty, the Ministry is responsible for ensuring that households in Ghana have access to adequate, dependable, and cheap energy supply. Its objective is to provide energy services that are easily available to everyone and are environmentally sustainable (Ministry of Energy and Petroleum, 2013).

Ghana National Petroleum Corporation (GNPC)

GNPC is the industry regulator for the Upstream Petroleum Sector of Ghana (Amponsah & Opei, 2017). The Ghana National Petroleum Corporation (GNPC) is Ghana's National Oil Company (NOC), established in 1983 by PNDC Law 64, to support the government's objective of providing adequate and reliable supply of petroleum products and reducing the country's dependence on crude oil imports, through the development of the country's own petroleum resources (Ofori, 2015). The company's objective is to develop into a world-class organization that can make Ghana the country in West Africa with the quickest rate of growth for upstream oil and gas investments (GNPC, 2011). Oil exploration inside the boundaries of the country is the responsibility of the Ghana National Petroleum Council (GNPC).

Since 2003, the petroleum industry has seen tremendous growth, especially since commercial quantities of oil were discovered in the Jubilee fields in 2007 (Ofori, 2015). Tullow Ghana, Kosmos Energy, ENI, and Hess Ghana Limited are a few of the more significant oil and gas contractors. Schlumberger, Baker Hughes, Weatherford, Ocean Rig, and Technip are some of their subcontractors (Asare, 2011). The first commercial oil lifting in Ghana occurred in January 2011, and 4.7 million barrels of crude oil were lifted from that point until April 2011 (Skaten, 2017). The Government of Ghana, the

GNPC, and petroleum operators currently have roughly 11 Petroleum Agreements, indicating rising interest in Ghana's oil business (Boison et. al., 2019). The corporation's clear objective is to develop into a world-class business that collaborates with the global petroleum sector to help Ghana identify and develop oil and gas resources for the country's citizens and potential investors (Petroleum Commission, 2011). Following its creation, the GNPC has now handed over its regulatory responsibilities to the Petroleum Commission.

Oil Marketing Companies (OMCs)

Oil Marketing Companies act as intermediaries between the Bulk Distribution Companies and the end users of petroleum products by engaging in the secondary storage as well as distribution. This secondary distribution of refined petroleum products is carried out mostly by oil service stations owned mainly by the OMCs. Several bulk road vehicles are used for distribution to the nation's numerous oil service stations. The bulk distribution firms provide petroleum products to the oil marketing firms, who then market them to the general public. In Ghana, the different filling stations, which are primarily operated by the Oil Marketing Companies, serve as the primary means of retail marketing for petroleum products (Amponsah & Opei, 2017).

In Ghana there exists an industrial association of the Oil Marketing Companies. The group is known as the Association of Oil Marketing Companies (AOMC) whose membership is made up of all OMCs and Liquified Petroleum Gas (LPG) marketing companies. In light of the liberalization of the oil sector in Ghana, the local oil marketing industry decided to organize an association because it was acutely conscious of the

need to maintain the Ghanaian market as a dynamic marketplace governed by stringent laws, morality, and fair play. The Association acts as the industry's mouthpiece and technical body for participating in the development of standards for both business conduct and operations for all, and as an agent for change (Amponsah & Opei, 2014). Its main aim is to help direct the downstream oil policy, legislation and regulation as well as pursuing the research that is geared towards developing the downstream sector (Boison et. al., 2019).

The Association represents the collective interests of the companies involved in the oil marketing and petroleum products in Ghana, coordinating with the major stakeholders in the industry which include: Ministry of Energy, Ministry of Finance & Economic Planning, Bank of Ghana, National Petroleum Authority (NPA), The Energy Commission, Environmental Protection Agency (EPA), Tema Oil Refinery (TOR), Revenue Agencies Governing Board (RAGB), Ghana Standard Board, Ghana Fire Service, Customs Exercise and Preventive Service (CEPS), Internal Revenue Service (IRS) and Bulk Oil Storage and Transportation Co. Ltd (BOST) among others (Boison, et. al., 2019). These partnerships are made to ensure that the collective interests of the Oil Marketing Companies are duly protected.

According to Addae (2020), the association currently has 3869 certified outlets nationwide, encompassing both large and small Oil Marketing Companies, including 1720 service stations, 1363 filling stations, 656 Liquefied Petroleum Gas (LPG) stations, and 130 reseller outlets. It is not necessary for an Oil Marketing Company to be a member of the association; despite the fact that it is thought that association members stand to gain from

corporate recognition (Amponsah & Opei, 2014). In times of emergency, Oil Marketing Companies can additionally provide petroleum products with the approval of the National Petroleum Authority (Akosa, 2016). Ghana Oil Co. Ltd, Total Ghana Ltd, Shell Ghana Ltd, Allied Oil Company Ltd, Radiance Petroleum, Hill Oil Marketing, Engen Oil, and Anasset Company Limited are among the major OMCs, or gas station companies, in Ghana's downstream energy sector. The OMCs and LPGMCs also own the retail businesses that supply fuel to customers at filling stations (Addae, 2020).

Bulk Distribution Companies (BDCs) and Oil Trading Companies (OTCs)

These companies have been licensed by the National Petroleum Authority (NPA) and granted bulk distributor licenses to oil and gas business companies to operate (Amponsah & Opei, 2017). These businesses are required to handle the initial storage and distribution of refined petroleum products. These refined products come from two main sources: finished products imported to make up for the Tema Oil Refinery's insufficient supply and refined products from Tema. The oil marketing firms are subsequently given access to these final goods. Additionally, they import crude oil and purchase, store, distribute, and market petroleum goods, primarily to large clients. These organizations also supply fuel products during times of distress (Akosa, 2016).

The BDCs also sell their goods to Oil Marketing Companies, who operate nationwide retail stores. Fuel Trade, Cirrus, Chase, ECO, Vihama, Springfield, Ebony, Oil Channel, Dominion, Alfa Petrol, Peace, Blue Ocean, TOR, PWSL, Hask, and First deep water are some of the biggest BDCs in

Ghana (Akosa, 2016; Amponsah & Opei, 2014). According to the 2016 National Petroleum Authority Report, between 2009 and 2014, the Bulk Oil Distribution Companies (BDCs) imported nearly 80% of completed goods for domestic consumption from Europe (Petroleum Commission, 2016).

Moreover, trading is one of the major components of Oil Trading Companies (OTCs). They import and re-export huge quantities of barrels of petroleum products. (PMS) petrol, kerosene and (AGO) diesel supply most Bulk Oil Distribution Companies (BDC) and off-takers in neighboring countries. Their ability to trade successfully is a result of their in-depth grasp of both domestic and international markets, as well as their years of experience and expert knowledge of petroleum products, grades, price structures, locations, demands, and timeliness (Amoako-Tuffour, 2010). Oil Trading Companies (OTCs) including Strata Energy, Plus Petroleum, and Chesdeg Petroleum are authorized to import refined goods for sale to the Bulk Oil Storage and Transport Company Limited (BOST) and BDCs, playing a significant role in the downstream industry (Akosa, 2016).

National Petroleum Authority (NPA)

The NPA was created in 2005 by NPA Act 691, which gave it the authority to oversee, monitor, and, where necessary, regulate activities in the petroleum downstream business in accordance with the established petroleum pricing formula (Amponsah & Opei, 2017). The Act also created the Unified Petroleum Pricing Fund (UPPF), whose goals include ensuring a consistent supply of petroleum across the country, ensuring that the prices of petroleum products include a component that represents the estimated cost of distribution, and achieving an effective petroleum products distribution

system. As a Regulator, the Authority ensures that the industry remains efficient, profitable, fair, and at the same time, ensures that consumers receive value for money.

The importation and refinement of crude oil, as well as the selling, marketing, and distribution of refined petroleum products in Ghana, are all included in the petroleum downstream industry (National Petroleum Authority, 2017). The various commercial activities of the industry include: importation, exportation, re- exportation, shipment, transportation, processing, refining, storage, distribution, marketing and sale of petroleum products. The NPA is an independent statutory agency that regulates the petroleum downstream business in Ghana. It does so to ensure effectiveness, growth, stakeholder satisfaction, the creation of a single petroleum price fund, and other related goals (Akosa, 2016). The sector is one of the most important subsectors and significantly contributes to Ghana's GDP. According to forecasts for 2020, it presently has more than 5,000 service providers and generates yearly sales worth roughly GHS22.3 billion ($3.92 billion), or about 6% of the nation's GDP (Boateng, 2022).

The NPA allowed the BDCs and OMCs to set their own prices by transferring to them its control and jurisdiction over setting petroleum product prices (Ayelazuno, 2014). In the past, government controlled the price of petroleum products through the industry regulator (National Petroleum Authority—NPA), absorbing certain increases as subsidies to safeguard consumers from market pressures (Awudi, 2015). As a regulator, the Authority ensures that the industry remains efficient, profitable, fair, and at the same time, ensuring that consumers receive value for money.

The NPA is governed by the chairman, the chief executive, one representative of the consuming public other than a person specified in the NPA act, one representative of the petroleum workers union, one representative of the Ghana National Chamber of Commerce, or the Ghana Chamber of Mines, and three persons of at least one whom is a woman and each of whom has specialized knowledge and experience in matters relevant to the functions of NPA. According to Article 70 of the Republic of Ghana's 1992 Constitution, the President of the Republic of Ghana appoints these members to the NPA (Akosa, 2016).

Table 2: Summary of Players in Ghana's Downstream Petroleum Sector and their Challenges

Actor/Stakeholder	Powers & Functions	Key Challenge(s)	Strategy
Ministry of Energy and Petroleum	•Formulation of energy policies. •Energy planning and policy advisory role.	• Operational and management difficulties. • An inadequate regulatory capacity,	• Improvement in the distribution network. • Encouragement of private sector participation
Ghana National Petroleum Corporation	•Oil and gas exploration, production and regulation.	• Poor infrastructure • Petroleum import dependency. • Lack of capital.	• Petroleum infrastructure development. • Availability of Petroleum market. • Effective Petroleum regulation framework.
Oil Marketing Companies (OMCs)	•Distribution and Marketing of petroleum products. •Licensed to procure petroleum products from TOR/BDCs for sale to bulk consumers and the general public through petroleum retail stations and outlets.	• Poor Forecasting • Inability of TOR to refine regularly • Frequent delay by government in reimbursing BDCs for under recoveries • Lack of storage facilities	• Allowing market forces to determine product prices through deregulations • Making BDCs more solvent whiles enforcing laws on non-performance
Bulk Oil Distribution Companies (BDCs) and Oil Trading Companies (OTCs)	•Licensed to import crude oil as well as procure, import, store, distribute, and sell petroleum products on wholesale to bulk customers including Oil Marketing Companies (OMCs). •Perform monthly volume forecast based on customer demand.	• Delay payment by customers • Lack of customer loyalty • Government non-payment of under recoveries resulting in locked up capital.	• Timely repayment of NPA subsidies and under recoveries to facilitate investment in infrastructure importation products in a timely manner.
National Petroleum Authority (NPA)	• Market regulations, licensing of oil marketing companies, procurement of oil for the nation. • Ensure fair competition in the industry	• Inadequate Infrastructure and Security, and integrity of product Supply.	• Installation of Bulk Road Vehicle (BRV) tracking system to ensure integrity and accuracy of product distribution countrywide.

Source: Amponsah and Opei, 2017

Theoretical Review

The theoretical review discussed three models including the institutional theory which seeks to explain the processes and reasons for organizational behavior as well as the effect of organizational behavior patterns within a broader, interorganizational context, General Equilibrium theory which is also useful in explaining the functions of prices in an economy and the Game theory which solves simultaneously a multi-objective and multi-level decision-making problems of supply and demand, which influence the acquisition and distribution of oil in Ghana.

Institutional Theory

The theory of institutions examines more substantial and durable components of social structure. The institutional theory is applicable to this current study in the sense that it offers explanations as to how external institutional pressures, such as government regulations and consumer expectations related to health and safety during the pandemic, influence the sales performance of oil marketing companies (OMCs) and fuel stations. It takes into account procedures, such as plans, guidelines, and customs, come to be recognized by institutions as authoritative standards for social conduct (Scott, 2004). Institutional theory is "a widely accepted theoretical position that prioritizes productivity, ethics, and legitimacy," according to Scott (2008). Researchers that adopt this viewpoint stress that ethics, rather than necessarily optimizing decisions, practices, and structures, is a core understanding of institutional theory and that organizations turn to their peers for pointers to proper behaviour.

Institutional theory is "policy-making that stresses the formal and legal features of governmental systems," according to Kraft (2007). The institutional principle looks at how fundamental guidelines for determining, defining, and rating social behaviour are created. These agreements comprise a number of rules, procedures, and standards (Scott, 2004). Organizations must abide by the laws and values that govern their environment in order to succeed and expand successfully (Scott, 1995). Institutional isomorphism is the term DiMaggio and Powell (1983) used to describe a scenario where both relevant and systemic procedures are crucial for organizations and will give them legitimacy. To link this to the current study, it can be explained that per the institutional theory oil marketing companies are expected to adapt certain strategies to conform to the changing norms that came with the COVID-19 pandemic.

The institutional theory is an approach to comprehending organizations and management practices based on social rather than economic influences (Oduor, 2010). According to institutional theory, organizational actions are imitated and repeated, creating norms that are taken for granted and eventually leading to widely accepted standardized standards of practice. In linking this to this study, it can be avowed that Oil marketing companies responded to institutional pressures related to health and safety regulations during the pandemic including their operations and safety protocols to align with such novel institutional norms. A country's institutional environment is influence by its legal and administrative structures, within which individuals, companies, organizations and government interact to generate income and

wealth. The level of institutional development will influence firms' investment decisions and organization of production.

The institutional environment includes factors such as the government views the market, how much freedom businesses have to operate, and how well the government functions. Sayan (2009) asserts that interactions between institutions and organizations have an impact on economic activity. According to Peng's (2003) argument, these interactions have an impact on the strategies used by the corporations. Additionally, he had noted that while numerous studies had been conducted on how businesses made strategic decisions, the majority of them involved businesses operating in stable institutional settings. A country's institutional profile, according to Scott (1994), is a collection of pertinent institutions that have been created and upheld over time by organizations and individuals. Institutions, he continues, are supported by three pillars: normative, regulatory, and cognitive. The distinctions between coercive, normative, and mimetic pressures were made by DiMaggio & Powell (1983).

Explicit regulatory processes, such as rule-setting, monitoring, and sanctioning activities, are a part of coercive institutional forces (Scott, 1994). Values and norms that "bring a prescriptive, evaluative, and compulsory dimension into social life" are examples of normative pressures (Scott, 1994). Mimetic pressures in institutional theory typically refer to the tendency of organizations to imitate the practices and behaviors of successful or prominent organizations in their field. These pressures are driven by the desire for legitimacy and the belief that adopting similar practices can lead to better organizational outcomes. Institutional theory is also impacted by social

justification, in which organizations seek legitimacy, or ramifications through which meaning is formed, in accordance with Dacin et al., (2007) and Scott (1994).

The level of a country's economic development is fundamentally correlated with the growth of its institutional approval of its acts, particularly in relation to the participants who directly depend on them, according to North (2009), who notes that each country has different institutional structures. Organizational structures are frequently changed by businesses to meet their aims (North, 2009). Institutional limitations and other constraints, such as the availability of technology and income for reinvestment, affect how firms evolve. Institutional arrangements can generate opportunities for action or barriers to admission (Hitt et al., 2004). As a result, institutional structure disparities will determine the choice of strategic action. According to Meyer et al. (2009), the entrance mood approach is impacted differently depending on the institutional setting by both institutional development and the demand for investors with local resources.

According to institutional theory, people are driven to behave in accordance with external social constraints. According to institutional theory, businesses make decisions based on norms that are reasonable and are influenced by the social environment in which they operate. External social constraints are also said to minimize the variance in business structures and strategies. Weak institutional structures worsen information asymmetry, raising the possibility of partnership formation and necessitating higher informational costs (Zilber, 2009). Joint ventures offer a way to gain access to networks and other resources held by regional businesses. This can assist in

overcoming the quirks of inadequate institutional settings. On the other side, as the institutional framework becomes more solid, the need for partners may decrease. The efficiency of markets, especially the financial market, which demands openness and the enforcement of contracts, is sensitive to the purchase entrance technique.

A weak institutional framework makes it difficult to obtain resources through market transactions, restricts entry through projects, and raises the cost of acquiring a company. Joint ventures, on the other hand, offer means to tap local resources in marketplaces where it is challenging to conduct impersonal transactions. In relation to the current study, it can be said that even in the middle of pandemics, OMCS are required to function in accordance with established procedures, standards, and norms while also paying attention to the performance of their social duties to the societies in which they operate. The theory of institutions was chosen for this study because it will shed light on the many managerial elements, legal frameworks, operational cultures, and the degree to which these characteristics aligned with the COVID-19 in the contexts in which they were used by OMCs. Institutional theory can help in understanding the institutional context within which OMCs operated during the pandemic. It can evaluate the effectiveness of measures taken by OMCs, such as cost-cutting, securing loans, and implementing safety measures, in conforming to external institutional pressures and sustaining their operations in a challenging environment.

The General Equilibrium Theory

The general equilibrium theory was created and advanced by French economist Léon Walras in the late 19th century (Hardy & Maguire, 2008).

Constant impacts in general equilibrium are regarded as noneconomic; therefore, they fall outside the purview of economic analysis (Walras, 2008). The general equilibrium uses a "bottom-up" methodology, starting with specific markets and actors, to provide an understanding of the entire economy. General equilibrium theory is suitable for this current study on grounds that it will go a long way in offering a framework to comprehend how the effects of COVID-19 on sales at the oil marketing outlets, influenced by changes in consumer behavior and reduced demand for fuel and related products due to the pandemic will contribute to disruptions in the equilibrium of the oil marketing sector and broader economic factors. In an economy with numerous marketplaces, supply and demand interact dynamically and ultimately lead to a price equilibrium, according to the general equilibrium theory, a macroeconomic theory.

According to the hypothesis, there is a discrepancy between actual and equilibrium prices. The theory's objective is to pinpoint the precise set of conditions under which the equilibrium price is most likely to become stable. General equilibrium theory is therefore typically categorized as a subfield of microeconomics and that since much of contemporary macroeconomics has focused on the microeconomic underpinnings and has developed general equilibrium models of macroeconomic fluctuations; the differences are not as obvious as they formerly were. Macroeconomic models of general equilibrium typically feature a streamlined structure that only includes a few markets, such as a "goods market" and a "finance market," among others. General equilibrium models in the microeconomic discipline, however, frequently incorporate a wide variety of distinct product marketplaces.

The general equilibrium theory places a strong emphasis on how effectively supply and demand forces can affect market outcomes. According to general equilibrium theory, the economy is made up of several economic agents who decide on the supply and demand for various goods, labor categories, and assets in order to pursue their personal interests (Zilber, 2008). General equilibrium theory is not just supposed to be an academic exercise; instead, it serves as a framework for economic policymaking and a reliable explanation of observed economic phenomena. In this context, it is frequently seen as supporting a non-interventionist strategy (Fisher, 1987). As Munir and Phillips (2005) puts it: "One of the principals aims of the Walrasian theory of market behaviour, then, is to explain particular observed facts, that is, to impart an understanding of the economy including: Why is it that certain commodities are produced in certain quantities? What determines the specific distribution of income and final goods actually realized in the economy? How is it that the economy seems to function smoothly (in the sense that it achieves an allocation of resources) when millions of decision-making units operate independently and in their own self-interest? These are a few of the general questions to which the Walrasian theory of market behaviour addresses itself (Zilber, 2008).

According to Acemoglu (2010), general equilibrium is a crucial factor to take into account while thinking about negative changes. This may result in ongoing partial balancing between price and technology factor shifts. As a result, in a perfectly competitive market, an enterprise's willingness to supply a given amount of output depends on a variety of variables, including the type of market it operates in, the types of products it produces, and its ratio of

marginal-to-marginal income, which requires selecting output that is equal to both marginal costs and marginal income (Abubakari, 2021). Major petroleum marketers and individual marketers that sell identical items but have the ability to raise prices by inflating artificial scarcity make up Ghana's downstream oil sector (Maduka, Ihonre & Anochiwa, 2015). The general equilibrium theory has been employed in this study to explain the relationship between demand and supply. In furtherance, it answers questions on why changes in demand affects supply and changes in supply affect demand.

The general equilibrium theory is applicable to this study because it will provide a comprehensive framework to analyze the interconnectedness of economic factors and the impact of COVID-19 on oil marketing companies in Ghana especially in the municipality. The general equilibrium theory is suitable for this study in the sense that it will throw light on the broader economic equilibrium while examining the specific effects on sales, operations, and sustainability measures of oil marketing companies in the municipality. The general equilibrium theory aligns with the objectives of this study owing to the fact that it will be useful in analysing the effects of COVID-19 on fuel marketing operations in relation to health and safety by considering how disruptions in the oil marketing operations, such as reduced sales, supply chain disruptions, and additional costs for health and safety measures, impact the overall equilibrium in the oil market and the broader economy.

The Game Theory

Game theory is the study of strategic decision-making and it combines several academic fields like arithmetic, psychology, and philosophy. The game

theory came to light in 1944 by John von Neumann and Oskar Morgenstern, game theory and has advanced significantly over the years. According to the rational behavior of market participants in all possible scenarios, the theory of games makes an effort to reach various equilibrium solutions (Bratvold & Begg, 2009). "The immediate concept of a solution is possibly a set of rules for each participant that informs him how to behave in every situation that may conceivably arise. According to Arsenyan et al., (2015), game theory is a well-known instrument to model potential conflicts between agents, offering insights on how to bargain or work together under certain circumstances in search of equilibrium solutions. The main goal is to foresee the effects of probable decisions on all the players involved in order to choose the optimum course of action (Kelly, 2003). Consequently, this theory was adopted by this current study to help in explaining how OMCs make optimal decision when faced with independent and competing actors in a strategic situation, because individual decision makers always have an incentive to choose in a way that provides a less optimal outcome for the individuals as a group. Additionally, with regards to the objectives, it could be a useful tool for the examination of markets, industries, sectors, and any other strategic interactions between two or more actors. This theory's transparency aid in understanding the breaking points of a strategy or how far reality must deviate from its presumptions before a new strategy is required.

The fundamental tenet of game theory is that each player in a game faces a situation whose result is dependent on both his own strategies and those of his opponent. Understanding how strategically rational individuals interact and considering other agents' expectations when making decisions are

the main contributions of game theory approaches (Osborne & Rubinstein, 1994). Game theory should be used more frequently as a strategic tool in times of ambiguity since it provides insights into how players might behave in various situations as well as other kinds of crucial data for making decisions. However, a lot of managers are skeptical of game theory because they believe it to be more theoretical than practical. When they do apply this discipline, it's sometimes misapplied to give a solitary, overly exact solution to intricate difficulties. In chess or poker games, military engagements, and financial markets, this is always the case. Only if its users select a set of inputs that are sufficiently specific to make the exercise feasible and examine a variety of likely outcomes can game theory reenergize and give meaningful information to decision making (Hamacker & Martins, 2015).

The model first provides a limited number of strategic choices that can be altered to take into account changes in multiple assumptions, as opposed to forecasting a single outcome with all aspects balanced. The approach automatically incorporates a chain of multiple games, allowing players to modify their actions after each one, and discovers the optimum path for various combinations of factors rather than solving a single game. As a result, it helps executives make decisions that are realistically supported by outlining for managers the benefits and drawbacks of the strategic options that are still available at each level of the progression. In a subsequent stage, the model identifies the "most robust alternative," taking into account both its upside potential and negative dangers under all plausible assumptions, scenarios, and time-dependent sensitivities.

This strategy is distinct from efforts to find equilibrium in a world that has been artificially simplified. In the typical game theory technique, analysts examine a large number of action and reaction permutations and select those they believe to be coherent, mutually balancing, and most likely to occur. After that, people assume these or other things. The end result is a solution that is based on a certain set of presumptions and represents all of the stakeholders' interests. Numerous disciplines, including business, finance, economics, political science, and psychology make usage of the game theory. In order to improve one's ability to reason and make decisions in a complex world, it is crucial to understand both common and some lesser-known game theory tactics (Fiani, 2015). It can be used in a variety of complicated situations and yield outcomes that guide a variety of strategic choices. In order to help with the fundamental understanding of industries, sectors, and any strategic interactions between two or more enterprises, the economic application of game theory can be a useful tool (Kelly, 2003). It is expected that game participants are logical and will work to maximize their winnings.

Game theory aligns with the research objectives of the current study in the sense that it provides a valuable perspective for comprehending the strategic interactions and decisions made by various stakeholders, including marketing outlets and OMCs, in response to the impact of COVID-19 on oil marketing companies in Ghana, and how these competitive strategies, cooperation, and strategic adaptations influence their outcomes and sustainability during a crisis. Game theory is a best fit for this study because it offers a framework for understanding how changes in consumer behavior and the competitive dynamics among fuel stations, particularly during crises like

COVID-19, can impact sales and how various marketing outlets strategically respond to shifts in consumer preferences and demand. Game theory is vital in analyzing the strategic decisions made by oil marketing companies (OMCs) regarding health and safety measures during the pandemic. It can explore how OMCs strategically adapt their operations to comply with health and safety regulations while maintaining competitiveness in the market.

Game theory can assist in evaluating the strategic choices made by OMCs to sustain their operations amid the challenges posed by COVID-19, enabling an analysis of how they strategically implement measures such as cost-cutting, securing loans, or adopting new business models to ensure their survival in a competitive market. Moreover, game theory is a powerful theory that would enable OMCs to analyze systematically the ties among interactions between actors in a market and to develop appropriate competitive strategies, because the OMCs expect a tool that would help them make informed decisions based on a range of market actions by each player, and not a single answer that solves the whole riddle (Lopes & Almeida, 2013).

Empirical Review

Studies that were carried out in accordance with the objectives of this study are included in the empirical review.

Factors responsible for the changes in marketing sales of OMCs

Abubakari (2021) examined the OPEC market structure, stable and unstable demand structures, and associated elasticity of demand in order to understand the price volatility of the crude oil market. Investigations focus on the effects of global economic expansion and contraction as well as the associated shift in demand on crude oil prices. The demand relations and

associated elasticity are estimated using the error correction model. To predict future prices, the income effect on demand functions is assessed. If non-OPEC or local production were to be substantially increased, the size and extent of a price increase would be reduced. The price of oil on the global market and the value of the Ghana cedi in relation to the US dollar are two important variables that affect the cost of gasoline at the pump in Ghana. In the past, government regulation of the industry through the National Petroleum Authority (NPA) controlled the price of petroleum products to shield consumers from market forces by absorbing some increases as subsidies (Awudi, 2015).

