

‘Fearonomics’ and the Role of the Private Sector in the Nigerian Ebola Response

by

Sulzhan Bali

Duke Global Health Institute

Duke University

Date:

Approved:

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Kearsley Stewart, Co-Supervisor

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Muhammad Pate, Co-Supervisor

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Chris Woods

Thesis submitted in partial fulfillment of  
the requirements for the degree of  
Master of Science in the Duke Global Health Institute  
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ABSTRACT

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## **Abstract**

Background: Outbreaks of infectious diseases such as Ebola have dramatic economic impacts on affected nations due to significant direct costs and indirect costs, as well as increased expenditure by the government to meet the health and security crisis. Despite its dense population, Nigeria was able to contain the outbreak swiftly and was declared Ebola free on 13<sup>th</sup> October 2014. Although, Nigeria's Ebola containment success was multifaceted, the private sector played a key role in Nigeria's fight against Ebola. An epidemic of a disease like Ebola, not only consumes health resources, but also detrimentally disrupts trade and travel to impact both public and private sector resulting in the *'fearonomic effect'* of the contagion. In this thesis I have defined *'fearonomics'* or the *'fearonomic effects'* of a disease as the economic effects of both informed and misinformed aversion behavior exhibited