Khuen (2015) also studied the effect of price control on business profitability in Kuwait's oil and gas sector. Based on the results of his research, he concluded that the adoption of price regulation had a positive impact on the profitability of enterprises that extract oil and gas. This is due to the fact that production costs are lower and public subsidies are available to prevent the industry from flopping. Wanjogu (2015) conducted research on Kenyan gasoline marketers. Her study sought to establish a link between the introduction of price controls in the oil business and the profitability of oil marketing organizations. Her analysis of secondary data led her to the conclusion that price control in Kenya has an adverse impact on the profitability of oil marketing enterprises. The study then made the conclusion that petroleum marketing companies strive to improve their income performance.

The impact of price control regulation on the financial performance of petroleum marketing organizations in Canada was thoroughly analyzed by

Carranza et al. in (2009). Their main objective was to demonstrate how price limits have significant long-term unintended effects for market pricing as well as company productivity due to changes in the market's structure. They discovered through their regression analysis that changes in market structure have an impact on pricing regulations, which affect the profitability rates of the enterprises functioning in the market. The inability to take into account potential equilibrium implications of price regulation was the study's main flaw.

Spain's downstream petroleum industry was the subject of a study by Bello and Cavero (2008) that concentrated on the liberalization and pattern of competition since the market's deregulation in 1992. From 1927 to 1984, the Spanish oil products were discovered, developed, refined, and distributed by the national oil corporation CAMPSA (Compania Arrendataria Del Monopolio de Petroleos S.A.), according to them. They claim that Spain's petroleum industry is subject to stringent government regulation. Poor administrative, technological, scale, and allocational efficiency during this time period led to the decision to liberalize the market. The number of service stations in the country did, however, rise from 4800 in 1992 to 8600 in 2005 as a result of liberalization policies that brought competition to the downstream market and structural changes to the area. The study's main conclusion was that the Spanish petroleum industry transitioned from a state-monopoly status to competitive free markets in a matter of years, leading to retail production, development, and modernisation. Additionally, it gives the national oil corporation a powerful platform to battle against the newcomers. Another significant conclusion was that stores charged varied prices for different

product qualities, and that the end market was competitive as a result of the deregulation of distribution and retail.

Otieno (2016) also conducted research to ascertain how four key dynamics affected the effectiveness of budgets. A descriptive research design was employed in the study. The three primary oil products sold at service stations comprised the study's target products: Premium Motor Gasoline (PMS), Automotive Gas Oil (AGO), and Illuminating Kerosene (IK). Between January 2011 and December 2015, these trends were examined in this study. Changes in these dynamics do, in fact, have a similar impact on the performance of the OMCs budgets, as the study of the movement of the four variables shows a shift in the same direction. However, this study concluded that changes in the four key dynamics (related to Premium Motor Gasoline, Automotive Gas Oil, and Illuminating Kerosene) have a consistent and similar impact on the performance of Oil Marketing Companies' (OMCs) budgets. The study so supports other studies that claim a variety of other factors, such as currency rates, taxes, spills, dealer margins, transport costs, and speculation, have an impact on how well enterprises in Kenya's oil marketing industry do.

In Abubakari (2021), the author looked at the variables that affect petroleum product pricing in a deregulated environment, calculated how they affect oil marketing companies' (OMCs') performance, and explored the difficulties that OMCs encounter in Ghana's deregulated petroleum product pricing environment. A survey methodology was used in the study to gather data from OMC decision-making staff members across the nation. The study questions were answered using mean scores and regression approaches. The study found that, in a deregulated market, internal factors affected prices more

so than external ones. Due to the huge standard deviation of replies, external influences also become more significant when the impact of OPEC international policy is taken into account. The study also discovered that the performance of OMCs in Ghana is significantly improved by the deregulation of fuel prices. The study ultimately concluded that, while OMCs' performance is favorably impacted by the deregulation of petroleum prices, OMCs nevertheless encounter a number of difficulties in the deregulated environment. The macroeconomic environment, illegal trade, high operational expenses, competition among OMCs, and finally the incapacity of OMCs to grow infrastructure were some of the major difficulties. The study suggested that in order to stabilize macroeconomic conditions including the exchange rate, reserve stock, and financial interest by banks, the government implement efficient macroeconomic policies. Because the pricing competition will undoubtedly not spare weaker OMCs, OMCs without appropriate capacity must seek strategic support and ad vice to prevent their collapse now.

Tawia (2018) also carried out a study of the Accra-based Shell Oil Company. The goal of the study was to determine whether shell site and location factors affect fuel sales volume or profitability. The researcher was able to calculate profitability ratios for the study using secondary data sources because to the quantitative research strategy was used. The results demonstrated a favorable correlation between shell site and location and average gasoline sales volume. This indicates that a gasoline station's traffic flow and buying area influence its sales volume, and its average sales volume of fuel is influenced by its accessibility and visibility.

Effects of COVID-19

Iyke (2020) looked at how US producers of oil and gas responded to the COVID-19 epidemic. They learn that businesses respond to COVID-19 differently. Twenty-eight percent (28%) of returns and twenty-seven percent (27%) of return volatility are strongly explained by the pandemic. When comparing these findings with rival COVID-19 markers, they remain qualitatively consistent (Gil-Alana & Monge, 2020).

Mhalla (2020) focuses on the oil and aviation industries while describing the development of the COVID-19 sickness in China and the rest of the world as well as its effects on the global economy. He claims that COVID-19 has so far demonstrated a negative impact on the world economy, but in his paper, he concentrated primarily on two markets where China holds a significant leadership position. According to several analysts, the epidemic will have a negative impact on both the Chinese and the global economies if it persists. Due to its high risk of spreading and asymptomatic cases, the COVID-19 scale is larger than that of any epidemic in the past. However, the virus effects do not depend only on the number of cases but also on the economic losses. According to him, the coronavirus will have a significant short-term impact on air travel and the aviation industry as well as on the production of oil around the world. This study is one of very few studies which have investigated the two industries that are severely hit by the coronavirus (COVID-19) pandemic, which are the aviation and oil industries with a focus on the global market instead of focusing exclusively on the Chinese market.

According to Mofijur et al. (2020), COVID-19 has had a substantial impact on the health, economic, environmental, and social domains, increased human misery, damaged the economy, and upended the lives of billions of people worldwide. Their research seeks to provide a thorough analysis of the COVID-19 outbreak's effects on society, the economy, the energy industry, and the ecological domain. It also looks at the global preventive measures implemented to lessen COVID-19 transmission. In order to provide authorities, businesses, and industry with an update on the information available, this report breaks down the major responses to COVID-19, evaluates the effectiveness of current initiatives, and summarizes the lessons learned. According to this analysis, it is essential to wait 72 hours before collecting and disposing of waste from quarantine facilities and affected homes in order to stop the virus from spreading. For the business to be viable at the height of the epidemic, broad sector-by-sector plans for socioeconomic growth as well as a strong, entrepreneurship-friendly economy are required.

Additionally, the socioeconomic crisis has dramatically changed how energy investment is made and harmed the energy industry, with the majority of investment activities being disrupted by mobility limitations. In the coming years, uncertainty is anticipated to be brought on by energy project delays. They are of the opinion that this research will help governments, authorities, energy companies, and consumers deal with a pandemic-like situation in the future. The COVID-19 pandemic, according to Baah-Boateng (2021), has had a catastrophic impact on the world economy, and Ghana is not an exception. Due to containment efforts that, various governments implemented to preserve lives, practically all economic operations came to a complete halt as soon as it

started. The extreme inequalities in Sub-Saharan Africa have received additional fuel as a result of the combination between the COVID-19-driven economic consequences and preexisting vulnerabilities. In addition to showing how the crisis has impacted employment and economic growth in Ghana, this study makes some policy proposals that can help develop robust policies for economic recovery.

Asante and Mills (2020) investigated Ghana's COVID-19 disease prevention measures as well as the socioeconomic effects of these efforts on urban marketplaces. It claims that Ghana's COVID-19 market method was characterized by three key elements: (1) improving sanitary conditions by disinfecting all markets; (2) closing markets to enforce social distance among traders; and (3) enforcing a lockdown to decongest heavily packed marketplaces. However, the micro-geographies of Ghana's markets make it difficult to put these preventive measures into action. The COVID-19 pandemic's socio-economic effects on markets were visible in the rise in food prices, the financial problems brought on by the lockdown order, and the coercive relocation and decongestion procedures that were used to enforce social segregation among vendors. Similar to how they attempted to decongest inner cities before COVID-19 emerged; local officials executed the COVID-19 preventive measures in marketplaces in a hostile manner.

Using Ghana as a case study, Schotte et al. (2021) offered causal evidence of the immediate and short-term effects of strict COVID-19 lockdown regulations on job prospects. They took advantage of a particular policy context in which tight stay-at-home orders were issued and executed in two geographically delineated areas, paralyzing Ghana's major urban centers

while less strict controls were in place in the rest of the nation. They discovered that the three-week lockdown had a significant and immediate negative impact on employment in the treated districts using a difference-in-differences method, particularly among employees engaged in informal self-employment. Four months after the lockdown was lifted, the employment gap between the treated and control districts had narrowed, but researchers have found a persistent decline in employment and earnings nationwide, endangering in particular the livelihoods of small business owners who work primarily in the informal economy.

Afaha et al., (2020) examined the COVID-19 coronavirus outbreak and its effects on the pricing of oil and gas products currently available on the global market. They found that the COVID-19 pandemic had exposed numerous flaws in the world's major economies and that its effects were obvious and cut across many institutions and industries, including the financial sector as well as those in the fields of health, agriculture, tourism, and hospitality, as well as electricity and the oil and gas industries. Their study's main goals and driving forces were to analyze the consequences and implications of the COVID-19 outbreak and the subsequent drop in oil prices on Nigeria's trade flow, as well as the impact of the outbreak on the country's oil and gas industry and its ramifications. The study's conclusions showed that crude oil prices had fallen to a historic low of $22 a barrel, and it is obvious that this has an influence on Nigeria's economy in terms of revenue. The premium motor spirit (PMS) or gasoline costs have also been reduced to lessen the ravaging effect of the epidemic on daily life and company operations. Although the government has developed emergency measures to

lessen the disease's economic impact. The report suggests a going-concern policies, nevertheless, and a well-planned stimulus package that is not selective in its uses to ensure that the industry recovers considerably more quickly than anticipated. Further, intensifying the deregulation of the downstream oil and gas sector should go hand in hand with the diversification priorities to other industries like agriculture, solid minerals, manufacturing, and services.

Using data from a cutting-edge monthly business survey panel that inquired about the quantitative impacts of COVID on inputs and outputs, Bloom et al. (2020) additionally analyzed the influence of COVID-19 on productivity. They discovered that between 2020 and 2021, total factor productivity (TFP) decreased by as much as 5%. The total effect included significant drops in "within-firm" productivity offset by favorable "between-firm" impacts as less productive industries and the firms operating in them shrank. Despite these significant pandemic effects, corporations' post-COVID projections indicate a relatively small overall TFP impact. They observed significant variation between businesses and industries, with those requiring a lot of in-person interaction suffering the most. They also inquire about unmeasured inflation, which manifests itself in declining product quality, and discover an extra 1.4 percent detrimental effect on TFP.

Bourghelle et al., (2021) argue that the current coronavirus pandemic (COVID-19) has had a negative influence on the economy in at least two areas, in the oil business. The first was a demand shock brought on by COVID-19, which decreased worldwide demand for crude oil, raised uncertainty, and precipitated a severe economic downturn in the majority of

industrialized and developing nations. Second, the epidemic caused an oil trade war between the major oil-producing countries, which caused a shock in the supplies (Saudi Arabia and Russia). Very high levels of oil price volatility were caused by both shocks. As a result, their research investigates the dynamics of this volatility and explains how these two shocks (caused by a change in oil demand and supply) affect the volatility of West Texas Intermediate (WTI) crude oil prices. As a result, they demonstrate that the pandemic-related oil shocks had a significant impact on oil price volatility. They documented the influence of uncertainty produced by these shocks and investor fear on oil price volatility in particular. They demonstrate that more uncertainty increases the volatility of the oil price. After accounting for modeling robustness, their conclusions remained the same.

Shen et al. (2020) examined the effect of COVID-19 on company performance using financial information from publicly traded Chinese companies. They demonstrated how COVID-19 has a detrimental effect on business performance. When a firm's investment scale or sales revenue is smaller, COVID-19's detrimental effects on firm performance are more obvious. In a separate analysis, they demonstrate that the COVID-19's detrimental effects on company performance are particularly pronounced in sectors and geographies with significant adverse effects. These findings represent some of the earliest empirical proof of the link between pandemics and company performance.

According to Ashraf (2020), the COVID-19 pandemic outbreak was a rare and unprecedented occurrence, and governments all over the world reacted quickly with emergency measures like social exclusion policies, public

awareness campaigns, testing and quarantining regulations, and income support programmes. He investigates the anticipated economic effects of government action in his study by examining how such activity affects stock market returns. Using daily data from 77 countries from January 22 to April 17, 2020, they discover that government social distancing statements had a direct negative impact on stock market returns due to their detrimental impact on economic activity, but an indirect beneficial impact due to the decline in COVID-19 confirmed cases. Government statements about public education campaigns, testing and quarantine regulations, and income support programmes generally had a beneficial impact on the stock market. Their research has significant policy ramifications since it demonstrates the economic effects of social distance policies adopted by the government, which may be both beneficial and detrimental.

Research evaluating the impact of COVID-19 on Ghana's mining and oil and gas industries was undertaken by Bekoe and Oppong (2021). By emphasizing pertinent lessons, experiences, and failures, the study also focused on documenting the adaptive and resilient strategies of extractive corporations, royalty-receiving MMDAs, regulators, and civil society organizations functioning in the extractive sector. According to the report, the multiple government COVID-19 containment measures prevented sector regulators from efficiently carrying out their duties. For instance, COVID-19 measures like travel restrictions and the closing of regulatory agency offices made it more difficult to apply for permits and conduct follow-up verification visits. The epidemic exacerbated the numerous obstacles and weaknesses that prevent civil society activity in Ghana's extractive industry, as well as the

irregular local-level contact between MMDAs and communities, which offered the platform for resolving mining communities' problems. While unforeseen expenses increased the operating costs of CSOs in the industry, delays in the implementation of planned programme activities to inform crucial extractive sector governance concerns lowered civil society activism. To determine the scope and impact of the pandemic on the extractive industry, the study used a qualitative technique that included interviews and document analysis. The study's conclusions were meant to help stakeholders recover from the epidemic and get ready for potential future risks.

The study by Guzman, Recoco, Pandi, Padrones and Ignacio (2022) aimed to apply the Partial Least Squares Structural Equation Modeling (PLS-SEM) to model workplace safety in the oil and gas Industry (OGI) during the COVID-19 pandemic. The five areas of the Occupational Health and Safety (OHS) Vulnerability Measure for example; exposure to workplace hazards, policies and procedures in the workplace, perception on health & safety culture in the workplace, self-awareness in health and safety procedures and responsibilities, and preventive measure for prevention of the transmission of COVID-19 at workplace were considered as the constructs to be evaluated. Fifty workers from the oil and gas industry worldwide participated in the online survey, and the data were analyzed using the SmartPLS software. The results revealed that only Perception on Health & Safety Culture was a significant factor influencing the perceived workplace safety in the oil and gas industry during the COVID-19 pandemic ($\beta = 0.603$; t-value = 3.323; p-value = 0.001). The study suggested that the oil and gas companies should maintain

a positive perception of health and safety culture to improve workplace safety even during the pandemic.

Measures to sustain the OMCs during the COVID -19 pandemic

According to Adam and Alarifi's findings in 2021, small and medium-sized firms (SMEs) are frequently exposed to a variety of difficulties and dangers during global epidemic crises like the coronavirus (COVID-19). In their research, they hope to create a theoretical framework that will shed light on the relationship between innovative practices and the performance and survival of SMEs while highlighting the supporting role that outside assistance plays in such a relationship. An online questionnaire was utilized to collect data from 259 randomly selected SME managers in Saudi Arabia, and the data was analyzed using the SmartPLS3 software. The findings from structural equation modeling demonstrated that the innovation strategies used by SMEs to deal with COVID-19's effects had a favorable effect on performance and the likelihood of business survival. In contrast to its performance, PLS-SEM bootstrap results showed that external support aids improve the beneficial influence of SMEs' innovation methods on firm survival. It has been argued that the study has several important practical implications for SME managers, governments, and policy makers.

During the COVID-19 pandemic, Fang et al. (2022) also looked at how businesses operated and made strategic decisions. The study examines how different endowments in organizational resources affected firm performance as measured by their survival status and sales growth. It also looks at how these resources interact with and affect strategic responses in the supply of inputs, response to changing demand, liquidity management, and innovation. It does

this by using the World Bank Enterprise Surveys and the COVID-19 Follow-up Enterprise Surveys. The findings showed that larger enterprises, corporations with foreign or state ownership, and subsidiary companies fared better during the epidemic by stabilizing supply, controlling liquidity, and encouraging the creation of new products more successfully. Longer-serving chief executives had higher survival rates. Strict government COVID-19 control regulations have a tendency to impair corporation's performance, but businesses in wealthy nations have fared better in the face of the pandemic.

Dewi and Adiarsi (2020) also argue that the oil and gas sector was one of many during the COVID-19 crisis that had trouble selling their goods and managing their financial flow. Even before the COVID-19 crisis, there was pressure on the oil and gas sector to strengthen its financial discipline. Their study supports the viability of work-from-home (WFH) adoption as a regular practice for Indonesian oil and gas industries and details how it will aid in cost savings, increase worker productivity, and improve organizational agility. Two weeks had passed since the forced WFH "experiment" began when the survey was done. Ninety-nine executives from various Indonesian oil and gas businesses participated in the study. The majority of Indonesia's well-known, substantial businesses, particularly the oil and gas corporations, were slow to embrace this strategy as a result of the study's findings. The COVID-19 crisis may mark the beginning of the oil and gas sector's wider and long-lasting use of WFH. The survey's findings demonstrate that companies may continue to function even when their workers telecommute. The survey results also revealed a movement in opinion in favor of recognizing WFH as the new norm. According to the survey, many businesses have overcome their mental

and psychological barriers and are open to the idea of integrating WFH into standard HR procedures.

Serbulova et al. (2020), discussed the mechanisms for customizing innovation processes in businesses within the framework of COVID-19 and exhibits technology and solutions that may be used to address current issues. Innovation has the potential to assist a business survive a crisis and create chances for the discovery, evaluation, and testing of novel goods and procedures. Utilizing advanced tools and being receptive to new ideas may be crucial for future competitive advantage. The paper gave instances of successful startups and established businesses that were able to successfully and quickly reconstruct their operations. It also gave examples of government programmes that shared their methods and helpful advice on how to keep innovating even in those uncharted times. The study was based on an analysis of how the coronavirus affected different industries utilizing authoritative industry data sources, analytical reports, and global indices and indicators.

The COVID-19 outbreak and the ensuing lockdown, according to Mastropietro et al., (2020), also made the world's energy poverty and insecurity worse. Many governments enacted emergency regulations to safeguard energy users while imprisoned. Their study examines and categorizes the laws in place in various countries throughout the world, pointing out both potential inefficiencies and effective practices. They concluded that these desperately needed relief measures should be founded on appropriate targeting and continuous funding.

According to Baker and Judge (2020), small firms are among the hardest damaged by the COVID-19 crisis. There are concerns about how many

will survive this recession given that several have closed and a large number more are experiencing cash flow issues. The government has responded by launching a vital forgivable loan programme, but for many of these businesses, this programme by itself will not be able to give them the money they need to keep their employees, pay their rent, and aid in the recovery of their business once Americans are no longer seeking shelter in place. This study urges regulators to develop fresh and inventive strategies for cooperating with current middlemen, such as banks and internet lenders, who have the resources and capabilities required to assist small businesses in obtaining the additional loans they want to survive and prosper. By making use of already-existing structures, the government might be able to respond more quickly, broadly, and effectively, all of which are crucial in attempts to promote small businesses.

Below is figure 5 which shows the conceptual framework of the study.

CONCEPTUAL FRAMEWORK

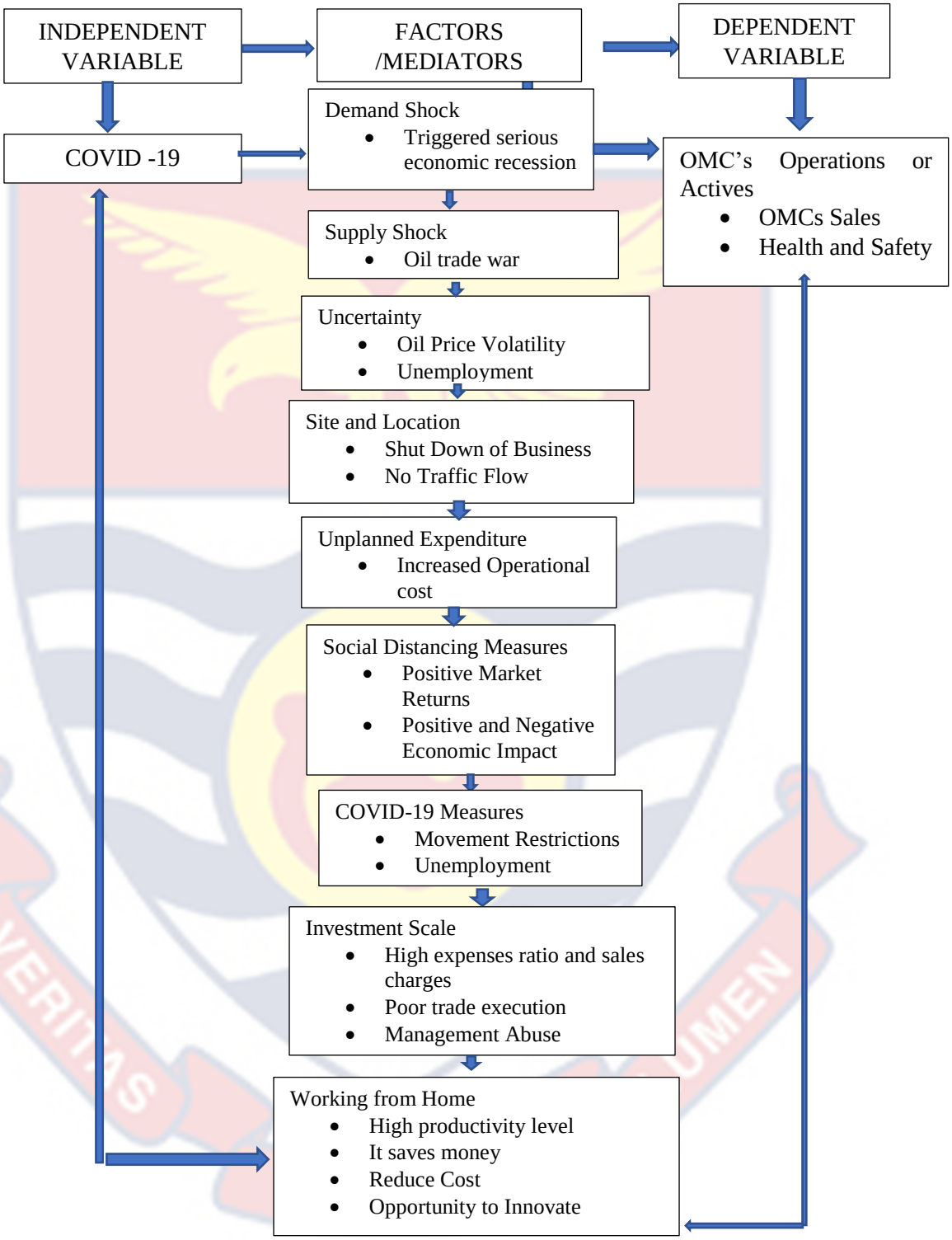

Figure 5: Conceptual Framework

Source: Author's own construct (2022)

This conceptual framework as shown in figure 5 was designed to examine the impact of COVID-19 on Oil Marketing Companies (OMCs) in the Ga West Municipality of the Greater Accra Region of Ghana. It incorporates the COVID-19 and its associated mediators or factors. These mediators or factors attached to the COVID-19 pandemic are critical for determining the effects of the COVID-19 pandemic on sales of OMCs. They are also relevant in understanding the effects of the COVID-19 pandemic on the health and safety of OMCs. There are innumerable underlining mediators or factors associated with the COVID-19 pandemic and that these factors serve as the basis for which OMCs experienced effects in their sales, health and safety during the pandemic. In simple terms, the mediators of COVID-19 coupled with other prevailing factors including the absence of clear cut mechanisms to respond to circumstances of this kind brought about the negative effects on sales, health and safety of OMCs.

Shen et al. (2020) argues that the factors associated with COVID-19 including but not limited to reduced consumer spending due to economic uncertainty, decline in disposable income leading to reduced fuel consumption, decreased travel and transportation, impacting fuel demand are responsible for the effects on sales, health, and safety of OMCs which came with the pandemic. Asante and Mills (2020) noted that factors including fluctuations in oil supply and demand dynamics, the price wars that took place among oil-producing countries, their effects on oil prices among others are also seen as responsible for the effects on sales, health and safety of OMCs. According to Tawia (2018)'s research, one of the major factors or mediators

that resulted in the heightened effects of COVID-19 on sales, health and safety of OMCS had to do with uncertainty and frequent fluctuations in oil prices.

Difficulty in forecasting fuel prices for OMCs and consumers as well as the layoffs and job losses leading to reduced consumer spending were also seen as causes of the effects on sales, health and safety on the part of OMCs (Schotte et al., 2021). For Ekperiware (2011) reduced workforce affecting OMC operations and sales, closure of OMC outlets due to lockdowns and restrictions, the presence of decreased foot traffic and customer visits to fuel stations led to the effects on sales, health and safety of OMCs. According to Ashraf (2020), limited vehicular traffic resulting in reduced fuel sales, implementation of safety measures and protocols, investment in personal protective equipment (PPE) and sanitization, adoption of digital technologies for remote work and sales, observance of social distancing measures as well as reduced demand for public transportation impacting fuel sales were determinants of the effects on sales, safety and health of OMCs.

The institutional theory supports this view by claiming that factors such as changing regulations and industry-wide practices like lockdown measures, health and safety guidelines, contactless payment methods or enhancing safety protocols at fuel stations can significantly impact OMCs' operations, sales as well us have bearings for health and safety (Sayan, 2009). The general equilibrium theory also backed these claims by avowing those changes in one sector of the economy aggregate demand shock, oil price volatility, widespread job losses and income reductions, supply chain disruptions and government regulations among others contributed to the effects of COVID-19 on sales, health and safety of OMCs (Acemoglu, 2010).

The game theory simply puts it that strategic decisions made by OMCs, consumers, and other stakeholders like: OMCs strategic decisions regarding how much fuel to supply, OMCs strategic pricing decision, decisions made by consumers based on their expectations regarding fuel prices and safety measures, OMCs decisions on how to implement safety measures while minimizing disruptions to sales, decisions related to employee welfare, safety, and labor relations among others are to be viewed as factors that gave room for the effects on sales, safety and health to be on the rise (Arsenyan et al., 2015).

In this study, the focus point of analysis is on the mediators or factors associated with the COVID-19 pandemic and their effects on OMCS. Per this framework, the independent variable is COVID-19, while the factors or mediators like investment scales, working from home, social distancing measures, demand shock, supply shock, uncertainty, site and location, and COVID-19 measures are the dependent variable. It is depicted from the framework that there is a relationship between COVID-19, its associated mediators and the effects on sales, health and safety since these factors identified contributed to the rise in effects that OMCs experienced owing to COVID-19.

From this particular framework, in terms of the COVID-19 pandemic it has been identified that demand shock, supply shock, uncertainty in oil price volatility, unemployment, shut down of business, absence of traffic flow, increased operational cost, poor trade execution, observance of COVID-19 protocols and others serve as the mediators or factors that influence the health, safety and sales of OMCs. For the OMCS to withstand such factors it depends

on their level of preparedness and mechanisms put in place to cushion their customers and workers in response to unexpected events of this nature. Looking at the indeterminate nature of the COVID-19 pandemic and its novel nature; OMCS had no specific mechanisms specifically aimed at cushioning their customers in response to it and that it came with negative bearings on the part of OMCS.

Using this author's own constructed framework, it is understood that these mediators and factors associated with COVID-19 therefore contributed to the surge in effects on sales, health and safety among OMCs. Consequently, by following the work described above, one can understand the factors held responsible for the surge in effects on sales, health and safety that came with the COVID-19 among OMCs. Ultimately too, the impact of COVID-19 on Oil Marketing Companies (OMCs) in the Ga West Municipality of the Greater Accra Region of Ghana can be clearly understood by resorting to this conceptual framework.

Summary of Literature

This chapter reviewed literature on COVID-19 and its impacts on OMCs. This was undertaken because most research works conducted in the downstream petroleum sector focused on other industries and agencies without focusing on the retail outlets which plays a very vital role in the downstream petroleum sector. The review identified key variables that analyze the impact of COVID-19 on the operations of the OMCs (Retail outlets) in the sector. The chapter also highlighted some of the challenges that confront operators in the sector. Essentially the Institutional Theory, General Equilibrium Theory and the Game Theory were used to frame the discussions in the chapter and offer

perspectives on how the COVID -19 affected the operations of the Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region of Ghana. The next chapter outlines the methodology of the research. It discusses the process and approaches adopted to conduct the research.

CHAPTER THREE

METHODOLOGY

Introduction

The methodology is presented in this chapter. According to Addae (2020), research methodology is centered on a methodical investigation that goes beyond commonly accepted knowledge to gather specialized and in-depth information. It is also thought of as a planned and intentional attempt to gather fresh data or apply previously acquired knowledge to a new endeavor. It examines the methodology and approach used in the study to collect and process the data required for the research. This study's primary objective is to examine the impact of COVID-19 on oil marketing companies in the Ga West Municipality of the Greater Accra Region of Ghana. The research paradigm, research design, study area, study population, data source, sample, and sampling techniques are all presented in this section along with the data collection methods and instruments, data processing and data analysis.

Research Paradigm

The worldview of the researcher has significant impact on the nature of the study. As opined by Creswell and Plano-Clark (2013), every research project requires a basis which is found in the researchers' worldview or philosophical underpinnings, whether explicit or implicit. The researcher believes that, the pragmatist paradigm is more applicable for the current research. In its simplest form, the pragmatists paradigm states that, the overarching approach to research is to mix the collecting process and analysis within the research process (Creswell & Plano-Clark, 2013).

Pragmatism aims to refute ideas like truth and reality focusing on what works as the truth in terms of research issues under consideration (Christ, 2013). The pragmatist world view is justified in this case because of the nature of the current thesis. This is because, the pragmatist paradigm excels in situations where complex and pluralistic social environments necessitate analysis informed by various viewpoints (Christ, 2013). This study exemplifies the pragmatic worldview since it collects data using both quantitative and qualitive approaches (that is., questionnaires and interviewing guides) and to incorporates the concept of many realities (ontology) by reporting varied perspectives from study participants (Johnson & Onwuegbuzie, 2014). Second, knowledge is based on the participants subjective viewpoints as expressed in interview findings (Esterberg, 2012). Third, the nature of the research (axiology) is exposed by acknowledging the researchers' interpretation in accordance with that of the participants, as well as biases in existing in the study (Corbetta, 2013). Fourth, the research method employed is defined by a combination of deductive and inducive data collection and analysis procedures that provide greater strength than any of the two methods alone (methodological). Finally, the study is rooted in pragmatist worldview since it is built around research questions with the goal of responding to them in a variety of ways that are deemed suitable and applying the findings in ways that assisted individuals benefitted from the research (Christ, 2013).

Research Approach

The data collection and analysis for this thesis was done using the mixed method approach. Thus, the study employed both quantitative and qualitative data. Quantitative research is an objective approach of conducting research in which scientific procedures are used to prove information rather than sentiments, views, values and personal interpretations. As opined by Sidhu (2014), when a researcher collects data through participants observation, interviews and the review of documentary sources, there, may be little measurement involved. Quantitative research is based on the notion of verifiability (Kombo & Tromp, 2013).

Quantitative research is a method for investigating a relationship between variables in order to test objective theories (Creswell, 2013). These variables can then be measured using instruments, resulting in numbered data can be analyzed using statistical process. In fact, the difference between qualitative and quantitative research is difficult to define, and the difference rests in the level of abstraction (Keeves, 2017; Denzin & Lincoln, 2018). However, it should be noted, qualitative and quantitative research frequently overlap. For example, figures and frequencies may be used in qualitive research to describe occurrences. Quantitative research can quantify opinions, yet qualitive research can still collect numbers that can be explained, because numbers must be articulated in order to have meaning.

According to Bartlett (2017), qualitative research is methodical, subjective approach to describing and giving meaning to life experiences. Khan (2014) also opined that, qualitive research is a methodical and subjective technique to highlighting and explaining daily life events as well as giving them meaning.

Khan further affirmed that, qualitive research helps the researcher to dig deep into behaviors, multiple viewpoints and life experiences in order to uncover the situations' intricacies within a holistic framework. The main objective of the study was to examine the impact of COVID-19 on Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region of Ghana. As a results, the respondents' experiences would convey meaning in a methodical manner, enriching this study. Because both qualitative and quantitative research have their weakness and strengths, this study took a hybrid technique approach. The aim of the thesis was to collect verifiable data to be analyzed with the use of Statistical Package for Social Sciences (SPSS). This was to support the data collected through the qualitive methods. In this situation, triangulation played a critical role in bolstering the data collection process and overcoming researcher bias.

Research Design

The study, in line with the philosophy of pragmatism, adopted the sequential explanatory design of the mixed methods research to gain in-depth understanding of the impact of COVID-19 on Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region of Ghana. The explanatory design is a two-phase mixed method with a quantitative phase and a qualitative phase later. This strategy aimed to collect qualitative data that would be augmented by qualitative data in order to produce more trustworthy and valid results (McCusker, & Gunaydin, 2015). The first phase of this thesis included a quantitative description impact of COVID-19 on Oil Marketing Companies in the Ga West Municipality of the Greater Accra Region of Ghana. A questionnaire was used to collect quantitative data.

Following the quantitative results, an in-depth qualitative analysis was conducted to explain the original quantitative results (Rittichainuwat & Rattanaphinanchai, 2015). This design begun qualitatively and so; the researcher placed greater emphasis on the qualitative methods than the quantitative methods. In the final analysis, data from both phases were used resulting in more detailed results (Arthur, 2012). As a result, the quantitative and qualitive approaches were employed to complement each other, and this provided detailed information to guide the study.

There are certain advantages to using a sequential explanatory mixed method design (Cohen, Manion & Morrison, 2012). The reason for choosing this design was that, it combines both quantitative and qualitative methods in a single study. Also, the design provides richer insights and raises more interesting questions for future research than only one set of studies. Again, this design is concerned with seeing what the data suggests with some evidence; and provides a better understanding of the problem either approach can achieve (Morgan, Eliot, Lowe & Gorman, 2016).

Also, the mixed method research design may offset the weakness of both qualitative and quantitative research designs when employed independently in a study and allow the researcher to use a diverse variety of data collection instruments to thoroughly investigate and understand the topic. Furthermore, mixed method research aids in answering questions that cannot be answered by single approach as it promotes collaborative between researchers of both fields (Cohen, Manion & Morrison, 2012). It is also more useful when the research problem is more quantitative, and the researcher has

the time and ability to conduct the study in two phasis, thus developing quaternary data (Cresswell & Piano-Clark, 2013).

Study Area

The Ga West Municipality in Ghana's Greater Accra Region was the study area for the research. Due to its designation as one of the COVID-19 pandemic's epicenters, the municipality was chosen for this study. Similarly, the district is home to a number of OMCs that are both multilateral and private in origin (Tawia, 2018). In the Greater Accra Region, it is the second-largest. It has 1028 communities spread throughout an area of land that is roughly 710.2 square kilometers (Danquah, 2011). The municipality's projected population is 426,439, with a 3.4% annual growth rate (Danquah, 2011).

The municipality has oil businesses on both major roads that lead out of the capital (Accra – Kumasi, Accra – Takoradi) and smaller interlinking roads. There are also reports indicating the extent to which OMCs in Ga West district were affected by the COVID-19 in their operations, sales and way of discharging their roles in general (Lukman et al., 2020). Figure 6 below shows the map of the study area.

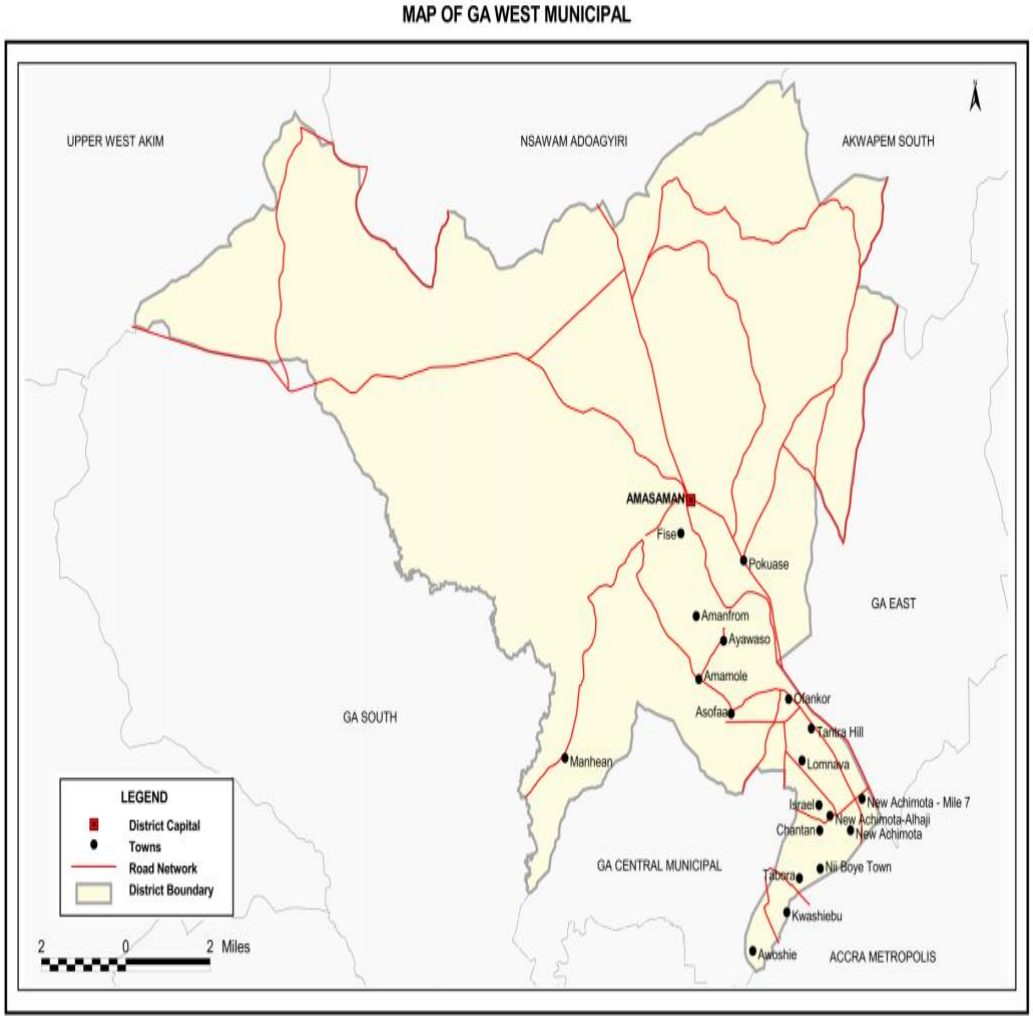

Figure 6: The map of Ga West Municipal

Source: Tibu, Annang, Solomon and Yirenya-Tawiah, (2019).

The municipality is largely urban and has most of the major markets including the Achimota, Amasaman and Santa Maria markets where this study was conducted. There are Fifty-One (51) filling stations located in the municipality (Danquah, 2011). Most of these filling stations are located along the major roads namely, the Accra-Nsawam, Accra-Pokuase, and Achimota highways, as well as Sapeiman-Mede highway. Goil, Total, Benab, Frimps, Crown, Gab Energy, Puma Oil, Sonnidom, Star Oil, and Tel Energy, Dukes Petroleum, Pacific Oil, Engen Oil, Oil Space are some of the top oil marketing

retail companies. The Ga West Municipal Assembly was established by L.I 1858 in November 2007 and it is the gateway to Accra on the Kumasi -Accra route.

The Municipality lies within latitude 50°48' North, 5°39 North and longitude 0°12 west and 0°22 West. It shares common boundaries with Ga East and Accra Metropolitan Assembly to the East, Akuapem South to the North and Ga South to the south and West. It occupies a land area of approximately 305.4sq km with about 193 communities. The Ga West Municipal Area is located within the Densu River Basin, making it a very important riparian zone (Ashiagbor et al., 2020).

Target Population

The target population for the study includes: Staff of NPA, Managers, and fuel retail outlet attendants of the various OMCs. The NPA monitors the supply and consumption of petroleum products around the country to ensure that there are adequate stocks of petroleum products to meet the needs of the country. The Managers also make important policy, planning and strategy decisions as well as develop, implement and review operational policies and procedures. They also help to promote a company's culture that encourages top performances and high morale and ensures a clean environment conducive for customers to do business. Furthermore, they manage stock of fuel receive and supervise sales as well as manage the pump attendants to ensure smooth running of the station The fuel attendants are key in this study because they are involved directly in the sales of the petroleum product at the various OMCs.

Sources of Data

To get relevant data for this study, both primary and secondary sources of data were used. The primary data were obtained from the managers of OMCs and staffs of NPA who are the regulators of the OMCs and fuel retail attendants who are involved directly in the sales of the petroleum products at the various OMCs. On the other hand, reports and documents from the Oil and Gas industries, the Ghana Petroleum Service, relevant journal articles, books, and manuscripts constituted the secondary data that were used to complement the primary data.

Sample and Sampling Techniques

In this study, it is significant to consider the sampling strategy used by the researcher. According to Akosa (2016), this offers a range of tools that enable researchers to focus solely on a smaller group rather than on all plausible scenarios or components, hence reducing the amount of data that is gathered. Two methods of sampling were used in the study. They are convenient and purposive sampling. A convenience sample is a kind of non-probability sampling technique in which the sample is drawn from a population that is simple to reach or contact; for instance, standing outside a gas station and asking customers to respond to questions (Creswell, 2008).

This sampling approach is sometimes referred to as grab sampling or availability sampling (Creswell, 2008). Due of the potential for sampling error and the underrepresentation of the community, convenience sampling is not frequently advised for research. But depending on the circumstance, it might be useful. Convenience sampling may be the sole choice in some circumstances. This rapid sampling strategy usually sacrifices accuracy for

speed. The population of interest may not be represented by the samples that were collected, which could be a cause of bias (Saunders et al., 2012). The multiple benefits it offers are one of the factors contributing to its widespread use.

The vast majority of researchers find this method to be an appealing alternative because it is incredibly quick, simple, easily accessible, and affordable (Gary, 1990). Since most convenience sampling is conducted with the populations already present, the researcher can easily gather the data. They often only need to draw information from the immediate area rather than traveling big distances. Having a ready-to-use sample group makes it possible for the researcher to complete many investigations rapidly and to meet quotas (Given, 2008). Convenience sampling's affordability is among its most crucial features. With this approach, money can be allocated to the project's other components. This sample technique is frequently employed to secure financing for a broader, more in-depth research effort. A small sample of the population was used in this case because there were not enough funds to conduct a more thorough survey at this time.

Purposive sampling, on the other hand, comprises selecting subjects based on their understanding of the research topic and the study's objective (Bernard, 2002). Purposive sampling, sometimes referred to as judgmental, selective, or subjective sampling, is a type of non-probability sampling where researchers choose participants for their surveys by using their own judgment (Gustad et al., 2004). It is a nonrandom technique; therefore, no underlying hypotheses or predetermined number of informants is required. Simply put, in purposive sampling, the researcher determines what information is necessary

and then searches for individuals who can and are willing to supply it due to knowledge or experience (Bernard 2002; Lewis & Sheppard, 2006). This survey sampling strategy necessitates that researchers have previous knowledge of the goal of their studies in order to correctly choose and approach eligible people for surveys. As all survey respondents are chosen because they meet a specific profile, researchers utilize purposive sampling to access a specific subset of people (Jarvis et al., 2004).

Purposive sampling occurs when researchers carefully consider how they will create a sample population, even if it is not statistically representative of the larger population. As the term implies, researchers deliberately visit communities where they believe they will find people who suit the description of the people they are trying to reach. While the results of purposive sampling are not necessarily statistically indicative of the larger population of interest, they can be generalized in terms of quality. The better sample that researchers will choose will depend on how much prior knowledge they have about their particular communities of interest (Bernard, 2002). Purposive sampling can be done in a pretty simple manner. Simply excluding those participants from the sample who do not meet a specific profile is all that is required. Because randomization lessens biases and enables the application of results to the entire sampling population (Godambe 1982, Smith 1983, Snedecor 1939, Topp et al., 2004), random or probability sampling is advised as a method of informant selection whenever practical and regarded efficient (Bernard, 2002).

However, depending on the purpose of their study, researchers can utilize a variety of strategies during purposive sampling (Anderson, 2004).

Researchers can extract a lot of information from the data they have gathered by using purposeful sampling. This enables researchers to discuss the significant effects that their results have on the general public. Researchers frequently employ deliberate sampling because it is very time and cost-efficient in comparison to other sampling techniques (Zhen et al., 2006). When samples are selected purposefully, both qualitative and quantitative sampling techniques may be employed (Campbell, 1955). It can be combined with a variety of data collection methods (Godambe, 1982). A survey may be used to begin a study, followed by purposeful sampling depending on the results of the survey (Brown, 2005). If there are just a few primary data sources that can contribute to the survey, there are occasions when purposive sampling may be the only strategy that is suitable (Bah et al., 2006).

In purposive sampling, interpretation of results is limited to the population under study. Despite its inherent bias, purposive sampling can provide reliable and robust data. Purposive sampling was used to select the thirty (30) oil marketing companies (OMCs), and respondents, so as to target the key actors who are information-rich, have insight and characteristics relevant to the research questions. The key informants which include staffs of NPA, managers of the OMCs and fuel retail outlets attendants were purposively selected in line with the knowledge and information they have on oil and gas issues. The convenience sampling approach was used to sample some of the heads of departments at NPA and workers to get a fair representation of the entire population.

Sample Size

The non-probability method of purposive sampling was applied to select thirty (30) Oil Marketing Companies from the Fifty-one (51) Oil Marketing Companies (OMC's) in the Ga West Municipality of the Greater Accra Region of Ghana. There are fifty-one (51) filling stations located in the municipality (Danquah, 2011). OMCs were selected purposefullyon the criteria that they were in existence before the COVID-19 came into place and are still operating after the COVID -19 became stabilized, thus they will be in a better position to explain the effect of COVID-19 on the performance of oil marketing companies (OMCs). Further, participants from the selected OMCs were also purposefullyselected based on the criteria of knowledge of COVID-19. Thus, one (1) manager each in charge of the retail outlets. Five (5) heads of departments of NPA in the positions of heads of marketing, operations, finance, monitoring and evaluation, health, safety and risk, were also sampled. The sample size in terms of participants was 60 (2 x 30) respondents for the retail outlets and five (5) respondents for NPA. A total of sixty-five (65) respondents participated in the study. With respect to the managers of the retail outlets and the staff of NPA, the census method was used where all the thirty (30) managers of the oil marketing outlets in the municipality and the five (5) heads of departments of NPA were selected for the study. The sampling unit consisted of station managers and staff of NPA. Thus, all station 30 managers were purposively selected as well as the five (5) departments of NPA representatives. One (1) attendant at each filling station was selected to be part of the study. It was realised that in most of the stations, usually a maximum of six (6) retail attendants were full time workers, but they run on

shifts after every 24 hours. Therefore, two attendants were available every 24hours, that explains why only one attendant was selected from each retail outlets. Table 3 shows the number of employees that were selected at each filling station for the study and Table 4 also shows the number of staff selected from NPA for the study.

Danquah (2011) suggested that a sample size of 25 percent of the population is a good representation for social science survey. In all, a minimum of thirty (30) respondents were expected to respond to the questionnaire and 35 interviewed.

Table 3: Filling stations and number of employees selected for the study

Fuel Station	Number of Managers Interviewed	Number of Retail Attendants Selected
Tel Energy	1	1
Engen Ghana Limited	1	1
Frimps Oil Co. Ltd	1	1
Gab Energy Co. Ltd	1	1
Nick Petroleum Ghana	1	1
Vivo Energy Ghana Ltd	1	1
Puma Energy Distribution	1	1
Benab Oil Co. Ltd	1	1
Benab Oil Co. Ltd	1	1
Radiance Petroleum Ltd	1	1
Petrobay Oil Ltd	1	1
Zoe Petroleum Ltd	1	1
Crown Petroleum	1	1
Oil Space Co. Ltd	1	1
Dukes Petroleum Co.	1	1
Kan Royal Services	1	1
Shell	1	1
Sonnidom	1	1

Table 3 cont'd

Star Oil Fuel Service Station	1	1
Compass Oleum, Ltd	1	1
Total Petroleum Ghana	1	1
Goil PLC	1	1
Puma Energy Distribution	1	1
Goil PLC	1	1
Top Oil Co. Ltd	1	1
Goil PLC	1	1
Petrosol Ghana Ltd	1	1
Goil PLC	1	1
Benab Oil Co. Ltd	1	1
Goil PLC	1	1
TOTAL NUMBER	30	30

Source: Field survey, Etse (2022).

Table 4 gives a presentation of the departments in NPA and the number of staffs selected for the study.

Table 4: Departments in NPA and number of Staffs interviewed

Departments in NPA	Number of staffs Interviewed
Marketing	1
Operations	1
Finance	1
Monitoring and Evaluation	1
Health, Safety and Risk	1
Total	5

Source: Field survey, Etse (2022).

Data Collection Methods and Instruments

A semi-structured interview guide matrix was used to collect primary data. The semi-structured interview guide purpose was to advise the researcher

on the types of questions to put to the interview subjects in order to prevent them from veering off the major study goals. The interview guide, which was semi-structured, was used to collect in-depth responses from the key respondents like the managers of the OMCs and staff of NPA. The questionnaire was used for eliciting information from the fuel attendants.

The questionnaires were in the form of Likert scale. The main reason why Likert scale questions were used was that, they are a universal method of collecting data, which means it is easy to understand them (Akosa,2016). Working with quantitative data, it is easy to draw conclusions, reports, results and graphs from the responses. Furthermore, because Likert scale questions use a scale, people are not forced to express an either-or opinion, rather allowing them to be neutral should they so choose, and once all responses have been received, it is very easy to analyse. Also, Likert scales have the advantage that they do not expect a simple yes / no answer from the respondent, but rather allow for degrees of opinion. Therefore, quantitative data is obtained, which means that the data can be analyzed with relative ease. It also helps in measuring respondents' attitudes by asking the extent to which they agree or disagree with a particular question or statement (Akosa, 2016).

The secondary data were gathered from scholarly publications, journals, relevant books, and reports from reputable organizations that were important to the study (such the Ministry of Petroleum, OMCs, and NPA). Additionally, information pertinent to the subject was obtained from the internet.

Documents and Reflective Journal

In addition to the interviews and discussions, other papers related to the impact of COVID-19 on OMCs were obtained for the study. Such documents were saved and kept for data analysis. Field notes and a reflecting notebook were also kept. The journal gave the researcher the opportunity to discuss her concerns about doing research in this field of study. The analysis benefited from extra data from field notes that were taken.

Validation Strategies

Social scientists employ a variety of validation techniques to ensure the validity and reliability of their research (Creswell & Millar, 2000). Triangulation is one of these methods. To ensure the validity of the data, this study employed triangulation and a thorough, in-depth description of events and instances. The different forms of data collected (interviews, observation, documents, and field notes,) were triangulated to get deeper meanings of the issues under discussion.

The questionnaire was also subjected to validity and reliability tests. The instruments were given to the supervisors to check their validity. The suggestions given by the supervisors were used to effect the necessary changes to improve upon the questionnaire. A pilot test of the questionnaire was conducted using 20 respondents each from ten filing stations in the Ga West Municipality. The reliability of the questionnaire was estimated on a scale with the help of Statistical Product and Service Solution (SPSS) version 26.0 programme, on the computer.

Cronbach alpha values or reliability co-efficient values were obtained for the following sections of the questionnaire. Items assessing the effect of COVID-19 on sales at marketing outlets had a Cronbach alpha value of 0.850, and items impact of COVID-19 on fuel marketing operations in relation to health and safety, had a Cronbach alpha value of 0.880. A total reliability of 0.980 was obtained for all the items on the questionnaire. The reliability co-efficient before the main data collection support the view of Sekaran (2003) who suggested that 'alpha value less than 0.60 is considered to be poor, those in 0.70 range, acceptable and those over 0.80 high. Therefore, with reference to the above, the instruments were considered reliable and valid for the main data collection.

Interviews and Questionnaires

Key state and non-state actors in the Oil Marketing Companies in the Ga West Municipality in the Greater Accra Region of Ghana were interviewed separately. The state actors interviewed were experts and experienced people in the field of petroleum for at least five (5) years in the petroleum downstream. Non-state actors interviewed were also professional managers with comprehensive knowledge in the fuel retail outlets and fuel retail attendants with at least three (3) years of experience in the retail outlets business were also administered with questionnaires.

Interviews with the heads of the various departments at NPA and Managers of the Oil Marketing Companies (fuel retail outlets) lasted for 30-35 minutes each. The administering of questionnaires to the fuel retail outlets attendants also lasted 40-50 minutes each. Prior to this study, participants were informed that breaks were allowed if they felt the need for it. With the

exception of the various heads of departments at NPA and the Managers of the retail outlets who were interviewed at their various offices, all other interviews and questionnaires were conducted and administered in either of the actors 'conference hall or common rooms. The interviews were audio recorded and field notes were also constantly taken by the researcher during the interviews. Verbal consent was sought from the participants before the interviews were conducted.

Field work and research challenges

The field work was undertaken in October 2022. The instruments were administered at the various retail outlets and NPA office in the Ga West Municipality of the Greater Accra Region of Ghana. Permission was first sought from management to carry out the research work. Objectives and rationale for the study were explained to the management so as to allow the researcher continue the study.

There were some few research challenges that the researcher faced during the fieldwork. On the part of the management, some managers were suspicious of what the information would be used for and for that matter were reluctant in providing some important management information. The researcher had to reassure those managers of the confidentiality of the information that they were providing and also explained the objectives of the research to those managers.

High cost in the administration of the questionnaire. This was due to the fact that the filling stations were scattered in the municipality and for that matter the researcher had to move to almost every corner in the municipality and this also led to an increase in transportation cost.

Data Coding

Data were coded manually. This entailed an intensive listening and drawing out certain kinds of phenomenon linked to the objectives of the study. Data collected were constantly checked for accuracy and consistency in the application of data coding procedure. Data transcription was checked many times to eliminate mistakes in the coding process (Akosa, 2016).

Data Processing and Analysis

In terms of interviews, data gathered in the field were transcribed for analysis. Based on the study's objectives, the transcribed data were edited, cleaned, and organized into themes. In order for the researcher to draw logical inferences and conclusions from the data, the analysis was done based on the themes that arose from the questionnaires and interviews in relation to the research questions (Miles & Huberman, 2013).

The data was evaluated thematically in accordance with the research objectives. The researcher transcribed all audio and video recordings of interviews, documents, observations, conversations, diary entries, and field notes. The transcription process was to make it easier for the researcher to become familiar with the data. After that, a file for the primary data was made and saved in a designated folder. In order to maintain confidentiality, the produced file was saved on both the researcher's personal computer and email account. Following the themes that emerged from the data in relation to the study questions, the contextual significance of the obtained data was now examined case by case. The data analysis followed the rules provided by Braun and Clarke (2013). The following are some of the guidelines: Getting familiarized with the data was step one, followed by creating initial codes,

creating new codes for each transcript, reviewing themes, naming and defining themes, and producing the report.

Coding was used in generating various themes. These themes appeared as the major findings of the study and intend appeared under separate headings in the finding sections. The data received from the interview schedules and questionnaires was assigned a serial number and a code for simple identification, and the responses were placed into a computerized programme (Statistical Product and Service Solutions (SPSS) version software 22) for processing and analysis. The outcomes were then displayed as tables. The patterns of the variables in the study were described using descriptive statistics, primarily Mean and Standard Deviation.

Ethical Issues

Ethical considerations are crucial in social research to protect respondent's rights and strengthen the validity of the research findings. The study adhered to the University of Cape Coast's ethical principles and code of ethics. In order to guarantee this, a letter of introduction was requested from the Institute for Oil and Gas Studies, University of Cape Coast, before any data were gathered. This was to make it possible for people and organizations to understand the study's goal. The nature and purpose of the study, as well as the researcher and the field assistants were described to respondents. The respondents' informed consent was requested. This was accomplished by informing them of the study's nature and goals, based on which they decided whether or not to voluntarily participate by submitting pertinent information. Additionally, respondents were granted their right to privacy by being respected when they express a preference not to answer a particular question.

It is also vital to build trust with research participants, which was also accomplished in this study by ensuring that all respondents' anonymity was maintained. The responders received a thorough explanation of the procedures involved in the study and how the results will be presented (Creswell, 2014). It was also made clear that identities were not going to be used and be tied to any study reports; instead, only the positions or offices of some interviewees will be used.

Finally, respondents' right to confidentiality was respected. Respondents' disclosed information was only used by the study for academic objectives and for no other purposes. The respondents' participation was voluntary and dependent on their consent. Additionally, extreme care was taken to ensure that each participant felt safe, secure, and at ease during the study.

Field Experience

Challenges that accompany research works are nothing new to all researchers. There were some challenges the researcher encountered during the data collection process though some were controllable. They included unavailability of respondents, unwillingness to give information especially at the public organizations and multinational companies, the unwillingness of some respondents to be voice recorded and bureaucratic bottlenecks.

In order to address the issue of bureaucratic delays, an introductory letter from the Institute for Oil and Gas Studies, University of Cape Coast, was sent to the various organizations and individuals (NPA, and OMCs) that were concerned about the research in order to formally tell them about the objectives of the research. Some even requested the interview guide to study

thoroughly. However, after submitting the introductory letter, it took more than three weeks to get authorization to begin the interview process.

Another difficulty was that, some participants refused to have their voices recorded. Since the price of gasoline is a matter of national importance, some respondents objected to having their voices recorded, citing the prevalence of recorded voice scandals. However, after being assured of confidentiality and their anonymity in the study, some agreed to have their interviews recorded, while others requested for them to be written down instead. Some respondents refused to answer some of the interview questions. The researcher had to explain to the interviewees that the interviews were strictly and purposely for academic work.

Another difficulty was being interrupted by coworkers, subordinates, and customers who wanted them to attend to business. Interviews were halted in these situations until the respondents showed up again. The interview sessions had to be rescheduled and continued at a new date and time in some instances. Transcribing the recorded interviews was another difficulty. It was very stressful and time consuming. Some recordings were lengthy and time consuming because interviewees elaborated on issues which were not relevant to the topic under discussion. The transcriptions were all done by the researcher, giving the researcher a better understanding of the data, which facilitated an in-depth analysis and discussions of findings.

Despite all these challenges, the researcher was able to collect the necessary information for the research. To conclude, the field experience was hectic and stressful, but participants were typically helpful and supportive throughout.

Chapter Summary

This study gathered data with interview schedules and questionnaires. The combination of these two methods ensured the reliability and validity of the findings by means of data triangulation, which is commended by O'Donoghue and Punch (2003) as a good method of data validation. Information collected from the interviews was cross checked with that of the questionnaires for consistency. Field visitations and data collection were conducted by the researcher herself. For credibility and reliability of this study, principles of objectivity and authenticity were maintained throughout the content analysis.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

This chapter presents the analysis and discussion of the data collected from the field. The study gathered data on the impact of COVID-19 On oil marketing companies (OMCs), in the Ga West Municipality of the Greater Accra Region of Ghana. As indicated in the previous chapter, interview guides and questionnaires were used to collect data. A total of 65 respondents participated in the study, 35 respondents were interviewed, whiles 30 also responded to questionnaires in relation to the study; two (2) respondent each from the thirty (30) sampled OMCs and also one respondent each from the five (5) departments of NPA. All respondents were purposively selected due to the nature of the study. For the purposes of the analysis, the findings are presented according to the research questions for the study. The chapter has been divided into two. The first part of the chapter focused on the background information of the respondents. The second aspect concentrated on the presentation and discussion of the main findings of the study.

Socio-Demographic Profile of Respondents

This section deal with the information collected on the background of the respondents. One particular characteristic of surveys is the description of the socio-demographic characteristics of the respondents. The demographic characteristics of the respondents are requisite in grasping the dynamics among the selected group and an in-depth understanding of these characteristics helps in explaining the results of the study. Although, surveys are not geared towards socio demographic characteristics of respondents, this

information may help understand some of the trends in the result. The socio-demographics information of respondents comprised sex, age, educational background, type of ownership of the retail outlets and the number of years of working in the fuel retail outlets. These are likely to influence respondents' judgments on some of the issues under consideration. Table 5-9 present the background information of the respondents.

Sex of Respondents

Sex is an example of a nominal variable. Sex is an important issue in assessing the impact of COVID-19 on oil marketing companies because it is important in decision-making, communication, stakeholder engagement and preferences for the uptake of interventions (Addae, 2020). The uptake of sex is considered in this study design, in order to ensure that the research results apply to everyone. Sex of respondents may affect the kind of relation an employee may have with an employer. Consideration of sex is critical in the interpretation, validation, and generalizability of the research findings. Furthermore, adequate consideration of both sexes in experiments and disaggregation of data by sex allows for sex-based comparisons. Table 5 presents the sex distribution of fuel retail outlets attendant respondents.

Table 5: Sex of retail outlets attendant respondents

Sex	Frequency (N)	Percentage (%)
Male	24	80
Female	6	20
Total	30	100.0

Source: Fieldwork, (2022)

Table 5 provides a summary of the sex distribution of the respondents involved in the study. In terms of the gender of respondents, it was indicated that out of 30 respondents sampled for the study, 80% were males. This gives the implication that there were more males than their female counterparts. This could be attributed to the nature of the work at the filling station. Most of these works require strength and energy and as such it is been dominated by males who are perceived to have the required energy and strength for the job.

Ages of Respondents

Age is one of the basic demographic variables used in research (Addae, 2020). It is widely used in cross classification with other variables such as sex, marital status, occupation. It is most commonly used to differentiate populations in terms of the time elapsed (usually in complete years), generally from date of live birth to a point in time (date of a particular survey) (Addae, 2020).

Ages of employees usually depicts a number of characteristics about a particular firm or company. The younger the age group the more likely the firm's job may require more strength and energy to perform (Akosa, 2016). The age category of respondents has been presented in Table 6. The results indicate that majority, 17 (56.7%) of the respondents, fell within the 26-35 years age group while the minority, 13 (43.3%) of the respondents each, fell within the 18-25 years age group. Clearly, the results show that the majority of the respondents are young and are within 26-35 age brackets. The age distribution of the respondents is situated within what Prensky (2001) describes as 'digital natives or citizens. Prensky (2001) added that individuals born after 1984 fall within this description. The assumption here is that fuel

retail outlets attendants who fall within these age categories may have had the opportunities to interact with the internet, digital cameras and many other technologies that allow them to instantly interconnect with their world and also demonstrate good work habits, improves time management and organizational skills and can bring fresh perspective and a different way of thinking to the fuel retail business since they are eager to learn, build their experience and apply their skills in the workforce. This enthusiasm is great for team building, productivity and workplace morale. Also, respondents who fall under this age brackets give advantage to target the millennial market as they understand how to reach and communicate with their peers (Akosa, 20160. It could, therefore, be argued that, having such age group can also bring about new energy and perspective, workforce development, better leverage of resources, technology advancement and early adoption, adaptability and agility, increased corporate citizenship ratings and affordability since wages for a young employee are less expensive than those for an older more experienced worker.

Table 6: Age distribution of retail outlets attendant's respondents

Age(years)	Frequency(N)	Percentage (%)
18-25	13	43.3
26-35	17	56.7
36-45	0	0.0
45-55	0	0.0
56+	0	0.0
Total	30	100.0

Source: Fieldwork, (2022)

Level of Education

Educational level of employees has been found to influence turnover in a firm, performance of workers, output and sustainability. Table 7 presents

education attainment of workers in the oil marketing retail outlet in the Ga West Municipality of the Greater Accra Region of Ghana.

Table 7: Educational level of retail outlets attendant respondents

Education	Frequency(N)	Percentage (%)
Tertiary	0	0.0
Senior High School	30	100
Junior High School	0	0.0
Basic School	0	0.0
Total	30	100.0

Source: Fieldwork, (2022)

Table 7 shows that, all of the employees were Senior High school levers (SHS). Therefore, the results indicate that all of the respondents had acquired some fundamental education. The high dependent on school levers by the oil marketing retail outlet in the Ga West Municipality has implication for larger turnover as these groups have the potential of leaving for further education.

Ownership

Table 8 below represent the number of fuel outlets Ownership in the Ga West Municipality.

Table 8: Ownership of fuel retail outlets

Ownership	Frequency(N)	Percentage (%)
Multinational Company	3	7.7
Individual Private Owned	22	75.7
State Owned	5	16.6
Total	30	100.0

Source: Field work, (2022)

Table 8 shows that 75.7 percent of the oil marketing retail outlets in the Ga West Municipality are individual owned. This was followed by the state-owned (16.6%) and multinational company (7.7%). This implies that there are

more individual owned fuel retail outlets in the municipality than state own and multinational owned.

Number of years worked

In terms of the number of years worked in a particular retail outlet of respondents, the respondents were grouped based on the number of years worked. The results indicated that, all the respondents have worked in the retail outlets for more than two (2) years. Clearly, the results shows that the majority of the respondents are adapted to the organization's culture and have a strong understanding of the policies and processes of the organization and they are often viewed as loyal employees. Such employees tend to feel more stable in their careers and positions, resulting in increased motivation, productivity and commitment to the organization which results in increased productivity (Addae, 2020). Table 9 below represents the number of years respondents have worked in the various fuel retail outlets in the Ga West Municipality.

Table 9: Number of years worked

Number of Years Worked	Frequency (N)	Percentage (%)
Below 6 months	0	0.0
6 months- 1year	0	0.0
1year- 2years	0	0.0
Above 2 years	30	100%
Total	30	100

Source: Field survey, (2022)

Main Discussions

This section focuses on the discussion of the data from the field to address the research questions that were formulated to guide the study. The five-point Likert scale questionnaire that was administered was analyzed using

mean and standard deviations. In employing the mean and standard deviations for the analysis, the decision rule followed is presented below;

Table 10: Decision Rule for Means Values

Mean Values	Scale
4.5-5.0	Strongly Agree
4.4-3.5	Agree
3.4-3.0	Neutral
2.9-2.5	Disagree
2.4-1.5 and below	Strongly Disagree

Table 11: Decision Rule for Standard Deviation Values

Standard Deviation Values	Interpretation
1.0 or greater than 1.0	Responses were heterogeneous
Less than 1.0	Responses were homogeneous

Research Question One: What are the Effects of COVID-19 on Sales at Marketing Outlets?

Research question one sought to find out the effects of COVID-19 on sales at marketing outlets (fuel station). It is important to know that the effects of COVID-19 on sales at marketing outlets (fuel station) were measured in terms of ways in which the COVID-19 affected their operation on the demand side, supply side, site and location, how COVID-19 measures affected their operations and how working from home affected their operations. The results are presented in Table 12.

Table 12: Effects of COVID -19 on Sales at Marketing Outlets (Demand Side)

Variable	Mean	Standard Deviation
Demand Side: Ways in which COVID-19 affected your operations		
a) Customer inflow reduced during COVID-19 period.	4.97	0.18
b) Customer inflow increased during COVID-19.	1.00	0.00
c) Sales increased during COVID-19.	1.83	1.62
d) Salaries decreased during the COVID-19.	3.33	1.35
e) Other services rendered such as; marts, car washes, lube services etc were also affected during COVID.	4.53	1.14
Mean of Means/Average Standard Deviation	3.13	0.38

Source: Field survey, (2022)

Table 12 presents the results on the effects of COVID-19 on sales at marketing outlets (fuel station). The results showed that majority of the fuel retail outlet attendants strongly agreed that customer inflow reduced during COVID-19 period and their responses were homogeneous (M=4.97; SD=0.18). This implies that the number of customers who were buying fuel during the COVID-19 period reduced. It can be deduced that this happened as a result of the lockdown. On their responses on increase in customer inflow during during COVID-19, it was discovered that majority of the respondents strongly agreed and there existed no differences in their responses (M=1.00; SD=0.00). This finding is key because, it is in agreement with the responses given by the respondents regarding the first statement.

Following their responses on increase in sales during the COVID-19 pandemic, the results revealed that a greater percentage of the respondents

strongly disagreed and there were differences in their responses (M=1.83; SD=1.62). The implication here is that because of the many restrictions that were put in place by the government of Ghana on movement, majority of Ghanaians, were not going out with their own vehicles or public transport and that made sales of fuel to be reduced to some extent. In relation to their responses on decrease in salaries during the COVID-19 period, it was found out that majority of the respondents gave neutral responses, there were variations in their responses (M=3.33; SD=1.35). This gives the implication that for most of the fuel outlet employed for the study; their salaries were at a point reduced and at a point maintained.

For their responses on other services rendered such as; marts, car washes and lube services also affected during COVID, the results indicated that the respondents strongly agreed with variation in their responses (M=4.53; SD=1.14). This follows logically that most of them were of the view that the services that the fuel rendered to their client in terms of marts, car wash and lube services were affected negatively by the pandemic. The overall mean and standard deviation for effects of COVID -19 on sales at marketing outlets (fuel station) on the demand side rated (M=3.13; SD=0.38). This direction of their responses shows uncertainty. This means that majority of the respondents were not sure or certain that the pandemic affected their operations on the demand side to a very large extent.

The uncertainties in the quantitative responses were not the same as the levels of certainty expressed by the managers during the face-to-face interview. One of the managers from Shell fuel station mentioned that the

pandemic affected their operations on the demand side negatively. The extract below highlights this point;

> *The COVID-19 was quite severe, with regards to the sales aspect. Sales reduced; it really affected us negatively. The number of customers coming to the forecourt to buy fuel reduced and also those patronizing the shop also reduced. The place was not active as it used to be. There was low demand on our products and profit dropped totally* (**Manager, Shell Fuel Station**).

Another manager buttressed the position of the first manager;

> *The COVID -19 affected our business negatively because we knew how the business was before the pandemic started. Sales dropped for about 90%, demand was also low and profits also reduced. Because OMC's deals with traffic, there was a huge cut in traffic during the COVID because cars were not moving and most people were working from home and that brought about the reduction in sales and profits* (**Manager, Goil Fuel Station**).

On the same issue, a manager from Puma Energy added that the brought a severe impact on our operations leading to a serious financial crisis;

> *The COVID -19 affected us in a negative way, because sales went down and profits were also low and demand also dropped. It really brought a severe*

> *impact on our operations leading to a serious financial crisis* (**Manager, Puma Energy**).

Finally, the head of Finance from the National Petroleum Authority added his voice and stated that the pandemic affected their cash flow. That is the delay from the OMCs in paying their license fee affected them negatively. He also mentioned that the ban placed on construction permit affected them negatively. The quote below shows it:

> *The COVID did not affect us in any way, because we don't license based on volume so whether volumes increased or decreased it doesn't affect us. But indirectly during the COVID any time an industry delays payments it affects us in a way because it delays the cash flow. So, our license fee was fixed and it didn't affect us. But the only thing I will say affected us was the ban we placed on construction permit; with that we stopped them from undertaking any construction so with that the money they would have paid for acquiring permit was not coming so that was the only thing that affected our revenue. Since they were not paying for construction permit and that affected our finances* (**Head of Finance, NPA**).

The results on the effect of the pandemic on the supply side are presented in Table 13.

Table 13: Effects of COVID -19 on sales at marketing outlets (Supply Side)

Supply Side: Ways in which COVID-19 affect your operations?	Mean	Standard Deviation
a) The supply of fuels was greatly affected.	4.73	0.64
b) COVID-19 affected the supply of gasoline.	4.37	0.85
c) The supply of lubricants was greatly affected.	3.83	1.05
d) The supply of other services like, air compressor, jet fuel, marine gas oil etc was affected	3.10	0.40
Mean of Means/Average Standard Deviation	4.01	0.54

Source: Field survey, (2022)

Table 13 shows the results on effects of COVID -19 on sales at marketing outlets (supply side). It is obvious from the results that majority of the respondents agreed that the pandemic affected their operations on the supply side (M=4.01; 0.54). This is then seen, as a majority of the respondents strongly agreed that the supply of fuels was greatly affected and their responses were homogenous (M=4.73; SD=0.64). In other words, it can be stated categorically that the lockdowns in all the countries around the globe created the room for the non-continuous supply of fuel to fuel marketing outlets of which those in Ghana are no exception.

Thirdly, it can be seen from the results that most of them agreed that COVID-19 affected the supply of gasoline and their responses clustered around the mean (M=4.37; SD=0.85). This relates to the fact that since there were lockdowns across the world, the supply of the gasoline was affected negatively. Fourthly, the result discovered that most of them agreed that the supply of lubricants was greatly affected and their responses were far from the mean (M=3.83; SD=1.05). This finding is not surprising because the pandemic made it almost impossible for lubricant to be supplied. Finally, it was

portrayed from the results that there were neutral responses to the statememt that the supply of other services like, air compressor, jet fuel, marine gas oil etc was affected with homogenous responses (M=3.10;SD=0.40). This is in consonance with the responses of the managers during the face-to-face discussions.

> *The tankers were not coming on a regular basis, because sales were down and we could not patronize more, since the number of tankers that comes in to discharge fuel is based on your income, so the more capital you have, the more tankers you patronize and will supply you with fuel but since profits was low and we were not meeting our margin, the number of takers we were patronizing and supplying us with fuel and lubricants also reduced. Initially we were taking up to a week to finish a tanker but when the COVID came we were taking up to 3 weeks to a month to finish up a tanker. So, we could have tankers parked here for like weeks before we could discharge* **(Manager, Shell Fuel Station).**

In the same vein, a manager from Frimps Oil intimated that there was financial crisis to the extent that they could not purchase the fuel. Below is the quote;

> *Yes, there was a serious financial crisis to the extents that we couldn't purchase fuel on a regular basis since we were not meeting our margin* (**Manager, Frimps Oil**).

The positions of the first two managers were corroborated by a manager from Benab Oil. He mentioned that the rate at which they were discharging fuel in a week reduced. The quote below is in support of the above;

> *No, since the demand was low, we had enough fuel so we were not discharging as we used to do. And the number of tankers you discharge depends on your capital, but since sales was low, we couldn't even afford it. Meanwhile we used to discharge fuel twice every week before the COVID, but during the COVID, we were discharging only once in about 3 weeks, so the COVID really affected our operations. There was nothing positive about the COVID* (**Manager, Benab Oil**).

The effect of the pandemic on site and location is presented in table 14.

Table 14: Effects of COVID -19 on Sales at Marketing Outlets (Site and Location)

Site and location	Mean	Standard Deviation
a) COVID-19 affected operations because of the location of the fuel station.	3.77	1.52
b) Fuel stations located within the town were more affected than those outside the town.	3.97	1.47
c) Location played a huge role in attracting customers during the COVID.	4.40	1.25
Mean of Means/Average Standard Deviation	4.04	1.09

Source: Field Survey, (2022).

Results from Table 10 show the effects of COVID -19 on sales at marketing outlets (site and location). It was not a surprising that the pandemic affected the site and location of the fuel retail outlets in the Ga West Municipality of the Greater Accra Region of Ghana with heterogeneities in their responses (M=4.04; SD=1.09). For example, majority of the respondents agreed that the pandemic affected operations because of the location of the fuel station and their responses were different concerning the statement (M=3.77; SD=1.52).

In the same vein, most of them agreed that fuel stations located within the town were more affected than those outside the town with variations in their responses (M=3.97; SD=1.47). Finally, it was agreed by majority of them that location played a huge role in attracting customers during the COVID with disparities among their responses (M=4.40; SD=1.25). This gives the implication that for the selling and buying of fuel to thrive better, location is sine qua-non. In this direction, it follows logically that the location of the fuel marketing outlet plays an instrumental role in fuel retailing. This makes it obvious that the fuel marketing outlets located in known places in the municipality will have more sales than the ones located in unknown places. From the face-to-face interview sections, a manager stated that, even though quality is important, the site and location also play a major role in maintaining and attracting customers during the pandemic. Below is the quote;

> *It was the quality that attracted our customers. You know when you talk about Goil you talk about quality and most people wants quality fuel so that was what attracted them during the pandemic to our fuel station.*

> *And I think the location too was part because this is the first Goil fuel station you meet when you get on the Accra -Kumasi high way with a big compound for parking so it attracts the big trucks whenever they use this route so that was what helped us to maintain our customers and attracts more during the crisis* (**Manager, Goil Fuel Station**).

In the view of another manager, the neatness of the environment creates the platform for maintaining and attracting customers. This means that when the site of the fuel station is kept neat, the customers trooped in. Below is the excerpt;

> *It was the neatness of the environments. Because we ensured that we cleaned everywhere on a regular basis as well as fumigate and disinfects the place too* (**Manager, Radiance Fuel Station**).

In the same vein, a manger from Shell added that the cleanliness of the site and the strict observance of the COVID-19 protocols was what attracted the customers during the pandemic. The quote below supports the above;

> *During the COVID -19 almost everyone was scared so what attracted the customers was the cleanliness of the environment and also the use of the PPEs because all our workers followed the COVID-19 protocol measures strictly and the place was always neat and also there was the availability of Veronica buckets, hand sanitizers, soaps, running waters and tissues. So,*

that was what attracted our customers to come we didn't do any promotions because we couldn't make up for that, so that was what we did (**Manager, Shell Fuel Station**).

The effects of the COVID-19 restrictions on fuel marketing operations are presented in Table 15.

Table 15: Effects of COVID -19 on Sales at Marketing Outlets (COVID-19 Measures)

COVID-19 Measures: ways COVID-19 measures affected operations	Mean	Standard Deviation
a) The restrictions affected fuel demand.	4.67	9.12
b) Social distancing put a lot of strain on the routine of carrying out duties and responsibilities.	4.87	0.57
c) The introduction of PPEs increases the cost of operations .	4.93	0.25
d) Hand washing discouraged clients/customers from patronising from the fuel station.	2.30	1.42
Mean of Means/Average Standard Deviation	4.69	2.26

Source: Field survey, (2022)

Table 15 shows the responses of the respondents on effects of COVID -19 on sales at marketing outlets (COVID-19 measures). On the first statement, it was discovered that majority of them agreed that the restrictions affected fuel demand with major differences in their responses (M=4.67; SD=9.12). This suggest that the COVID-19 restriction put in palce by the government of Ghana affected the demand of fuel by the consumers. It was so because, most of the consumers were staying indoors or working from home hence their demand for fuel on daily or weekly basis reduced.

Paying attention to the statememt soliciting their responses on social distance, it was brought to bare that majority of them strongly agreed that the

measure put a lot of strain on the routine of carrying out duties and responsibilities with homogenous responses (M=4.87; 0.57). This in turn affected the close working relationship among workers and eventually affected their produtivity at their respective fuel marketing outlet. It was not surprising when majority of the respondents strongly agreed that the introduction of PPEs increased the cost of operations and their responses were closer to the mean (M=4.93; SD=0.25).

Additionally, it was made clear from the results that hand washing did not discourage clients/customers from patronising from the fuel station and there were differences in their responses concerning the statement (M=2.30; SD=1.42). This gives the implication that most of the patronisers complied with the measures of the pandemic being practiced in the fuel marketing outlet. It is then deduced that the measures did not have significant effect on their patronage of fuel from the various outlets in the municipality. The overall mean and standard deviations values for the effects of COVID -19 on sales at marketing outlets (COVID-19 measures) rated (M=4.69; SD=2.26). The direction of the results gives reason to the fact that the measures for the pandemic affected their operations and their responses were heterogenous. From the face-to-face interview sections, a manager stated that, the COVID -19 measures led to a serious financial crisis to the extents that they could not even patronized fuel as they use to do. Below is the quote;

> *The COVID-19 measures that were put in place really affected our operations and led to a serious financial crisis especially with the restrictions, it affected fuel demand and the introduction of PPEs also increased*

the cost of operations by bringing extra cost which we did not even budgets for and this reduced our capital to the extents that we could not get enough capital to buy products to sell especially with fuel (**Manager, Benab Fuel Station**).

In the same vein, a manger from Total Energies added that it was during that time that the introduction of PPEs came into existence and it was very expensive and it drained their income and brought about extra expenses that they did not budget for. The quote below supports the above,

It was during that time that the introduction of PPEs came into existence and it was very expensive, since you have to buy more to protect your staffs and customers from getting the sickness, especially after the lockdown it became a norm and it was draining our income and you know Total Ghana, we are different when it comes to neatness of retail outlets, so we were buying it as often as we could and that was very costly because it was bringing extra expenses we did not budget for. During those days PPEs were very expensive so in a week, the tissues, sanitizers and nose masks was costing us about Gh400 but the fortunate thing was that, with the sanitizers, you just have to use small and you are good to good and also, we had local producers who produced them at a moderate cost and that enabled us to buy more to sanitize our pumps, the

door knobs, and our hands and even with that it was still draining the little income we had. So, in a nut shell it brought about extra expenses we did not planned for. (**Manager, Total Fuel Station**).

In the view of another manager, the purchasing of the PPEs really brought about extra expenses and that was very costly because they did not budget for that and moreover, the social distancing also put a lot of strain on the routine of carrying out their duties and responsibilities in their outlets and that really affected their operations to some extent. Below is the excerpt,

With regards to the purchasing of the PPEs it really brought about extra expenses and that was really costly. This was due to the fact that sales dropped, and demand was low and we had to buy those things from the little money we were getting and this really brought about extra cost we didn't plan for. In our outlets, we even bought it in bulk and it lasted for about a month and more and in a rough estimate I will say it costs us about GH4000- GH5000 and that was on extra cost we did not budget for and also the social distancing put a lot of strain on the routine of carrying out our duties and responsibilities and this really affected our operations to some extents. (**Manager, Engen Fuel Station**).

The head of operations of the National Petroleum Agency mentioned that a manual was developed to guide the operations of the marketers. This is seen in the excerpt below;

> *We developed a manual to guide the operations of the marketers. These were the major things NPA did because the objective was to ensure how they will operate in a safe manner so that, they won't spread the pandemic. So that was basically what we did to ensure that we operated in a safe manner, in terms of regulations. So, when the ministry of health wrote to us we also endorsed it and circulated it to our industry players while we ensured that they complied with the protocols* (**Head of Operations, NPA**).

The result of the effects of COVID -19 on sales at marketing outlets (working from home) is presented in table 16.

Table 16: Effects of COVID -19 on Sales at Marketing Outlets (Working from Home)

Working from home	Mean	Standard Deviation
a) Employee shifts improved fuel stations services.	3.53	1.46
b) Shortened employee work days affected salaries.	2.70	1.42
c) Reduced time of operation affected productivity.	4.10	1.24
Mean of Means/Average Standard Deviation	3.44	0.85

Source: Field survey, (2022).

Table 16 presents the results on effects of COVID -19 on sales at marketing outlets (working from home). It is seen from the results that majority of the respondents agreed that employee shifts improved fuel stations services and their responses were not different from each other concerning the statement (M=3.53; SD=1.46). Concerning the statement on the statement that, shortened employee work days affected salaries, majority of the respondents disagreed and their responses were heterogenous (M=2.70; 1.42).

Regarding their responses on reduced time of operation affecting productivity, it was found out that majority of them strongly agreed and their responses were not the same concerning the statement (M=4.10; SD=1.24). The overall means and standard deviation of the effects of COVID-19 on sales at marketing outlets (working from home) rated (M=3.44; SD=0.85). The direction of the results gives the implication that working from home did not have significant effect on their operations. From the face-to-face interview sections, a manager stated that, even though their times of operations were reduced, it did not affect their salaries. Their salaries were maintained, there was no division or reduction in their salaries. Just that some allowances were taken off. Below is the quote;

> *The pandemic really affected our working days because we were coming to work on a weekly basis especially with the retail attendants, but our salaries were maintained, there were no reduction in our salaries. Just that some allowances were taken off because of the financial crisis in order to be able to sustain the outlet.* (**Manager, Dukes Fuel Station**).

On the same issue, a manager from Shell added that during the pandemic they did not lay any of their workers off and it did not also affect their salaries but it affected their working periods and hours, since their time of operation was reduced and this affected productivity.

> *During the COVID-19 pandemic, we did not lay any of our workers off and it did not also affect their salaries. Their salaries were maintained, we did not increase or reduced their salaries but it affected their working periods and hours, because people had to struggle to get car to work because commercial vehicles were not operating during the lock down and the workers had to resort to picking taxis or uber and that affected them in a way, so we made them come to work on a weekly basis since we didn't want them to spend the little salaries we were giving them on transports and this reduced their time of operations and affected productivity, so, that was the challenge but shortened employee work days did not affect their salaries* (**Manager, Shell Fuel Station**).

In the view of another manager, even though the employees were running on shifts they maintained their salaries and allowances. They did not reduce their salaries. Below is the excerpt,

> *Employee shifts did not improve fuel station service and it really affected productivity but it did not affect their salaries, we maintained their salaries and*

> *allowances. We didn't slash or divide their salaries even though they were running on shifts. Instead of the 48 hours they were doing, the attendants were coming to work on a weekly basis. The shifts became like four (4) instead of two (2), so two (2) will come this week and two the following week, so in all we had four (4) shifts during the lock down.* (**Manager, Benab Fuel Station**).

Finally, in an interview with the head of Operations at the National Petroleum Authority mentioned that they were working from home and running shifts for more than a year. The quote below shows it;

> *We were working from home and running shifts. We worked from home for more than a year it was only some few departments that were undertaking critical activities that were coming to work. Even with them they were running shifts, some were coming for week, others too two weeks actually it depends on the number of people in your office* (**Head of Operations, National Petroleum Authority**).

In brief, it is clear from the findings that the COVID-19 pandemic negatively affected the sales of oil marketing outlets in the Ga West Municipality. It has been found from the responses that these outlets had their sales negatively affected owing to their location. Undoubtedly, traffic flow and buying area have influence on the sales made by fuel stations as such the responses noted that due to the measures implemented, such as the lockdown

and the fact that people had to work from home there was low traffic flow during the pandemic, this in effects caused demand and supply to drop such that it negatively affected the sales of oil marketing outlets in the Ga West Municipality to a very large extent. Likewise, the responses revealed that uncertainty such as the purchasing of PPEs, veronica bucket, tissues, hand sanitizers and soaps which came with the pandemic brought about an unexpected expenditure which also affected their sales. This confirms the findings of works conducted by Dewi and Adiarsi (2020) and Iyke (2020) which noted that the combined expenses of procuring essential items like hand sanitizers, soaps, tissues, and buckets, along with the necessity to adhere to government-imposed COVID-19 lockdown measures, collectively led to a marked decline in sales within the oil marketing sector. This is also an acknowledgement of the institutional theory on grounds that per the institutional theory the combined expenses and adherence to COVID-19 measures, driven by external institutional pressures, influenced the decline in sales within the oil marketing sector as organizations sought to gain legitimacy and navigate the changing institutional landscape during the pandemic. This equally affirms the assumptions of the general equilibrium theory since it highlights the interconnectedness of various economic factors including the extent to which the increased expenses and adherence to COVID-19 measures altered consumer preferences, disrupted supply chains, and influenced overall economic activity, ultimately contributing to the marked decline in sales within the oil marketing sector as it adapted to the changing equilibrium of supply and demand in the economy.

Again, these findings confirm the assumptions of the game theory since they highlight the strategic decisions and interactions between oil marketing outlets and consumers in response to pandemic-related changes, with the decline in sales representing the outcome of these strategic choices within an equilibrium influenced by health concerns, safety measures, and economic considerations.

Research Question Two: What are the impacts of COVID-19 on fuel marketing operations in relation to health and safety?

Research question two sought to find out the impact of COVID-19 on fuel marketing operations in relation to health and safety. It is important to know that the impact of COVID-19 on fuel marketing operations in terms of health and safety were measured in terms of ways in which COVID-19 affected customers, ways in which COVID-19 affected fuel station equipment, ways in which COVID-19 affected materials at the fuel station, ways in which COVID-19 affected the environments and ways in which COVID-19 affected processes at the fuel station. The results are presented in Table 17.

Table 17: Impacts of COVID-19 on Fuel Marketing Operations in Relation to Health and Safety (Ways in which COVID-19 affected Customers)

Ways in which COVID-19 affected Customers	Mean	Standard Deviation
a) Customers inflow to services of the fuel station reduced.	4.83	0.75
b) Customers adhered to the COVID-19 protocols.	4.70	0.65
c) Customers understood the reasons to adhere to the COVID-19 protocols.	4.67	0.61
d) Customers received orientation through visual aids on COVID-19.	0.61	1.81
Mean of Means/Average Standard Deviation	4.29	0.58

Source: Field Survey, (2022)

Table 17 shows the results on the ways in which COVID-19 affected customers. It is obvious from the results that the pandemic affected customers inflow to the fuel retail outlets in the Municipality with homogeneities in their responses (M=4.29; SD=0.58).). For example, majority of the respondents strongly agreed that customers inflow to services of the fuel station reduced (M=4.83; SD=0.75).

In the same vein, most of them strongly agreed that customers adhered to the COVID-19 protocols with no variations in their responses (M=4.70; SD=0.65).Customers understood the reasons to adhere to the COVID-19 protocols majority of the respondents strogly agreed and their responses were the same (M=4.67; SD=0.61). Finally, it was strogly disagreed by majority of them that customers received orientation through visual aids on COVID -19. with disparities among their responses (M= 0.61; SD=1.86). This gives the implication that for the selling and buying of fuel to flourish better, customers play a very key role. In this direction, it follows logically that the inflow of customers to service station or fuel marketing outlet plays an instrumental role in fuel retailing. This makes it obvious that the fuel marketing outlets that had the highest customers inflow during the pandemic in the municipality will have more sales than the ones that had fewer customers inflow. From the face-to-face interview sections, a manager stated that, even though some of the customers were adhering to the COVID-19 protocols, others were not especially with the commercial drivers since they did not see the COVID as a threat yet still they were patronizing from them and business was picking up gradually when the ban was lifted until the fuel increment set in and people

also lost their jobs. And this has really reduced the purchasing power of their customers and it has really affected their sales and margin. Below is the quote;

> *Some of the customers adhered to the COVID-19 protocols especially those in their private cars but with the commercial drivers it was very difficult for them to adhere to the protocols, they didn't see the COVID as a threat. Some complained, especially when you asked them to wash or sanitize their hands before you attend to them and there were others who also complained if there were shortage of tissue and sanitizer. Such people will not even patronize you, they will just leave, some people asked for it whiles others refused to even use it when it is available but they were still patronizing from us even when the ban was lifted, and things started picking up gradually, though there was still the fear of COVID- 19. The market came back to normal and sales were moving up but not like it used to be before the COVID-19.but after some time, a lot of people lost their businesses, and a lot businesses also collapsed so most people were not going to work and traveling like they use to do and others too were working from home and as a result, it reduced their purchasing power and that really affected our sales and margin. People who use to patronize us were the big buses and trucks that*

> *travel outside Accra and some private companies as well as the commercial drivers and the recent increment in fuel has also reduced their purchasing power which is really affecting our margin. People are not really coming in to buy and even if they do, they don't buy the amount they used to buy. The pandemic has really affected our customers.* **(Manager, Shell Fuel Station**).

In the same way, a manager from Goil intimated that some of the customers understood the reason to adhere to the COVID-19 protocols whiles others also gave them tough time especially, with the commercial drivers and some private cars owners, even till date they still have some of the veronica buckets placed at vantage points but they are not being used like they used to. Things went back to normality, sales increased and demand also increased and they were meeting their profit margin until the job loss of some customers and the weekly fuel increments set in to reduced customer inflow and purchasing power to their outlets. Below is the quote;

> *Some of the customers understood the reasons to adhere to the COVID-19 protocols whiles others also gave us tough time especially the commercial drivers and some private car owners, even till date we still have some of the veronica buckets placed at vantage points but they are not being used like they used to. The use of it was not effective at all but the customers were still buying from us. Things went back to*

> *normality when the ban was lifted, sales increased and demand also increased and we were meeting our profit margin. Customers were coming in so we were trying to make up for the loses during the COVID until the job loss of some of our customers and the weekly fuel increment set in to mess up everything. This has really affected the purchasing power of our customers to the extents that they cannot not even buy the amount of fuel they used to buy* (**Manager, Goil Fuel station).**

The views of the first two managers were corroborated by a manager from Frimps Fuel Station. He mentioned that some of the customers adhered to the COVID -19 protocols whiles some did not, especially with the commercial drivers, they used to fight with them anytime they asked them to put on their noise mask up or sanitize their hands. The quote below is in support of the above;

> *Some of the customers adhered to the COVID -19 protocols whiles some did not especially with the commercial drivers, they use to fight with us anytime we ask them to put on their nose mask or sanitize their hands, they did not see it as a threat. But irrespective of that they were still buying from us and we were trying to make up for the losses. Things started picking up after the COVID -19 until fuel increments sets in and this has made things very tough for us because now, we can't even meet our margin and our*

purchasing power has reduced, we can't even discharge fuel like we used to do because our customers are no longer buying like they used to do, and most of them have also parked their cars and are now using public transports and this is really affecting them because they are always complaining about the fuel prices and this has made them reduced the amount of fuel they buy and this is really affecting us too-(**Manager, Frimps Fuel station).**

The results on the ways in which COVID-19 affected fuel station equipment are presented in Table 18.

Table 18: Impacts of COVID-19 on Fuel Marketing Operations in Relation to Health and Safety (Ways in which COVID-19 affected fuel station equipment)

Ways in which COVID-19 affected fuel station equipments	Mean	Standard Deviation
a) Sanitization of equipment was effective at the fuel station.	4.77	0.82
b) Hand washing buckets were put at vantage points always.	5.00	0.00
c) Additional equipment had to be put in place during COVID-19 lockdown.	4.97	0.18
d) Temperature guns were always available.	1.77	1.52
Mean of Means/Average Standard Deviation	4.13	0.43

Source: Field survey, Etse (2022)

Table 18 shows the responses of the respondents on the ways in which COVID-19 affected fuel station equipments. On the first statement, it was discovered that majority of them strongly agreed that sanitization of

equipment was effective at the fuel station with no major differences in their responses (M=4.77; SD=0.82). This suggest that the COVID-19 protocols such as the sanitization of equipments were supplied at the various fuel marketing outlets in the municipality. It was so because, most of the fuel retail outlets in the municipality made it a daily routine and ensured that the sanitization of equipments was effective at the fuel station.

The participants strongly agreed that, they were put at vantage points all the time with homogenous responses (M=5.00; SD=0.00). This in turn enabled them to adhere to the COVID-19 protocols and avoid any form of unhyginic practices among the workers and the customers. It was not surprising when majority of the respondents strongly agreed that additional equipment had to be put in place during COVID-19 lockdown to help their operations go on interms of emergency and their responses were closer to the mean (M=4.97; SD=0.18).

Additionally, it was revealed temperature guns were not always available and there were differences in their responses concerning the statement (M=1.77; SD=1.52). This gives the implication that most of the fuel retail outlets did not make temperature guns available for their workers and customers during the pandemic. It is therefore deduced that the unavailability of the temperature gun did not have significant effect on their patronage of fuel from the various outlets in the municipality that was why did not provide it. The overall mean and standard deviations values for the ways in which COVID-19 affected fuel station equipments rated (M=4.13; SD=0.43). The measures for the pandemic affected fuel station equipment which in turn affected their operations direction of the results gives reason to the fact that

and their responses were homogeneous. One of the managers stated from a face-to-face interview section that, sanitization of equipment was very effective at the fuel station and hand washing buckets were puts at vantage points at all times, even at some point they had to provide additional equipment in place to be used in case there was an emergency and that really affected their operations because a lot of money went into that. They also provided all the available PPEs for their workers and ensured that they practiced all the protocols as well as ensured that there were also first aid kits available for all the workers. Below is the quote,

> *Sanitization of equipment was very effective at the fuel station and hand washing buckets were puts at vantage points at all times, even at some point we had to provide additional equipment in place to be used in case there is an emergency and that really affected our operations even though the PPEs we used were from the head office, it was still costly because we were replacing it any time it gets finished and they have not brought some from the head office and that was really costing us, because we were buying it with the little money we were getting from our sales. At times I have to buy it from my own pocket and it was really costing us especially with the tissues, people were misusing it and at times they will take everything away after using it and we would have to replace it and this really affected us because a lot of money*

> *went into that. We also provided all the available PPEs for our workers and ensured that they practice all the protocols as well as to ensured that there were also first aid kits available for all the workers* (**Manager, Puma Fuel station).**

On the same issue, a manager from Shell fuel station added that during the pandemic additional equipment had to be put in place to help their workers and customers in times of emergency and there was effective sanitization of equipment in the outlets. They also made sure to provide first aid kits for their employees and ensured that their workers use PPEs at all times.

> *During the pandemic additional equipment had to be put in place to help our workers and customers in times of emergency and there was effective sanitization of equipment in our outlets. We also made sure to provide first aid kits for our employees and ensured that they all observed the COVID-19 protocols, so we provided all the appropriate PEEs for our workers and that of our customers and that really affected us financially. With our workers we ensured that they use them at all times* (**Manager, Shell Fuel Station).**

Another manager buttressed the position of the second manager;

> *Hand washing buckets were puts at vantage point always, and additional equipment like the Veronica buckets, tissues, temperature gun, first aid kits and*

> *washing bowls among others were also put in place for emergency use. And there was regular sanitization of all our equipment including the pumps, door knobs and our facilities. We also provided all the available PPEs for our workers and ensured that they practice all the protocols and this really brought additional expenses we did not budget for and it really affected our sales and productivity* (**Manager, Dukes Fuel station).**

The above notwithstanding, the head of Health, Safety and Risk Department at the National Petroleum Authority mentioned that a workshop was organized where a specialist was invited to take them through the COVID-19 protocols. Below is the quote to support the above;

> *We organized a workshop on how to go about the COVID protocols on 15th March. Following the president's directives, the NPA strictly enforced the COVID -19 protocols and we provided the various PPEs and also arranged for the staff to be vaccinated. And at a point we were running shifts to avoid overcrowding and we really observed the social distancing* (**Head of Health, Safety and Risk Department, National Petroleum Authority**).

The results of the ways in which COVID-19 affected materials at the fuel station is presented in Table 19.

Table 19: Impacts of COVID-19 on Fuel Marketing Operations in Relation to Health and Safety (Ways in which COVID-19t affected materials at the fuel station)

Ways in which COVID-19 affected materials at the fuel station	Mean	Standard Deviation
a) Quality PPEs were provided for the attendants.	4.83	0.53
b) Materials that prevented or reduced the transmission of COVID were provided.	4.97	0.18
c) The use of ICT was promoted instead of paper exchange.	3.73	1.28
d) There was constant supply of P.P. Es during COVID-19.	4.90	0.40
Mean of Means/Average Standard Deviation	4.61	0.33

Source: Field survey, Etse (2022)

Table 19 presents the results on the impacts of COVID-19 on fuel marketing operations in relation to health and safety (ways in which COVID-19 affected materials at the fuel station). It is seen from the results that majority of the respondents strongly agreed that quality PPEs were provided for the attendants and their responses were different from each other concerning the statement (M=4.83; SD=0.53). Concerning materials that prevented or reduced the transmission of COVID were provided, majority of the respondents strongly agreed and their responses were homogeneous (M=4.97;SD=0.18).

It was found out that majority of them agreed and their responses were not the same concerning the statement (M=3.73; SD=1.28). Finally, it was strogly agreed by majority of them that there was constant supply of PPEs during COVID-19 with no disparities among their responses (M= 4.90; SD=0.40). This gives the implication that most of the fuel retail outlets in the

municipality ensured that all the necessary PPEs were provided to their workers and customers in order to ensure the smooth running of their operations. The overall means and standard deviation of the impacts of COVID-19 on fuel marketing operations in relation to health and safety (ways in which COVID-19 affected materials at the fuel station) rated (M= 4.61; SD=0.33). This means that majority of the respondents strongly agreed with the statements soliciting their responses on the subject under discussion. The direction of the results gives the follow logically that COVID-19 did not have significant effect on fuel marketing operations in relation to health and safety. From the face-to-face interview sections, a manager stated that, there was constant supply of PPEs during the COVID and also the PPEs provided for the attendants and the customers was of good quality. Below is the quote;

> *There was constant supply of PPEs during the COVID-19 and also the PPEs provided for our attendants and the customers was of good quality and also ensured that they followed all the COVID-19 protocols and we also made first aid kit available for them to be used at all time in case there is an emergency so our workers and customers were safe* (**Manager, Radiance Fuel station).**

Another manager buttressed the view of the first manager;

> *We provided them with materials that prevented the transmission of COVID -19 and also supplied them constantly with PPEs which were of good quality. We ensured that they followed the COVID-19 protocols.*

> *They were using more of cash than the electronic means* (**Manager, Total Fuel station).**

The views of the first two managers were corroborated by a manager from Benab Oil Company. He mentioned that there were constant supplies of quality PPEs. The quote below is in support of the above,

> *There were constant supplies of quality PPEs in our outlets. And also, we ensured that all our workers followed the COVID-19 protocols and got vaccinated. And with regards to the transaction payment, they were using more of cash than the electronic means* (**Manager, Benab oil Company).**

According to the Health, Safety and Risk head of NPA, it was not their responsibility to provide the OMCs with PPEs. Rather, it was the responsibility of the OMCs to provide those materials themselves.

> *We did not provide any PPEs for the OMCs, but internally we provided it for our workers. We procured hand sanitizers, masks, gloves, Veronica buckets, tissues, soaps among others to our staffs. Providing PPEs to the OMCs is not our responsibilities, but rather theirs. NPA doesn't do that, if it is internal, then we will provide it for our workers because we are responsible for our staff at the head office and the regional offices but with the OMCs, they are solely responsible for procuring their own PPEs and not the NPA because the NPA is not*

responsible for that since it was something that was not budgeted for. We have over 3000 OMCs and to provide them with those PPEs will really cost us so it was the responsibility of the OMCs to procure that themselves and ensure that their workers operate in a safe environment (**Head of Health, Safety and Risk, NPA**).

The results of the ways in which COVID -19 affected the environments is presented in Table 20

Table 20: Impacts of COVID-19 on Fuel Marketing Operations in Relation to Health and Safety (Ways in which COVID-19 affected the environments)

Ways COVID-19 affected the environment	Mean	Standard Deviation
a) The environment was kept clean to prevent further transmission of COVID-19.	4.97	0.18
b) The facility was disinfected at a regular basis.	4.00	1.46
c) Adjacent facilities and buildings were also disinfected on a regular basis.	3.87	1.50
d) Emergency first aid equipment and materials were available on site.	4.97	0.18
Mean of Means/Average Standard Deviation	4.45	0.74

Source: Field survey, Etse (2022)

Table 20 shows the responses of the respondents on impacts of COVID-19 on fuel marketing operations in relation to health and safety (ways the COVID-19 affected the environment). On the first statement, it was discovered that majority of them strongly agreed that the environment was

kept clean to prevent further transmission of COVID-19 with no major differences in their responses (M=4.97; SD=0.18). This implies that the COVID-19 protocols put in palce by the government of Ghana affected the way things were done in the various retail outlets especially with the cleanliness of the environment. It was so because, most of the retail outlets ensured that their environment was kept clean to prevent any further transmission of COVID-19.

On facility disinfectation , it revealed facilities were disinfected on regular basis with heterogeneous responses (M=4.00;SD= 1.46). It was not shocking when majority of the respondents agreed that adjacent facilities and buildings were also disinfected on a regular basis and their responses was far from the mean (M=3.87 ; SD=1.50).

Additionally, it was revealed that emergency first aid equipment and materials were available on site and there were no differences in responses concerning the statement (M=4.97; SD=0.18). This gives the implication that most of the fuel retail outlets in the municipality had first aid kit available for use incase of emergencies. In practice, they were adhering to the COVID protocols which will in turn help to overcome the pandemic gradually. The overall mean and standard deviations values for the impacts of COVID-19 on fuel marketing operations in relation to health and safety (ways in which COVID-19 affected the environments) rated (M= 4.45; SD=0.74). The direction of the results gives reason to the fact that their environment was kept clean during the pandemic. This enabled them to avoid further transmission of the COVID-19 virus in their retail outlets and their responses were

homogeneous. This is in consonance with the responses of the managers during the face-to-face discussions'

> *During the pandemic, our environments were kept clean to prevent further transmission. Because we made sure to clean our environments on a regular basis as well as fumigate and disinfects the place. We disinfected adjacent facilities and building on a regular basis and all these affected our finances and brought us additional cost* (**Manager, Radiance Fuel Station).**

In the same vein, a manager from Engen Oil Company also intimated that, it was the neatness of their environment that enabled them to maintain and attract customers during the pandemic. Below is the quote;

> *I will say it was the neatness of our environments that enabled us to maintain our customers. Because we made provisions for cleaners and ensured that all the COVID-19 equipment's and PPE's were provided and we were also sanitizing our pumps and doors almost every day and the pump attendants were always neat as well and always wearing their noise masks and gloves. And also, we disinfected our facilities and adjacent building on a regular basis* (**Manager, Engen Oil Company).**

Another manager buttressed the position of the second manager;

> *We disinfected our environment on a regular basis as well as sanitize the pumps all the time even though that was costing us. We ensured that the environment was disinfected and well cleaned. We were sanitizing our pumps on a regular basis to avoid any form of infections and prevent further transmission of COVID-19. We also provided the PPEs for our workers and ensured that they all followed the protocols and also, we invited some medical officers over to vaccinate all of us* **(Manager, Goil Fuel Station).**

On the impact of the pandemic on fuel marketing operations in relation to the environment, the head of Monitoring and Evaluation at the National Petroleum Authority added that they were going for monitoring during the time of the pandemic to ensure that the OMCs did the right thing especially with respect to the cleanliness of the environment. The excerpt below supports the above:

> *We were going for monitoring during the COVID -19 pandemic. We were going to the retailing outlets for inspection to ensure that they were doing the right thing especially with the cleanliness of the environments and disinfection of their facilities.* (**Head of Monitoring and Evaluation, NPA**).

The results of the impacts of COVID-19 on fuel marketing operations in relation to health and safety (ways in which COVID-19 affected processes at the fuel station) are presented in Table 21.

Table 21: Impacts of COVID-19 on Fuel Marketing Operations in Relation to Health and Safety (Ways in which COVID-19 affected processes at the fuel station)

Ways in which COVID-19 affected Processes at the fuel station	Mean	Standard Deviation
a) Routines of doing daily activities changed at the fuel station.	4.73	0.91
b) Staff meeting were not held at a regular basis.	4.17	1.51
c) There was an increase use of ICT (Zoom and Whatsapp).	3.70	1.53
d) Staff chemistry was hampered because of COVID.	4.80	0.48
e) Additional funds were provided to assist staff during COVID-19 lockdown.	2.27	1.86
Mean of Means/Average Standard Deviation	3.93	0.49

Source: Field survey, (2022)

Results from Table 21 shows the impacts of COVID-19 on fuel marketing operations in relation to health and safety (ways in which COVID-19 affected processes at the fuel station). It was not a shocking revelation that processes and activities that were undertaken on regular basis changed at the fuel retail outlets in the Ga West Municipality during the COVID-19 pandemic with homogeneities in their responses (M=3.93, SD=0.49). For example, majority of the respondents strongly agreed that routines of doing daily activities changed at the fuel station. during the pandemic and their responses were no different (M=4.73; SD=0.91).

In the same vein, most of them agreed that staff meetings were not held on a regular basis with variations in their responses (M=4.17; SD=1.51). It is obvious that they observed the COVID protocol of social distancing. Again, it can be seen from the results that most of them agreed that there was an increase use of ICT (Zoom and Whatsapp) during the COVID-19 and their responses did not cluster around the mean (M=3.70; SD=1.53). Furthermore, the results discovered that most of them strongly agreed that staff chemistry was hampered because of COVID-19 and their responses were not far from the mean (M=4.80; SD=0.48). This finding is not surprising because the pandemic made it almost impossible for people to get close to each other. Finally, it was disagreed by majority of them that additional funds were provided to assist staff during COVID-19 lockdown with disparities among their responses (M= 2.27; SD=1.86). This shows that most of the staff at the various fuel retail outlets in the Ga west muncipality were not given any additional funds to take care of their health during the COVID-19 pandemic and as a result they were depending on the little income they were receiving on monthly basis. From the face-to-face interview sections, a manager stated that, during the pandemic daily activities changed at the fuel station. Staff meetings were not held on regular basis, staff chemistry was hampered and there was an increase use of ICT. Below is the quote;

> *During the pandemic routine of doing activities changed at the fuel station. Staff meetings were not held at a regular basis, staff chemistry was hampered and there was an increase use of ICT (Zoom and Whatsapp). Our workers were going for check-ups on*

*a regular basis and also, we had to provide them with the PPEs and ensured that they followed all the protocols. The way things were done before the COVID changed totally and it brought about serious financial crisis on our operations (***Manager, Dukes Fuel Station**).

In the same vein, a manager from Frimps Oil Company intimated that, the way duties and responsibilities were carried out in their outlets changed during the pandemic, since staff chemistry was hampered, and also most of their staff meetings were done using ICT. Below is the quote;

*We were doing most of our staff meetings via online with our employees especially through Whatsapp and zoom. We never did face to face meeting. And our working hours also changed, we were coming to work on a weekly basis instead of the 48 hours we used to do. And it was during that time that the introduction of the PPEs came into existence, so we were buying the PPEs almost every week and that really drained our income especially with that of the nose mask and the tissues because the fuel attendants had to change their nose mask twice every day to avoid further transmission and sanitize our hands as often as we could and all these restricted the way we were doing things initially (***Manager, Frimps Fuel Station**).

The views of the first two managers were supported by a manager from Puma Energy. He mentioned that the pandemic changed their working hours, mode of transaction and the interpersonal contact between staff and customers. The quote below is in support of the above;

> *It affected our working hours; workers were coming to work weekly instead of their normal shifts. And this is because there was not much work to do. For our marts it was even closed down, so the workers were home because we didn't want a situation where by people will come and be touching things in there so in order to avoid any situation of that sort, we closed it. And also, we were using more electronic pay than the cash, and our workers were going for check-ups every month even though we invited health personals here to vaccinate us. And we were disinfecting our environment almost every week, and all these brought additional cost to us since they were things we did not plan for* **(Manager, Puma Energy**).

Finally, the head of Operations at the National Petroleum Authority stated that some meetings were put on hold.

> *Some meetings were put on hold. We had to suspend the face-to-face meetings and also reduce the number of workers in each office but we were still doing some critical meetings via zoom. Interpersonal contact between staff was really hampered as well as routine*

of doing daily activities at the office (**Head of Operations, NPA**).

The above findings on the impact of the pandemic on fuel marketing operations in relation to health and safety resonate with existing research. For example; according to Mofijur et al. (2020), COVID-19 has had a substantial impact on the health, economic, environmental, and social domains, increased human misery, damaged the economy, and upended the lives of billions of people worldwide. Guzman, Recoco, Pandi, Padrones and Ignacio (2022) found out that, only perception on health and safety culture was a significant factor influencing the perceived workplace safety in the oil and gas industry during the COVID-19 pandemic ($\beta = 0.603$; *t*-value = 3.323; *p*-value =0.001).

Succinctly, the findings from the respondents indicated that the COVID-19 pandemic had both positive and negative impact on the health and safety of the outlets in the municipality. It was established that negatively, customer inflow to services of the fuel station reduced while positively it helped reduced congestion at heavily packed fuel retail outlets. It was revealed that negatively interpersonal contact was affected because customers had to adhere to the COVID-19 protocols to the extent that they were not relating with the customers like they used to do. On the positive side it was brought to bear that this instance resulted in an improvement in their personal hygiene. Again, from the responses the COVID-19 brought about an improvement in sanitary conditions through disinfecting of all outlets.

It is clear that customers understood the need to adhere to the COVID-19 protocols and that they had to leave whenever they entered particular outlet and discovered they were not observing the COVID-19 protocols. This

attitude brought about additional cost to the OMCs because they had to ensure that they comply with all the protocols such that it negatively drained their capital. It has been found that because customers did not receive orientation through visual aids on COVID-19, most of the OMCs lost a lot of customers which also affected their sales. Customers particularly commercial drivers were reluctant to observe the protocols and anytime they tried asking them to observe the protocols arguments ensued, with such customers leaving their outlets; this affected them negatively.

This confirms the works of Asante and Mills (2020) whose studies revealed similarly that the COVID-19 pandemic exerted a complex impact on the health and safety of oil marketing outlets, with positive outcomes stemming from improved hygiene practices and contactless services, alongside negative consequences related to reduced demand, economic challenges, and increased operational costs. This is in line with the assumptions of the institutional theory because it aligns with its assumptions which explains that the positive outcomes, such as improved hygiene practices and contactless services, demonstrate their efforts to conform to new norms and attempts to gain legitimacy, while conversely, the negative consequences, including reduced demand and increased costs, highlight the challenges of navigating an institutional landscape profoundly altered by the pandemic. These findings confirm the assumptions of the general equilibrium theory in the sense that in linking this to the theory it can be averred that the positive outcomes, such as improved hygiene practices and contactless services, reflect responses to changes in consumer preferences and resource reallocation, while the negative outcomes, including reduced demand, economic challenges, and increased

operational costs, highlight disruptions in market equilibriums and shifts in resource allocation within the context of the broader economy affected by the pandemic. In the same vein, the findings align with the assumptions of the game theory on grounds that per the game theory the positive outcomes, such as improved hygiene practices and contactless services, can be seen as cooperative strategies aimed at gaining a competitive advantage, while conversely, negative outcomes, including reduced demand, economic challenges, and increased operational costs could be viewed as resulting from non-cooperative factors such as external regulations and changing consumer behaviour, highlighting the intricate strategic dynamics within the game played by these oil marketing outlets during the pandemic.

Research Question Three: What are the measures in place to sustain OMCs in the face of COVID-19?

Research question three sought to evaluate measures used to sustain OMCs in the face of COVID-19. It should be noted that, for this research question, the data collected was mainly qualitative. In that direction, the results are presented in themes.

Theme One: Self-help measures taken by the OMC's during the COVID-19 Pandemic

Self-help measures are those measures taken by the OMCs without any external assistance during the pandemic. Under this theme, the interview excerpts of these measures are presented.

A manager from the Radiance Fuel Station mentioned that the self-help measure that sustained them during the pandemic was planning. He added that

the kind of work he has been doing as a manager comes with a lot of risk, and so he planned to save towards risk. The excerpt below gives life to the point;

> *The only thing that helped us was planning. I always planned ahead of time, so that was what sustained us and there is one thing most people don't know about our work and that is, it comes with a lot of risk so, I always save towards risk and that was what sustained our outlets and enabled me to run this firm during the COVID. We relied on the savings that we made and that was what sustains us during the crisis. We used all our savings in order to survive and that was what really helped us during the COVID* (**Manager, Radiance Fuel Station**).

For the manager at the Goil Fuel Station, he intimated that they were cutting down cost by reducing the number of sponsorships being awarded to people and festivals. In that direction, he added that they cut down some unnecessary spending. Let us take recognition of the excerpt below;

> *We were cutting down cost and also reduced the number of sponsorships we were awarding to people and festivals. Even with our security personnel we had to let one stay at home in order to cut down cost because we realized the ones, we had been enough to do the work. We only laid off just one security, because people were not coming in and so we managed, although our profits margin was low, we*

managed and cut down some unnecessary spendings, so that was what sustained us (**Manager, Goil Fuel Station**)

From the point of view of the manager from the Shell Fuel Station, they cut down spending, and sought loan from the bank. The other measure was that their boss provided them with PPEs. It can be seen in the quote below;

During that time, we were making losses and since we were not getting help from the government, we had to cut down some unnecessary spendings and also resort to loan from the bank, our partners, to help us sustain our outlets and also our boss made provisions for certain things such as PPEs. So that was what really sustained us during the COVID (**Manager, Shell Fuel Station**).

Theme Two: Effectiveness of the measures put in place by the OMC's

This theme measures the effectiveness of the self-help measures put in place by the OMC's. The main idea here was to find out if the measures put in place helped overcome the difficulties. On that, the manager at the Radiance Fuel Station stated that the measures were very effective and that was what they relied on until things were normalized. This is the quote below;

Yes, the measures we put in place were very effective and that was what we relied on till things went back to normal and it really helped our outlets. That is why I always say planning ahead of time saves you from

crushing because it is a good thing (**Manager, Radiance Fuel Station**).

The manager from the Goil Fuel Station mentioned that the measures were really effective and helped them cut down cost. The excerpt below gives life to the above;

Yes, it was really effective and it really helped us to cut down cost which sustained us for quite some time (**Manager, Goil Fuel Station**).

In addition, the response from the manager of the Shell Fuel Station was in line;

Yes, that was what really sustained us throughout the pandemic. It really saved our outlets from collapsing (**Manager, Shell Fuel Station**).

Theme 3: Applying for government support measures

This theme is about whether the OMCs applied for government support measures. The manager from Radiance Fuel Station stated that, they did not apply for anything like that since they did not hear of anything of that sort. The following is the quote below;

We didn't apply for anything like that since we didn't hear of anything of that sort. And we didn't get anything from the NPA too. We had to fight to sustain our outlets. The managers had to buy our own PPEs to protect our workers and that of ourselves and customers. But with regards to loans and grants we

didn't get anything like that (**Manager, Radiance Fuel Station**).

In the same vein, the manager from the Goil Fuel Station mentioned that there was no form of support like that for them to apply because they did not know. He did mention that not even the NPA made an attempt to offer them some form of assistance. Below is the quote;

No, not at all. There was nothing like that to apply for. We did not hear of anything like that. No form of support measures was made known to us for us to apply, not even the NPA made an attempt to offer us some form of assistance. There was no form of support measures made known to us. We didn't even get the chance to apply for some PPEs from the government to help us cut down cost, and not even the NPA came around to offer some form of support to us (**Manager, Goil Fuel Station**).

Moreover, the same response given by other managers were also given by the manager from the shell fuel station. The quote below shows it;

No, we didn't. There was nothing like that for us to apply, that was why we didn't also apply for it and we did not receive any loan or grants from the government., At least that would have sustained us during the pandemic (**Manager, Shell Fuel Station**).

Theme Four: Kind of measures the managers of the OMC's were expecting the government to put in place to sustain the OMCs during the pandemic

In the midst of any pandemic like the COVID-19, it is expected that the government in power at the time of the pandemic will put in place measures to help both public and private companies overcome the difficulties the pandemic presents (Fang et al., 2022). The main idea in this theme is the kind of measures the managers of the OMCs were expecting the government to put in place to sustain the OMCs during the pandemic. For most of the respondents, they expected the government to supply them with PPEs free of charge and reduce taxes for them to get more customers. The quote below proves that;

> *To at least provide us with the PPEs and reduce the taxes small, that was the least we expected from the government* (**Manager, Radiance Fuel Station**).

According to the manager of Goil fuel station, they expected the government to at least provide them with PPEs because they were very costly and capital draining but they were only concentrating on other sectors and industries. This is the quote below;

> *At least to provide us with the PPEs because it was very costly and capital draining but they were only concentrating on other sectors and industries. And also, we were expecting government to lift the ban so that we can get our customers back.* (**Manager, Goil Fuel Station**).

In addition to the above, the manager of Shell also mentioned that they expected the government to support them with PPEs because it really drained their finances. The quote below supports this.

> *We wanted the government to lift the ban so that we can get more costumers to patronize from us or come in to buy, and that didn't happen. And also, with regards to the purchasing of the PPEs, they were supposed to at least supply us with some because it really drained our finances and the most painful aspect was that we didn't even get any help from any of the government agencies, not even NPA. The only thing the NPA did was that their monitoring team came around once to check if we were observing the protocols, that was all but we were really expecting them to provide us with the PPE's because it was really expensive for us buy* (**Manager, Shell Fuel Station**)

Theme Five: Kind of measures government should put in place to help them sustain their outlets from all the losses made during the pandemic

Under this theme, the main idea was to look out for the kind of measures government should put in place to help them sustain their outlets from all the losses made during the pandemic. Most of the managers stated that the government should reduce taxes on the products because they are really affecting them negatively. For instance, one of them mentioned that;

> *They should reduce the taxes on our product because they are really affecting us. And also reduce that on the fuel products so that our customers will be able to buy to enable our margins to increase* (**Manager, Radiance Fuel Station**).

The manager at the Goil Fuel Station stated that;

> *The government should help reduce the taxes on the fuel and provide medical insurance for the workers* (**Manager, Goil Fuel Station**).

It was the same thing the manager at the Shell Fuel Station said. He said that;

> *The main problem we are facing now is with the taxes. The taxes we are paying on the fuel products are very high, so the government should do something about it. At least, it should put certain measures in place to reduce it small and also extend the payment of the statutory margin small for us because things are hard* (**Manager, Shell Fuel Station**).

Additionally, the head of marketing department at the National Petroleum Authority said;

> *The only thing NPA can do to support the OMCs to recover from their loses is to ensure that there are fair playing fields for all the OMCs, because it is a competitive sector so they have to be competitive and we only have to ensure that we give them equal treatments. We have to regulate the industry fairly,*

> *and we don't have to provide special advantage or treatment to some. We can't provide them with financial help or funds, but occasionally if some of them are having challenges with their payment plan, they can write to us to extend their payment plan for them* (**Head of Marketing, National Petroleum Authority**).

Finally, it was added that;

> *We extended the time frame for the payment of taxes from 21+4 days to 45 days and it was due to the unbearable effect of the COVID-19 on OMCs. There was additional 20 days giving to them to honor the tax obligations and it was supposed to last from April to June but we extended it to August 2020.We did this in connection with the GRA. And also, they were supposed to pay some statutory margin to us but that one too we extended the period of the payment for them* (**Head of Finance, National Petroleum Authority**)

In short, OMCs put a number of measures in place that were effective in enabling them to manage the COVID-19 pandemic which included: self-help that was put in place by the OMCs in the municipality from the perspective of the managers like planning, cutting down cost by reducing the number of sponsorships being awarded to people and festivals. It has been identified that OMCs reduced unnecessary spending, resorted to loans from

their bankers and offered their workers PPEs. The OMCs did this effectively as they ensured their staff; customers and public were protected from the pandemic in providing their services. They expected government support in the form of free PPEs and lower oil prices to attract more customers. However, from the government's perspective, measures such as fumigation, loans, and the provision of hygiene items were not considered effective due to resource constraints.

This confirms the works of Fang et al., (2022) which observed that Oil marketing companies implemented various COVID-19 management measures like self-help initiatives including cost-cutting, securing of loans, provision of PPEs to their workers, and ensuring safety, they also anticipated government support in the form of free PPEs and lower oil prices to attract more customers. It is also in alignment with the studies done by Serbulova et al. (2020) which posited that the government viewed measures like fumigation, loans, and hygiene item provision as ineffective due to resource constraints. This is a confirmation of the assumption of the institutional theory which highlights that OMCs adapted to external norms and pressures, including health and safety regulations, while also anticipating government assistance as part of the broader societal response to the pandemic, whereas the government's perspective reflects its institutional constraints and the necessity to make resource allocation decisions based on its capacity and priorities within the pandemic-shaped institutional environment.

These findings can be linked to the assumptions of the game theory which explains that the oil marketing companies employed cooperative and strategic measures to maintain viability and competitiveness, while the

government, as another player, assessed these actions considering resource constraints and strategic priorities in its pandemic response; with the perceived effectiveness of these strategies by both parties being pivotal within this strategic game. In the same manner, these findings corroborate the assumption of the general equilibrium theory since it highlights the effectiveness of these strategies as perceived by both the oil marketing outlets and the government played a vital role in shaping the economic equilibrium during the pandemic, where resource allocation and priorities were critical factors.

Chapter Summary

This chapter presented the analysis and discussion of the data collected from the field. The study gathered data on the impact of COVID-19 On Oil Marketing Companies (OMCs), in the Ga West Municipality. The data were analysed quantitatively and qualitatively. The quantitative data analytical tools which were employed are, mean and standard deviation for the analysis of the research questions one and two. These were presented in tables. The three research questions were analysed by using SPSS and thematically by providing verbatim quotes from the interview data.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter a summary of the research process as well as the key findings. The chapter also contains the conclusions and recommendations that were made based on the findings of the study. Also, policy recommendations to be implemented and suggestions for future research are presented in this chapter.

Overview

The study sought to examine the impact of COVID-19 on oil marketing companies in the Ga West Municipality of the Greater Accra Region of Ghana. Data were obtained through both primary and secondary sources with the use of questionnaires and interview guides. A total of 65 respondents participated in the study of which 30 respondents were managers of the fuel retail outlets, 5 were staffs of NPA and 30 respondents were attendants from the various fuel retail outlets.

A minimum of one (1) attendant at each of the 30-filling stations out of 51 were selected to be part of the study. The study was guided by the institutional theory developed by Scott (2004), which examines more substantial and durable components of social structure and takes into account the procedures, such as plans, guidelines, and customs, recognized by institutions as authoritative standards for social conduct. General Equilibrium theory by Walras (2008), which is also useful in explaining the functions of prices in an economy and the Game theory which solves simultaneously a

multi-objective and multi-level decision-making problems of supply and demand (Arsenyan et al., 2015).

The current study employed the mixed method approach to gain a broader and more in-depth understanding of the impact of COVID-19 on oil marketing companies. The study's first phase included a quantitative description of the impact of COVID-19 on oil marketing companies in the Ga West Municipality. A questionnaire was used to collect quantitative data.

Following the qualitative results, an in-depth qualitative analysis was conducted to explain the original qualitative results (Rittichainuwat & Rattanaphinanchai, 2015). In the final analysis, data from both phases resulted in more detailed results (Arthur, 2012).

Two distinct instruments were employed for the study. These were questionnaire and semi-structured interview guide which were used to gather information on the impact of COVID-19 on oil marketing companies. The questionnaire included both open and closed-ended questions. The questionnaire was divided into sections with each section focusing on one objective. Section 'A' covered items on the demographic information of the respondents. Section 'B' covered items on the effect of COVID-19 on sales at marketing outlets (Fuel stations). Section 'C' covered items on the impact of COVID -19 on fuel marketing operations in relation to health and safety and section 'D' covered items on the measures in place to sustain OMCs in the face of COVID-19.

The study adopted a five-point Likert-type scale. The response choice was; "Strongly agree (SA) =5, "Agree" (A) =4, "Neutral" (N) =3, "Disagree" (D) =2 and "Strongly Disagree" (SD) =1. In addition to the questionnaire a

semi-structured interview guides were used to gather information on the impact of COVID-19 on oil marketing companies. The interview guide, which was semi-structured, was used to collect in-depth responses from the key respondents like the managers of the OMCs and staffs of NPA. The questionnaire was used for eliciting information from the fuel attendants.

The responses to the questions and the interview were recorded, transcribed, coded and entered into the SPSS computer software for analysis and interpretation. Descriptive statistics were used to analyse the data to show the direction of the responses. The descriptive statistics including frequencies and percentages, mean and standard deviations were used to analyse the research questions.

The mean and standard deviation were performed on the data to determine the degree and the direction of responses. The mean technique was used in this research because it is easy to calculate and also it takes all values into account (Addae, 2020). The mean represents a numerical average for a set of responses and also it incorporates the score from every subject in the research study. The mean is used in this study because it represents the typical value and, therefore, serves as a yardstick for all observations and also carries a piece of information from every observation in the dataset.

The standard deviation technique was also used because it provides an indication of how far the individual responses to a question vary or "deviate" from the mean and tells the researcher how spread out the responses are (Addae, 2020). It also helps in understanding the measurements when the data is distributed because the more the data is distributed, the greater will be the standard deviation of that data because a low standard deviation means data

are clustered around the mean, and high standard deviation indicates data are more spread out. A standard deviation close to zero indicates that data points are close to the mean, whereas a high or low standard deviation indicates data points are respectively above or below the mean.

Analyses of the responses were done in the order of the research questions. Responses from the various categories of respondents were discussed systematically in line with the research questions. Tables were created for the items to help in discussions of findings.

Major Findings

Based on the analysis presented in this research, the following findings were established:

Research Objective 1: Assess the effects of COVID-19 on sales at marketing outlets (Fuel stations).

1. The COVID-19 pandemic affected sales at the oil marketing outlets in the Ga West Municipality. The COVID-19 pandemic had a detrimental impact on the sales of oil marketing outlets in the Ga West Municipality.
2. The main factors that contributed to these negative effects included the outlets' location, reduced traffic flow and buying area due to lockdown measures and remote work, as well as unexpected expenditures related to purchasing personal protective equipment (PPEs), veronica buckets, tissues, hand sanitizers, and soaps during the pandemic.

Research Objective 2: Analyse the effects of COVID -19 on fuel marketing operations in relation to health and safety.

3. The health and safety of the fuel outlets in the municipality were really affected by the pandemic, negatively and positively. The COVID-19 pandemic exerted a multifaceted influence on the health and safety aspects of oil marketing outlets, resulting in both advantageous and adverse effects.
4. Positively, during the COVID-19 pandemic, oil marketing outlets experienced several positive impacts, including enhanced hygiene measures, the adoption of contactless services, increased emphasis on safety, and the implementation of remote monitoring and management systems, collectively improving cleanliness, safety standards, customer service, and operational efficiency at their facilities.
5. Negatively, during the COVID-19 pandemic, oil marketing outlets faced a range of negative impacts, including reduced foot traffic, economic downturn-driven sales decline, supply chain disruptions, increased compliance costs, and staffing challenges due to health concerns and lockdowns.

Research Objective 3: Evaluate measures in place to sustain OMCs in the face of COVID-19.

6. Oil marketing companies (OMCs) successfully implemented various measures to manage the COVID-19 pandemic. These measures that were successfully implemented included self-help initiatives such as cost-cutting, reduced sponsorships, and by securing loans from banks.
7. Oil marketing companies (OMCs) provided their workers with personal protective equipment (PPEs) and ensured the safety of staff, customers, and the public.

8. Oil marketing companies (OMCs) expected government support in the form of free PPEs and lower oil prices to attract more customers. However, from the government's perspective, measures such as fumigation, loans, and the provision of hygiene items were not considered effective due to resource constraints.

Conclusions

The following conclusions were drawn based on the findings of the study:

1. Overall, the COVID-19 pandemic had a significant, multifaceted and adverse impact on the sales of oil marketing outlets in the Ga West Municipality, underscoring the substantial influence of external factors such as economic downturns and pandemic-related restrictions on their revenue and operations.
2. For Ga West Municipality, the negative effects of the COVID-19 pandemic on the sales of OMCs were driven by a combination of external factors such as location, reduced foot traffic, and the unanticipated costs associated with pandemic-related safety measures.
3. Generally, the COVID-19 pandemic had a mixed impact on the health and safety aspects of fuel outlets in the Ga West Municipality, necessitating improvements in safety measures and awareness while also posing challenges related to reduced foot traffic and increased operational complexities.
4. In Ga West Municipality, the COVID-19 pandemic had a mixed impact on oil marketing outlets, leading to positive changes like improved hygiene, contactless services, safety focus, and remote monitoring, which enhanced facility cleanliness, safety standards,

customer service, and operational efficiency, but also resulting in negative consequences such as reduced foot traffic, sales decline, supply chain disruptions, higher compliance costs, and staffing challenges due to health concerns and lockdowns.

5. In Ga West Municipality, Oil marketing companies (OMCs) in the Ga West Municipality exhibited resilience and adaptability during the COVID-19 pandemic by successfully implementing self-help initiatives such as cost-cutting measures, reduced sponsorships, and securing loans from banks.
6. All in All, during the COVID-19 pandemic, a disconnect emerged between OMCs and the government, because OMCs prioritized worker safety and customer well-being by providing PPEs but expected government support in the form of free PPEs and lower oil prices to enhance customer attraction, while the government considered measures such as fumigation, loans, and hygiene item provision as ineffective, primarily due to resource limitations.

Recommendations

The following recommendations have been made based on the findings and conclusions of the study, these recommendations are made:

1. The government should develop and maintain a comprehensive crisis response plan that includes provisions for financial support, such as grants or subsidies, to assist these outlets during future crises, with a focus on mitigating the economic challenges posed by external factors such as economic downturns and restrictions, while ensuring adaptability to the specific needs of the sector.

2. OMCs should regularly assess their locations and diversify business strategies by exploring innovative approaches to sustain customer engagement and revenue generation during low foot traffic periods. This could involve expanding services, introducing loyalty programs, and enhancing online marketing efforts for effective customer outreach.
3. Customers and staff at oil marketing outlets in Ga West Municipality should consistently prioritize health and safety measures, encompassing good hygiene practices, respiratory etiquette, compliance with outlet safety protocols, and ongoing diligence in maintaining a safe work environment, including regular cleaning and disinfection.
4. Regulators, banks, and suppliers should collaborate closely with OMCs in Ga West Municipality to establish flexible financial arrangements and payment schedules, thereby assisting OMCs in managing their financial responsibilities during challenging periods, ultimately promoting sector stability and reducing operational disruptions.
5. Effective collaboration among the government, academia, and industry is essential to ensure that the safety measures introduced during the COVID-19 pandemic and practiced by the OMCs are integrated into the sector's culture, with a priority on health, safety and continuous evaluation of their effectiveness.
6. Both the government and OMCs should maintain open, regular communication, collaborate on crisis response strategies that align with their priorities and resources, and enhance coordination and support

during future crises, ensuring a more unified and effective response to similar challenges.

Suggestion for Further Research

Based on the limitations of the study, the following are suggested for further studies.

1. It is suggested that other empirical researches should be conducted using other OMCs in other municipalities in Ghana. The inclusion of these OMCs will help to understand the views of other smaller companies on the impact of COVID-19 on their operations as well as challenges in the sector.
2. It is also suggested that, studies should be conducted on the relationship between high prices of fuel and the operations of the OMCs as well as the impact of taxation on the operational cost of the oil marketing companies in the downstream petroleum sector. This would help expand knowledge and understanding on the dynamics of the OMCs in the downstream petroleum sector and design policies and programmes to sustain the sector.

REFERENCES

Abubakari, A. R. (2021). Assessment of petroleum price deregulation on the performance of selected Oil Marketing Companies in Ghana. *International Journal of Business and Management Invention (IJBMI)*, 9(2), 1–16.

Abubakari, A. R., & Laryea, D. N. O. Assessment of petroleum price deregulation on the performance of selected Oil Marketing Companies in Ghana. *International Journal of Business and Management Invention (IJBMI)*, *10*(2), 2319-8028.

Abudu, H., & Sai, R. (2020). Examining prospects and challenges of Ghana's petroleum industry: A systematic review. *Energy Reports*, *6*(1), 841–858.

Acemoglu, D. (2010). Theory, general equilibrium, and political economy in development economics. *Journal of Economic Perspectives*, *5*(3), 17-32.

Acheampong, T., & Ackah, I. (2015). Petroleum product pricing, deregulation and subsidies in Ghana: Perspectives on energy security. Aberdeen, Scotland: University of Aberdeen Press.

Adam, N. A., & Alarifi, G. (2021). Innovation practices for survival of small and medium enterprises (SMEs) in the COVID-19 times: The role of external support. *Journal of Innovation and Entrepreneurship*, *10*(1), 1–22.

Addae, E. (2020). Determinants of investment decision in downstream petroleum sector in Ghana: A case study of Shell, Total and Goil Ltd. *Sustainability*, *4*(1), 1-15.

Afaha, J. S., Aderinto, E. A., Oluwole, E. A., Oyinlola, A., & Akintola, Y. (2020). *Effect of COVID-19 on the Nigerian oil and gas industry and impact on the economy.* Ibadan, Nigeria: Center for Petroleum Economics, Energy and Law (CPEEL).

Akhtaruzzaman, M., Boubaker, S., Chiah, M., & Zhong, A. (2021). COVID−19 and oil price risk exposure. *Finance research letters*, *42*(1), 101-882.

Akosa, F. (2016). *The political economy of petroleum pricing in Ghana*. Accra, Ghana: University of Ghana.

Akrofi, M. M., & Antwi, S. H. (2020). COVID-19 energy sector responses in Africa: A review of preliminary government interventions. *Energy Research and Social Science*, *68*(2), 101-681.

Albulescu, C. T. (2021). COVID-19 and the United States financial markets' volatility. *Finance Research Letters*, *38*(3), 101-699.

Amoako-Tuffour, J. (2010). How Ghana plans to manage its petroleum revenues: A step towards transparency, accountability and governance standards. *Institute of Economic Affairs, 7*(2), 34-39

Amponsah, R., & Opei, F. K. (2014). Ghana's downstream petroleum sector: An assessment of key supply chain challenges and prospects for growth. *International Journal of Petroleum and Oil Exploration Research*, *1*(1), 001-007.

Amponsah, R., & Opei, F. K. (2017). Ghana's downstream petroleum sector: An assessment of key supply chain challenges and prospects for growth. *International Journal of Management and Business Studies*, *7*(3), 441–448.

Amponsah, R., & Opei, F. K. (2017). Ghana's downstream petroleum sector: An assessment of key supply chain challenges and prospects for growth. *International Journal of Management and Business Studies*, *7*(3), 441–448

Ansah, M. E. (2014, December 31). Fuel prices down by 10%. Retrieved from http://citifmonline.com

Arsenyan, J., Büyüközkan, G., & Feyzioğlu, O. (2015). Modeling collaboration formation with a game theory approach. *Expert Systems with Applications*, *42*(4), 2073-2085.

Arthur, C. (2012). *A functional approach to educational research methods and statistics.* Kumasi: Multimedia Printing Press.

Arthur, L. (2018). On methodology: How mixed methods research can contribute to translation studies. *Translation Studies*, *11*(1), 66-83.

Asafu-Adjaye, J. (2010). Oil production and Ghana's economy: What Can We Expect? Ontario, Canada: Centre for International Governance Innovation.

Asante, L. A., & Mills, R. O. (2020). Exploring the socio-economic impact of COVID-19 pandemic in marketplaces in urban Ghana. *Africa Spectrum*, 55(2), 15-50.

Asante-Poku, N. A., & van Huellen, S. (2021). Commodity exporter's vulnerabilities in times of COVID-19: The case of Ghana. *Canadian Journal of Development Studies*, *42*(1-2), 122-144.

Asare, B. E. (2011). International politics: The beginners Guide. Accra, Ghana: Yamens Press.

Ashraf, B. N. (2020). Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets. *Journal of Behavioral and Experimental Finance*, *8* (2), 1–10.

Åslund, A. (2020). Responses to the COVID-19 crisis in Russia, Ukraine, and Belarus. *Eurasian Geography and Economics*, *61*(4-5), 532-545.

Association of Oil Marketing Companies (2020). *Sectoral Assessment of the impact of COVID-19*. Accra, Ghana: AOMC.

Atta-Kesson, R. O. W. E. N. A. (2013). *Determinants of employment expectations of the youth in the emerging oil and gas industry in the Western Region of Ghana* (Doctoral dissertation, University of Ghana).

Awudi, G. (2015). Petroleum price deregulation in Ghana-impact on Oil Marketing Companies (OMCs). *International Journal of Business and Management Invention (IJBMI)*, *10*(2), 2319-8028.

Aye, G. C., Dadam, V., Gupta, R., & Mamba, B. (2014). Oil price uncertainty and manufacturing production. *Energy Economics*, *43*(1), 41-47.

Ayelazuno, J. A. (2014). The 'new extractivism'in' in Ghana: A critical review of its development prospects. *Extractive Industries and Society*, *1*(2), 292-302.

Baah-Acquah, P., Freeman, E., & Ellis, E. P. (2017). Effects of capital structure choice on profitability of oil marketing companies in Ghana (OMCs): Case studies of Ghana Oil Company limited and total petroleum Ghana limited. *International Journal of Multidisciplinary Research and Development*, *4*(3), 117-122.

Baah-Boateng, P. W. (2021). Employment effects of COVID-19 pandemic in Ghana. *Friedrich-Ebert-Stiftung*, *6*(2), 1–17.

Baker, T. H., & Judge, K. (2020). *How to help small businesses survive COVID-19*. New York, United States of America: Columbia Law and Economics.

Balde, R., Boly, M., & Avenyo, E. K. (2020). *Labour market effects of COVID-19 in sub-Saharan Africa: An informality lens from Burkina Faso, Mali and Senegal*. Maastricht, Netherlands: Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT).

Barbosa, F., Bresciani, G., Graham, P., Nyquist, S., & Yanosek, K. (2020). *Oil and gas after COVID-19: The day of reckoning or a new age of opportunity?* New York, United States of America: McKinsey and Company.

Bartlett, J. (2017). *Quantitative versus qualitative research or both*. Retrieved from samples.jbpub.com.

Bassier, I., Budlender, J., Leibbrandt, M., Zizzamia, R., & Ranchhod, V. (2020). *South Africa can and should top up child support grants to avoid a humanitarian crisis.* Victoria, Australia: Conversation.

Bello, A., & Cavero, S. (2008). The Spanish retail petroleum market: New patterns of competition since the liberalization of the industry. *Energy Policy*, *36*(2), 612-626.

Bernauer, W., & Slowey, G. (2020). COVID-19, extractive industries, and indigenous communities in Canada: Notes towards a political

economy research agenda. *The Extractive Industries and Society*, *7*(3), 844-846.

Bimha, H., Hoque, M., & Munapo, E. (2017). Supply chain management practices in the petroleum industry of Zimbabwe. *International Business Management*, *11*(12), 2210-2223.

Bloom, N., Bunn, P., Mizen, P., Smietanka, P., & Thwaites, G. (2020). The impact of COVID-19 on productivity. *Review of Economics and Statistics*, *5*(2), 1-45.

Boateng, K. (2022). *Setting up a national petroleum regulator: The Petroleum Commission and Management of Ghana's petroleum resources.* London, England: Palgrave Macmillan.

Boison, D. K., Asamoah, H., Addison, L., & Asiedu, E. (2019). Assessing factors influencing sales performance and siting of fuel stations project at Spintex Road, Accra. *International Journal of Social Science and Humanities Research, 6(4), 126-129*

Bourghelle, D., Jawadi, F., & Rozin, P. (2021). Oil price volatility in the context of COVID-19. *International Economics*, *167*(3), 39–49.

Bratianu, C., & Bolisani, E. (2015). Knowledge strategy: An integrated approach for managing uncertainty. Udine, Italy: University of Padova.

Bratvold, R. B., & Begg, S. H. (2009). Would you know a good decision if you saw one? *Journal of the Way Ahead*, *5*(2), 21-23.

Bryant, W. D. (2015). General Equilibrium: Theory and evidence of general equilibrium theory. *World Scientific*, *10*(2), 1–19.

Cai, Z., Maguire, K., & Winters, J. V. (2019). Who benefits from local oil and gas employment? Labor market composition in the oil and gas industry in Texas and the rest of the United States. *Energy Economics*, *84*(2), 104-515.

Carranza, E. J. M. (2009). Controls on mineral deposit occurrence inferred from analysis of their spatial pattern and spatial association with geological features. *Ore Geology Reviews, 35*(3-4), 383-400.

Chege, S. M. (2013). *Strategies adopted by Liquified Petroleum Gas (LPG) companies to deal with the challenge of cross-filling activities in Kenya* (Doctoral dissertation, University of Nairobi).

Chima, C. M. (2007). Supply-chain management issues in the oil and gas industry. *Journal of Business & Economics Research (JBER), 6*(5), 25-45.

Christ, T.W. (2013). The worldview matrix as a strategy when designing mixed methods research. *International Journal of Multiple Research Approaches*, *7*(1), 110-118.

Cohen, L., Manion, L., & Morrison, K. (2012). *Research methods in education* (6th ed.). London: Routledge.

Cook, N. (2010). *Ghana, an emergent oil producer: Background and US relations.* Washington, D.C., United States of America: Congressional Research Service.

Corbet, S., Goodell, J. W., & Günay, S. (2020). Co-movements and spillovers of oil and renewable firms under extreme conditions: New evidence from negative WTI prices during COVID-19. *Energy Economics*, *92*(4), 104-978.

Corbetta, P. (2013). *Social research: Theory, methods and techniques* London: Sage Publications.

Creswell, J. (2013). *A concise introduction to mixed methods research.* Retrieved from https://books.google.co.zm

Creswell, J.W., & Plano-Clark, V.L. (2013). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage.

Dacin, M. T., Oliver, C., & Roy, J. P. (2007). The legitimacy of strategic alliances: An institutional perspective. *Strategic Management Journal, 28*(2), 169-187.

Dai, W., & Serletis, A. (2018). Oil Price shocks and the credit default swap market. *Open Economies Review*, *29*(2), 283-293.

Danquah, M., Schotte, S., & Sen, K. (2020). COVID-19 and employment: Insights from the sub-Saharan African experience. *Indian Journal of Labour Economics*, *63*(1), 23-30.

Delsaut, M. (2014). The Effect of Fuel Price on demands for road and rail travel: An application to the French case. *Transportation Research Procedia, 1*(1), 177-187.

Denzin, N. K., & Lincoln, Y. S. (2018). *The landscape of qualitative research* (3rd ed.). London: Sage.

Dewi, I., & Adiarsi, G. R. (2020). Leveraging the COVID-19 crisis in making work from home a mainstream practice in the Oil and Gas Industry. *International Journal of Multicultural and Multireligious Understanding, 7*(6), 305–316.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *15*(5), 147-160.

DiMaggio, P. J., & Powell, W. W. (2000). The iron cage revisited institutional isomorphism and collective rationality in organizational fields. Bingley, England: Emerald Group Publishing Limited.

Dugar, A. (2007). Marketing of petrol in India: Transformation of an undifferentiated low involvement commodity into high involvement brands. *Innovative Marketing*, *3*(4), 25-55.

Ehinomen, C., & Adeleke, A. (2012). An assessment of the distribution of petroleum products in Nigeria. *Journal of Business Management and Economics*, *3*(6), 232-241.

Ekperiware, C. M. (2011). Oil and non-oil FDI and economic growth in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences*, *2*(4), 333-343.

Elder, J., & Serletis, A. (2010). Oil price uncertainty. *Journal of Money, Credit and Banking*, *42*(6), 1137-1159.

Energy Commission (2013). *National Energy Statistics 2000-2012*. Accra, Ghana: Energy Commission.

Energy Policy and Research Institute (2015, August 15). *Is the deregulatory pricing regime possible in Ghana*? Retrieved from http://eprigh.org/: http://www.modernghana.com/news/634388/1/is-thederegulatory-pricing-regime-possible-in-gha.html.

Esterberg, K. G. (2012). *Qualitative methods in social science*. London: McGraw Hill.

Fairlie, R., & Fossen, F. M. (2022). The early impacts of the COVID-19 pandemic on business sales. *Small Business Economics*, *58*(4), 1853-1864.

Fang, S., Goh, C., Li, S., & X, L. C. (2022). *Firm resources, strategies, and survival and growth during COVID-19 evidence from two-wave global Surveys* (Issue April).

Farayibi, A., & Asongu, S. (2020). The economic consequences of the COVID-19 pandemic in Nigeria. *European Xtramile Centre of African Studies, WP/20/042 (2020).*

Fiani, R. (2015). Teoria dos jogos (*Game Theory*). Amsterdam, Netherlands: Elsevier.

Fisher, D. H. (1987). Knowledge acquisition via incremental conceptual clustering. *Machine Learning*, *2*(2), 139-172.

Folorunso, D. O., & Akinwande, A. A. (2021). Applications of Compliance to Cost Ratio (C-CR) analysis in the determination of optimum mix of insulating bricks in masonry. *Journal of Minerals and Materials Characterization and Engineering*, *9*(2), 134-147.

Ghana Chamber of Mines (2010). *The annual report on mining industry in Ghana.* Accra, Ghana: Ghana Chamber of Mines.

Ghana Energy Commission (2013). *Energy outlook for Ghana*. Accra, Ghana: Ghana Energy Commission.

Ghana Parliament (2011). *Petroleum Commission Act 2011 (Act 821).* Accra, Ghana: Ghana Parliament.

Ghana Parliament (2016). *Petroleum (Exploration and Production) Act, 2016 (Act 919).* Accra, Ghana: Ghana Parliament.

Ghiani, E., Galici, M., Mureddu, M., & Pilo, F. (2020). Impact on electricity consumption and market pricing of energy and ancillary services during pandemic of COVID-19 in Italy. *Energies*, *13*(13), 33-57.

Gil-Alana, L. A., & Monge, M. (2020). Crude oil prices and COVID-19: Persistence of the shock. *Energy Research Letters*, *1*(1), 132-200.

GNPC. (2011). Retrieved from Energy World/ Africa: http://www.energyworldafrica.com/pdf/Ghana%20 National%20Petroleum%20 Corporation.pdf.

Greenwood, R., & Meyer, R. E. (2008). Influencing ideas: A celebration of DiMaggio and Powell (1983). *Journal of management inquiry*, *17*(4), 258-264.

Gruenspecht, H. (2012). Natural Gas Markets: Recent changes and key drivers. *Chicago, United States of America: LDC Gas*.

Guzman, J., Recoco, G. A., Padrones, J. M., & Ignacio, J. J. (2022). Evaluating workplace safety in the oil and gas industry during the COVID-19 pandemic using occupational health and safety vulnerability measure and partial least square structural equation modelling. *Cleaner Engineering and Technology*, *6*(1), 100-378.

Hall, J., & Vredenburg, H. (2003). The challenge of innovating for sustainable development. *MIT Sloan Management Review*, *45*(1), 61-95.

Hamacher S & Martins VF. 2015. Aplicac¸˜ oes de Pesquisa Operacional na Ind´ ustria Internacional de Petr´ oleo e G´ as (*Operational Research applications in the international oil and gas industry*). Rio de Janeiro, RJ, Brazil: *Elsevier*.

Hamilton, J. D. (1983). Oil and the macroeconomy since World War II. *Journal of political economy*, *91*(2), 228-248.

Hanieh, A. (2021). COVID-19 and global oil markets. *Canadian Journal of Development Studies*, *42*(1-2), 101-108.

Hardy, C., & Maguire, S. (2008). Institutional entrepreneurship. London, England: SAGE.

Hauser, P., Anke, C. P., López, J. G., Möst, D., Scharf, H., Schönheit, D., & Schreiber, S. (2020). The impact of the COVID-19 crisis on energy prices in comparison to the 2008 financial crisis. In *IAEE Energy Forum/COVID-19 Issue*.

Hawash, B., Abuzawayda, Y. I., Mokhtar, U. A., Yusef, Z. M., & Mukred, M. (2020). Digital transformation in the Oil and Gas Sector during COVID-19 Pandemic. *International Journal of Management (IJM)*, *11*(12), 725-735.

Hitt, M. A., Ahlstrom, D., Dacin, M. T., Levitas, E., & Svobodina, L. (2004). The institutional effects on strategic alliance partner selection in transition economies: China vs. Russia. *Organization Science*, *15*(2), 173-185.

Insaidoo, M., Arthur, L., Amoako, S., & Andoh, F. K. (2021). Stock market performance and COVID-19 pandemic: Evidence from a developing economy. *Journal of Chinese Economic and Foreign Trade Studies*. *15*(2), 5-25.

International Labour Organization. (2020). ILO Monitor: COVID-19 and the world of work: *Updated estimates and analysis. Geneva, Switzerland: International Labour Organisation*.

Iyke, B. N. (2020). COVID-19: The reaction of US oil and gas producers to the pandemic. Bengkulu, Indonesia: Asia-Pacific Applied Economics Association.

Iyke, B. N. (2021). COVID-19: The reaction of US oil and gas producers to the pandemic. Bengkulu, Indonesia: Asia-Pacific Applied Economics Association.

Johnson, R. B., & Onwuegbzie, A. (2014). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26.

Joyonline, M. (2010, August 6). My joyonline. Accra, Ghana: My joyonline. Retrieved November 4, 2015, from http://business .myjoyonline.com /pages/news/2 01002/41677.php

Kanason, E. (2022). *The impact of COVID-19 in the downstream oil and gas sector* (pp. 1–5).

Karmaker, C. L., Ahmed, T., Ahmed, S., Ali, S. M., Moktadir, M. A., & Kabir, G. (2021). Improving supply chain sustainability in the context of COVID-19 pandemic in an emerging economy: Exploring drivers using an integrated model. *Sustainable Production and Consumption, 26*(3), 411-427.

Katzner, D. W. (2003). Why mathematics in economics? *Journal of Post Keynesian Economics, 25*(4), 561-574.

Kazzazi, A., & Nouri, B. (2012). A conceptual model for local content development in the petroleum industry. *Management Science Letters, 9*(2), 2165-2174.

Keeves. J. P. (2017). *Educational research, methodology and measurement: an international handbook* (2nd ed.) London: Cambridge University Press.

Kelland, M. A. (2016). *Production chemicals for the oil and gas industry*. Florida, United States of America: CRC press.

Kelly, A. 2003. *Decision Making using Game Theory: An introduction to managers.* Cambridge, England: Cambridge University Press.

Khan, S. N. (2014). Qualitative research method: Grounded theory. *International Journal of Business and Management*, *9*(11), 224-233.

Khuen, A. E. (2015). Impact of price regulation on the profitability of the companies in the oil and gas extraction industry of Kuwait.

Kingsly, K., & Henri, K. (2020). COVID-19 and oil prices. *Retrieved from*.

Kloff, S., & Wicks, C. (2004). Environmental Management of offshore oil exploitation and maritime oil transport, a background document for stakeholders of the West African Marine Eco Region. *UICN*.

Kombo, D. K., & Tromp, D. L. A. (2013). *Proposal and thesis writing: an introduction.* Nairobi: Paulines Publication Africa.

Kraft, M. E., & Kamieniecki, S. (2007). Analyzing the role of business in environmental policy: *Business and environmental policy. Corporate Interests in the American Political System*, *4*(2), 3-31.

Lakuma, P. C., Sunday, N., Sserunjogi, B., Kahunde, R., & Munyambonera, E. F. (2020). How has the COVID-19 pandemic impacted Ugandan businesses? Results from a business climate survey.

Lewin, M., & Endo, M. (2003). Catalysis of intumescent flame retardancy of polypropylene by metallic compounds. *Polymers for Advanced Technologies*, *14*(1), 3-11.

Lewin. G (2003). Managing the Downstream Oil Supply Chain: A Customer-led Strategy. *World Energy, 10* (3), 22-25.

Longwell, H. J. (2002). The future of the oil and gas industry: Past approaches, new challenges. *World Energy, 5*(3), 100-104.

Lopes Yg & Almeida At. 2013. A Multicriteria Decision model for selecting a portfolio of oil and gas exploration projects. *Pesquisa Operacional*, *33*(3), 417–441

Lukman, A. F., Rauf, R. I., Abiodun, O., Oludoun, O., Ayinde, K., & Ogundokun, R. O. (2020). COVID-19 prevalence estimation: Four most affected African countries. *Infectious Disease Modelling*, *5*(2), 827-838.

Maduka, A., Ihonre, H., & Anochiwa, L. (2015). Impact of Deregulation of the Downstream Oil Sector on Economic Growth in Nigeria. *EPRA International Journal of Economic and Business Review*, *3*(4), 19-30.

Manneh, M., Kozhevnikov, M., & Chazova, T. (2020). Determinants of consumer preference for petrol consumption: The case of petrol retail in the Gambia. *International Journal of Energy Production and Management. 5*(2), 175-186.

Martins Almeida, L. M., Campos Filho, L. A. N., & Casanova, L. (2012). The Brazilian Institutional Environment: The Impact on Companies' Strategies in the Oil and Gas Sector. In *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1915052

Mastropietro, P., Rodilla, P., & Batlle, C. (2020). Emergency measures to protect energy consumers during the COVID-19 pandemic: A global review and critical analysis. *Energy Research & Social Science*, *68* (5), 101-678.

Mazur, M., Dang, M., & Vega, M. (2021). COVID-19 and the march 2020 stock market crash. *Finance Research Letters*, *38*(2), 101-690.

McCusker, K., & Gunaydin, S. (2015). Research using qualitative, quantitative or mixed methods and choice based on the research. *Perfusion*, *30*(7), 537-542.

Meyer, K. E., Estrin, S., Bhaumik, S. K., & Peng, M. W. (2009). Institutions, resources, and entry strategies in emerging economies. *Strategic management journal*, *30*(1), 61-80.

Mhalla, M. (2020). The impact of novel coronavirus (COVID-19) on the global oil and aviation markets. *Journal of Asian Scientific Research*, *10*(2), 96-104.

Ministry of Energy (2010). *Local content and local participation in petroleum activities: Policy Framework 2010.* Accra, Ghana: Ministry of Energy.

Ministry of Energy (2010). *National energy policy.* Accra, Ghana: Ministry of Energy.

Ministry of Energy and Petroleum (2013, November). *Retrieved from http://www.energymin.gov.gh*

Ministry of Energy and Petroleum (2015). Petroleum products in Ghana. *www.ministry-energypetroleum.*

Miron, D., Dima, A. M., & Vasilache, S. (2010). Models of the intra-regional trade influence on economic sustainable development in Romania. *Amfiteatru Economic*, *12*(27), 27-35.

Mitra-Kahn, Benjamin H. (2008). "Debunking the Myths of Computable General Equilibrium Models" (PDF). *Schwarz Center for Economic Policy Analysis Working Paper 01-200.*

Mofijur, M., Fattah, I. M. R., Alam, A., & Islam, A. B. M. S. (2020). Impact of COVID-19 on the social, economic, environmental and energy domains: Lessons learnt from a global pandemic. *Sustainable Production and Consumption*, *26*(7), 343-359.

Mogaji, E. (2020). Impact of COVID-19 on transportation in Lagos, Nigeria. *Transportation Research Interdisciplinary Perspectives*, *6*(3), 100-154.

Morgan, D. L., Eliot, S., Lowe, R. A., & Gorman, P. (2016). Dyadic interviews as a tool for qualitative evaluation. *American Journal of Evaluation*, *37*(1), 109-117.

Munir, K. A., & Phillips, N. (2005). The birth of the "Kodakmoment": Institutional entrepreneurship and the adoption of new technologies. London, England: SAGE.

National Petroleum Authority (2016). *Introduction to Ghana's Oil and Gas Industry: History, current and future trends*. Accra, Ghana: National Petroleum Authority.

National Petroleum Authority (2017). *About National Petroleum Authority*. Accra, Ghana: National Petroleum Authority. *Available at http://www.npa.gov.gh/. Accessed 14-01-2020.*

National Petroleum Authority (2018). *Ghana's oil and gas industry: History, current and future trends.* Accra, Ghana: National Petroleum Authority.

National Petroleum Authority (2018). *National Petroleum Authority report*. Accra, Ghana: National Petroleum Authority.

Neill, M. (2017). An integrated approach to operational risk management: The role of process safety management. *Paper presented at the SPE Health, Safety, Security, Environment, & Social Responsibility Conference-North America.*

Neill, S. P., Vögler, A., Goward-Brown, A. J., Baston, S., Lewis, M. J., Gillibrand, P. A., & Woolf, D. K. (2017). The wave and tidal resource of Scotland. *Renewable Energy*, *114*(1), 3-17.

Norouzi, N. (2021). Post COVID-19 and globalization of oil and natural gas trade: Challenges, opportunities, lessons, regulations, and strategies. London, England: John Wiley and Sons Ltd.

North, D.C. (1994). Economic performance through time. *American Economic Review, 84*(3), 25-50.

North, D.C. (2009). *Institutions, institutional changes and economic performance*. New York: Cambridge University Press.

NPA (2017). National Petroleum Authority. Accra, Ghana: NPA. *Retrieved from: http://www.npa.gov.gh/news/cylinder-re-circulation-module.*

NPA (2017b). Petroleum service providers. Accra, Ghana: NPA. *Retrieved 23 Feb, 2018, from: http://www.npa.gov.gh/service-providers.*

NPA. (2015). *National Petroleum Authority*. Accra, Ghana: NPA. Retrieved from NPA website: http://npa.gov.gh/npa_new/index.php

Obeng-Odoom, F. (2015). Global political economy and frontier economies in Africa: Implications from the oil and gas industry in Ghana. *Energy Research & Social Science, 10*(3), 41-56.

Oduor, J. (2010). Are prior restrictions on factor shares appropriate in growth accounting estimations? *Economic Modelling, 27*(2), 595-604.

Oduor, R. M. (2010). Research methodology in philosophy within an interdisciplinary and commercialised African context: Guarding against undue influence from the social sciences. *Thought and Practice, 2*(1), 87-118.

Ofori, C. G., (2015). *An investigation into customer satisfaction along the oil supply chain in Ghana* (Masters' dissertation, University of Ghana).

Ofori, M. S., Frimpong, A., & Babah, P. (2020). A & Mensah, RO (2020). The emergence and spread of COVID-19 pandemic and implications on the economy of Ghana. *Journal of African Interdisciplinary Studies, 4*(6), 38-48.

Ofosu-Peasah, G., & Ackah, I. (2017). Strengthening Ghana's Downstream Petroleum Deregulation Regime: A review of the 2016 CBOD Industry report. *Available at SSRN 2966929*.

Omura, A., Roca, E., & Nakai, M. (2021). Does responsible investing pay during economic downturns: Evidence from the COVID-19 pandemic. *Finance Research Letters, 42*(2), 101-914.

Osborne, M. J., & Rubinstein, A. (1994). *A course in game theory*. MIT press.

Osoro, A. (2018). *Challenges affecting performance of supply chain systems in the petroleum industry in Kenya* (Doctoral dissertation, COHRED-JKUAT).

Otieno, O. W. (2016). *Effects of changes in business dynamics on budget performance of oil Marketing companies in Kenya.*

Ozili, P. K. (2020). COVID-19 pandemic and economic crisis: The Nigerian experience and structural causes. *Journal of Economic and Administrative Sciences*, *10*(2), 25-75.

Ozili, P. K., & Arun, T. (2020). *Economic effects of Coronavirus outbreak.*

Padhan, R., & Prabheesh, K. P. (2021). The economics of COVID-19 pandemic: A survey. *Economic Analysis and Policy*, *70*(3), 220-237.

Papanikolaou, D., & Schmidt, L. D. (2020). *Working remotely and the supply-side impact of COVID-19* (No. w27330). National Bureau of Economic Research.

Peng, M. W. (2003). Institutional transitions and strategic choices. *Academy of Management Review*, *28*(2), 275-296.

Peterson, O., & Thankom, A. (2020). Spillover of COVID-19: impact on the Global Economy. *SSRN Electronic Journal*, *10*(2), 11-15.

Popkova, E., DeLo, P., & Sergi, B. S. (2021). Corporate social responsibility amid social distancing during the COVID-19 crisis: BRICS vs. OECD countries. *Research in International Business and Finance*, *55*(3), 101-315.

Prabheesh, K. P., Padhan, R., & Garg, B. (2020). COVID-19 and the oil price–stock market nexus: Evidence from net oil-importing countries. *Energy Research Letters*, *1*(2), 13745.

Prasadja Ricardianto, M. S., Mulyono, S., & Sakti, R. F. J. (2021). Changes in demand and supply of the crude oil market during the COVID-19

pandemic and its effects on the natural gas market. *International Journal of Energy Economics and Policy*, *11*(3), 1-6.

Prensky, N. (2001). The digital generation. *ELT Journal*, *65*(3), 322-325.

PWC (PricewaterhouseCoopers GmbH), 2020. Finanzielle Unterstützung in der COVID-19 Krisenlage - Factsheet für Startups und KMUs (Financial support in the COVID-19 crisis situation - Factsheet for start-ups and SMEs). *Accessed March 31st 2020 from. https://www.pwc.de/de /startups/finanzielle-unterstuetzung-von-startups-und-kmu-in-der-COVID-19-krisenlage.pdf.*

PwC Ghana. (2017). *Hospitality Industry in Ghana*. PwC.

PWC. (2020). Impact of COVID-19 on the supply chain industry. In *PricewaterhouseCoopers (pwc)*. http://www.pwc.com/ng/COVID-19.

Qun, S., Wang, Y., Chen, J., Huang, X., Guo, H., Lu, Z., ... & Zhou, J. (2020). Neutrophil-to-lymphocyte ratios are closely associated with the severity and course of non-mild COVID-19. *Frontiers in Immunology*, *11*(4), 21-60.

Rabi, F. A., Al Zoubi, M. S., Kasasbeh, G. A., Salameh, D. M., & Al-Nasser, A. D. (2020). SARS-CoV-2 and coronavirus disease 2019: what we know so far. *Pathogens*, *9*(3), 231.

Ramelli, S., & Wagner, A. (2020). What the stock market tells us about the consequences of COVID-19: *Mitigating the COVID economic crisis. Act Fast and Do Whatever*, *63*(1), 42-59.

Rittichainuwat, B., & Rattanaphinanchai, S. (2015). Applying a mixed method of quantitative and qualitative design in explaining the travel motivation of film tourists in visiting a film-shooting destination. *Tourism Management, 46*(2), 136–147.

Rutayisire, E., Nkundimana, G., Mitonga, H. K., Boye, A., & Nikwigize, S. (2020). What works and what does not work in response to COVID-19 prevention and control in Africa. *International Journal of Infectious Diseases, 97*(1), 267-269.

Salisu, A. A., Ebuh, G. U., & Usman, N. (2020). Revisiting oil-stock nexus during COVID-19 pandemic: Some preliminary results. *International Review of Economics and Finance, 69*(3), 280-294.

Sam, P. (2020). Redefining vulnerability in the era of COVID-19. *Lancet, 395*(1), 230-108.

Samuel Bekoe, & Oppong, K. A. (2021). *Effects of COVID-19 on petroleum and mining sectors in Ghana*.

Sayan, S. (Ed.). (2009). *Economic performance in the Middle East and North Africa: institutions, corruption and reform*. Oxfordshire, England: Routledge.

Schotte, S., Danquah, M., Osei, R. D., & Sen, K. (2021). *DISCUSSION PAPER SERIES The Labour Market Impact of COVID-19 Lockdowns: Evidence from Ghana the Labour Market Impact of COVID-19 Lockdowns: Evidence from Ghana* (Issue 14692).

Schotte, S., Danquah, M., Osei, R. D., & Sen, K. (2021). The labour market impact of COVID-19 lockdowns: Evidence from Ghana. IZA-Institute of Labor Economics.

Scott, L. M. (1994). Images in advertising: The need for a theory of visual rhetoric. *Journal of consumer research, 21*(2), 252-273.

Scott, W. R. (1995). *International and organizations*. London, England: SAGE.

Scott, W. R. (2004). Institutional theory. *Encyclopedia of Social Theory, 11*(10), 408-414.

Scott, W. R. (2008). Approaching adulthood: the maturing of institutional theory. *Theory and society*, *37*(5), 427-442.

Sekaran, U. (2003). *Research methods for business: A skill building approach* (3rd ed.). New York: John Wiley and Sons Inc.

Serbulova, N., Morgunova, T., & Persiyanova, G. (2020). Innovations during COVID-19 pandemic: trends, technologies, prospects. In *E3S Web of Conferences* (Vol. 210, p. 02005). EDP Sciences.

Serbulova, N., Morgunova, T., & Persiyanova, G. (2020). Innovations during COVID-19 pandemic: Trends, technologies, prospects. In E3S Web of Conferences (Vol. 210, p. 02005). EDP Sciences.

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. *Emerging Markets Finance and Trade*, *56*(10), 2213–2230.

Sidhu, K. S. (2014). *Methodology of research in education.* New Delhi: Sterling Publishers.

Skaten, M. (2017). *From refining to smuggling: The everyday politics of petrol in Ghana*.

Sylvester Afaha, J., Alalade ADERINTO, E., Oluwole, E. A., Oyinlola, A., & Akintola, Y. (2020). Effect of COVID-19 on oil and gas industry Effect of COVID-19 on the Nigerian Oil and Gas Industry and impact on the economy. *In Cpeel.Ui.Edu.Ng: Vol. II (Discussion Paper, Issue March).*

Tawia, T. Y. (2018). *Factors affecting the profitability of retail fuel outlets in urban areas: A case study of Accra*. Unpublished doctoral dissertation, University of Cape Coast.

Teinor, H. (2020). Impact of COVID-19 on Ghana's petroleum upstream sector (pp. 1–4).

Tema Oil Refinery (2011). *Retrieved from Energy World Africa: http://www.energyworldafrica.com/pdf/Tema%20Oil%2 0Refinary.pdf*

Thorbecke, W. (2020). The impact of the COVID-19 pandemic on the US Economy: Evidence from the stock market. *Journal of Risk and Financial Management, 13*(10), 233-540.

Tibu, C., Annang, T. Y., Solomon, N., & Yirenya-Tawiah, D. (2019). Effect of the composting process on physicochemical properties and concentration of heavy metals in market waste with additive materials in the Ga West Municipality, Ghana. *International Journal of Recycling of Organic Waste in Agriculture*, *8*(4), 393-403.

Tomlinson, S. (2017). *A sociology of special and inclusive education: Exploring the manufacture of inability*. Abingdon, England: Taylor and Francis.

Tullow Oil Ghana (2013). *Tullow Oil Ghana*. Accra, Ghana: Tullow Oil Ghana. *R*etrieved from http://www.tullowoil.com

Van Eyden, R., Difeto, M., Gupta, R., & Wohar, M. E. (2019). Oil price volatility and economic growth: Evidence from advanced economies using more than a century's data. *Applied Energy*, *23*(3), 612-621.

Walras, L. (2008). *Studies in applied economics*. Oxfordshire, England: Routledge.

Wang, B., Yang, Z., Xuan, J., & Jiao, K. (2020). Crises and opportunities in terms of energy and AI technologies during the COVID-19 pandemic. *Energy and AI*, *4*(1), 100-130.

Wanjogu, M. K. (2015). *The relationship between the introduction of price regulation and profitability of Oil Marketing firms in Kenya.* Nairobi, Kenya: University of Nairobi.

Wilson, N., Kvalsvig, A., Barnard, L. T., & Baker, M. G. (2020). Case-fatality risk estimates for COVID-19 calculated by using a lag time for fatality. *Emerging Infectious Diseases*, *26*(6), 133-159.

Yamini, Y. (2020). The impact of COVID-19 on the stock returns of Companies of Oil and Gas Industry of G7 Nations. *International Journal of Management*, *11*(11), 889-955.

Yaya, S., Otu, A., & Labonté, R. (2020). Globalisation in the time of COVID-19: Repositioning Africa to meet the immediate and remote challenges. *Globalization and Health*, *16*(1), 1-7.

Zilber, T. B. (2008). The work of meanings in institutional processes and thinking. London, England: SAGE.

Zilber, T. B. (2009). Institutional maintenance as narrative acts: *Actors and agency in institutional studies of organizations*. Cambridge, England: Cambridge University Press.

APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

INSTITUTE FOR OIL AND GAS STUDIES

THE IMPACT OF COVID-19 ON OIL MARKETING COMPANIES (OMCs): A CASE STUDY IN THE GA WEST MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

QUESTIONNAIRE FOR FUEL RETAIL OUTLETS ATTENDANTS

Ms. Regina Etse is a Master of Philosophy (Mphil) student in Oil and Gas Resource Management with the Institute for Oil and Gas Studies, University of Cape Coast (UCC).

As part of the academic requirement for Mphil degree in Oil and Gas Resource Management, Regina is required to undertake an independent field research. When completed, the research, among other outcomes, is predicted to be able to access the effect of COVID-19 on sales at marketing outlets and also analyse the impact of COVID -19 on fuel marketing operations in relation to health and safety as well as to evaluate some measures in place to sustain OMCs in the face of COVID-19. By extension, it will help ensure sustainability in the long run.

This research questionnaire is, therefore, to solicit for relevant empirical data for the completion of this academic exercise on the subject **"The Impact of COVID-19 On Oil Marketing Companies (OMCs): A Case Study in The Ga West Municipality of The Greater Accra Region of Ghana".** Please be assured that this study is **strictly** for academic purposes and you are therefore

assured of **anonymity** and **confidentiality** of the information you will provide.

Kindly **[✓]** and write your answers where applicable.

Thank you.

SECTION A: Socio-Demography Characteristics

1. **Name of Fuel Retail outlet**…….
2. **Sex of respondent:**

   Male [ ] Female [ ]

3. **Age of respondents (years):**

   18-25 [ ] 45-55 [ ]

   26-35 [ ] 36-45 [ ]

   56+ [ ]

4. **Educational background**

   a) Tertiary [ ]

   b) Senior High School [ ]

   c) Junior High School [ ]

   d) Basic [ ]

   e) None [ ]

   f) Others (please specify) …….

5. **Ownership**

   a) Multinational company [ ]

   b) Individual private owned [ ]

   c) State owned [ ]

6. **How long have you worked with this Fuel Retail Outlet?**

   a. Below 6 months [ ] d) Above 2years [ ]

b. 6months – 1year [ ]

c. 1year – 2years [ ]

SECTION B: Assess the effect of COVID-19 on sales at marketing outlets (Fuel stations).

Kindly rate the following effects of COVID-19 on sales at your workplace using 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree (tick √ as appropriate).

Variable	Scale				
Demand side: Ways in which COVID-19 affected your operations	1	2	3	4	5
f) Customer inflow reduced during COVID-19 period.					
g) Customer inflow increased during COVID-19.					
h) Sales increased during COVID-19.					
i) Salaries decreased during the COVID-19.					
j) Other services rendered such as; marts, car washes, lube services etc were also affected during COVID.					
Supply Side: Ways in which COVID-19 affect your operations?					
e) The supply of fuels was greatly affected.					
f) COVID-19 affected the supply of gasoline .					
g) The supply of lubricants was greatly affected.					
h) The supply of other services like, air compressor, jet fuel,marine gas oil etc was					

affected					
Site and location					
d) COVID-19 affected operations because of the location of the fuel station .					
e) Fuel stations located within the town were more affected than those outside the town.					
f) Location played a huge role in attracting customers during the COVID.					
COVID-19 Measures: ways COVID-19 measures affected operations					
e) The Restrictions affected fuel demand.					
f) Social distancing put a lot of strain on the routine of carrying out duties and responsibilities.					
g) The introduction of P.P. Es increases the cost of operations .					
h) Hand washing discouraged clients/customers from patronising from the fuel station.					
Working from home					
d) Employee shifts improved fuel stations services.					
e) Shortened employee work days affected salaries.					
f) Reduced time of operation affected productivity.					

SECTION C: Analyse the impact of COVID -19 on fuel marketing operations in relation to health and safety.

Kindly rate the following effects of COVID-19 on sales at your workplace using 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree (tick √ as appropriate).

Variables	**Scale**				
Ways in which COVID-19 affected Customers	1	2	3	4	5
e) Customers inflow to services of the fuel station reduced.					
f) Customers adhered to the COVID-19 protocols.					
g) Customers understood the reasons to adhere to the COVID-19 protocols.					
h) Customers received orientation through visual aids on COVID-19.					
Ways in which COVID-19 affected fuel station equipments					
e) Sanitization of equipment was effective at the fuel station.					
f) Hand washing buckets were put at vantage points always.					
g) Additional equipment had to be put in place during COVID-19 lockdown.					
h) Temperature guns were always					

available.					
Ways in which COVID-19 affected materials at the fuel station					
e) Quality P.P. Es were provided for the attendants.					
f) Materials that prevented or reduced the transmission of COVID were provided.					
g) The use of ICT was promoted instead of paper exchange.					
h) There was constant supply of P.P. Es during COVID-19.					
Ways COVID-19 affected the environment					
e) The environment was kept clean to prevent further transmission of COVID-19.					
f) The facility was disinfected at a regular basis.					
g) Adjacent facilities and buildings were also disinfected on a regular basis.					
h) Emergency first aid equipment and materials were available on site.					
Ways in which COVID-19 affected Processes at the fuel station					
f) Routines of doing daily activities					

changed at the fuel station.					
g) Staff meeting were not held at a regular basis.					
h) There was an increase use of ICT e.g., Zoom and Whatsapp etc.					
i) Staff chemistry was hampered because of COVID.					
j) Additional funds were provided to assist staff during COVID-19 lockdown.					

APPENDIX B

UNIVERSITY OF CAPE COAST

INSTITUTE FOR OIL AND GAS STUDIES

THE IMPACT OF COVID-19 ON OIL MARKETING COMPANIES (OMCs): A CASE STUDY IN THE GA WEST MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

INTERVIEW GUIDE

QUESTIONS FOR FUEL RETAIL OUTLETS MANAGERS

Ms. Regina Etse is a Master of Philosophy (Mphil) student in Oil and Gas Resource Management with the Institute for Oil and Gas Studies, University of Cape Coast (UCC).

As part of the academic requirement for Mphil degree in Oil and Gas Resource Management, Regina is required to undertake an independent field research. When completed, the research, among other outcomes, is predicted to be able to access the effect of COVID-19 on sales at marketing outlets and also analyse the impact of COVID -19 on fuel marketing operations in relation to health and safety as well as to evaluate some measures in place to sustain OMCs in the face of COVID-19. By extension, it will help ensure sustainability in the long run.

This research questionnaire is, therefore, to solicit for relevant empirical data for the completion of this academic exercise on the subject **"The Impact of COVID-19 On Oil Marketing Companies (OMCs): A Case Study in The Ga West Municipality of The Greater Accra Region of Ghana".** Please be assured that this study is **strictly** for academic purposes and you are therefore

assured of **anonymity** and **confidentiality** of the information you will provide.

Kindly **[✓]** and write your answers where applicable.

Thank you.

OBJECTIVE 1: ASSESS THE EFFECT OF COVID-19 ON SALES AT MARKETING OUTLETS (FUEL STATIONS).

a) To what extent has production and operation of your firm been affected by this Pandemic?

b) How has COVID-19 affected your business financially?

c) How has the pandemic changed your short- and long-term strategy?

d) How were you able to ensure sustainable financing and stable cash reserves?

e) How were you able to adapt your business model to reduce costs, both in the short and medium term?

f) When the economy took a serious hit, how did it impact your customers?

g) Did your supply chain have a huge impact on your business during the COVID?

h) What are the potentially positive impacts of the pandemic in your view?

OBJECTIVE 2: ANALYSE THE IMPACT OF COVID -19 ON FUEL MARKETING OPERATIONS IN RELATION TO HEALTH AND SAFETY.

a) As a result of the Coronavirus pandemic, what changes, if any, were made to employment or payroll at this business?

b) What steps did the company take during-after the onset of COVID-19?

c) How much did it cost you to implement these measures?

d) As a result of the Coronavirus pandemic, did this business increase the amount of paid sick leave provided to employees?

e) Did this business continue to pay a portion of health insurance premiums for someor all employees who were told not to work as a result of the Coronavirus pandemic?

f) Did this business continue to pay some or all employees who were told not to work as a result of the Coronavirus pandemic while they were not working?

g) Did this business offer more opportunities for employees to telework (work remotely) as a result of the Coronavirus pandemic?

OBJECTIVE 3: EVALUATE MEASURES IN PLACE TO SUSTAIN OMCS IN THE FACE OF COVID-19.

a) What self-help measures has your firm taken so far?

b) Did your company apply for government support measures?

c) Were these measures effective?

d) What kind of measures would help your company recover? For instance, Direct government subsidies, Favorable loans, Tax deferment, reduction of taxes and contributions to salaries.

e) What policies do you expect that government put in place to help your firm overcome the difficulties as a result of COVID?

f) Did your company develop a written business continuity plan following the COVID-19 outbreak?

g) Did your company receive a Coronavirus-related loan or grant tied to re-hiring or maintaining employees on the payroll?

h) What does the action plan to prioritize and work towards your new-look business consist of?

APPENDIX C

UNIVERSITY OF CAPE COAST

INSTITUTE FOR OIL AND GAS STUDIES

THE IMPACT OF COVID-19 ON OIL MARKETING COMPANIES (OMCs): A CASE STUDY IN THE GA WEST MUNICIPALITY OF

QUESTIONS FOR STAFFS OF NATIONAL PETROLEUM AUTHORITHY

Ms. Regina Etse is a Master of Philosophy (Mphil) student in Oil and Gas Resource Management with the Institute for Oil and Gas Studies, University of Cape Coast (UCC).

As part of the academic requirement for Mphil degree in Oil and Gas Resource Management, Regina is required to undertake an independent field research. When completed, the research, among other outcomes, is predicted to be able to access the effect of COVID-19 on sales at marketing outlets and also analyse the impact of COVID -19 on fuel marketing operations in relation to health and safety as well as to evaluate some measures in place to sustain OMCs in the face of COVID-19. By extension, it will help ensure sustainability in the long run.

This research questionnaire is, therefore, to solicit for relevant empirical data for the completion of this academic exercise on the subject **"The Impact of COVID-19 On Oil Marketing Companies (OMCs): A Case Study in The Ga West Municipality of The Greater Accra Region of Ghana".** Please be assured that this study is **strictly** for academic purposes and you are therefore assured of **anonymity** and **confidentiality** of the information you will provide.

Kindly **[✓]** and write your answers where applicable.

Thank you.

OBJECTIVES 1:ASSESS THE EFFECT OF COVID-19 ON SALES AT MARKETING OUTLETS (FUEL STATIONS).

a) How has COVID-19 affected your operations in terms of regulations?

b) To what extent has other operations of your firm been affected by this pandemic?

c) How were you undertaking your operations during COVID-19?

d) When the economy took a serious hit, how did it impact the OMCs?

e) Did you already adapt your business operations during the temporary closure? If so, how?

f) did those adaptations affect your revenues and operations?

OBJECTIVES 2: ANALYSE THE IMPACT OF COVID -19 ON FUEL MARKETING OPERATIONS IN RELATION TO HEALTH AND SAFETY.

a) How best were employees protected from exposure in the workplace?

b) Did all or some of your employees worked from home during COVID?

c) Did you postpone or cancel scheduled conferences or meetings? How?

d) Did the OMCs under your supervision face a great deal of stress and uncertainty during COVID-19?

e) If more work were done remotely, what support did the NPA provide?

f) Were there well-coordinated and standardized communication systems and protocols to ensure clear and transparent communication with all OMCs?

g) How did your organization ensure the well-being of the OMCs and the safety of NPA's assets in the event of the pandemic?

h) How was your company able to deliver better outcomes in times of the pandemic?

OBJECTIVES 3: EVALUATE MEASURES IN PLACE TO SUSTAIN OMCS IN THE FACE OF COVID-19

a) What were the measures NPA put in place to support the OMCs during and after the COVID?

b) Did NPA apply for government support measures?

c) Were these measures effective?

d) What measures do you expect government to put in to place to help OMCs overcome the difficulties brought by the pandemic?

e) What were the measures to ensure that NPA and OMCs operations continue to run in the long-run after COVID?

f) What new measures or self-help has NPA taken so far since the outbreak of COVID?

g) Moving forward, how will you adapt your business operations in response to COVID-19 and its associated impacts?

h) What big opportunities exist for NPA and the OMCs, born out of the pandemic?

APPENDIX D

ETHICAL CLEARANCE FORM

UNIVERSITY OF CAPE COAST
INSTITUTIONAL REVIEW BOARD SECRETARIAT
TEL: 0558093143 / 0508878309
E-MAIL: irb@ucc.edu.gh
OUR REF: IRB/C3/Vol.I/0113
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0011497

14TH APRIL 2023

Ms Regina Etse
Institute for Oil and Gas Studies
University of Cape Coast

Dear Ms Etse,

ETHICAL CLEARANCE – ID (UCCIRB/CHLS/2022/85)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research on **The Impact of Covid-19 on Oil Marketing Companies (OMCs): A Case Study in the Ga West Municipality of the Greater Accra Region of Ghana.** This approval is valid from **14th April 2023** to **13th April 2024**. You may apply for a renewal subject to the submission of all the required documents that will be prescribed by the UCCIRB.

Please note that any modification to the project must be submitted to the UCCIRB for review and approval before its implementation. You are required to submit a periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Kofi F. Amuquandoh
Ag. Administrator

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST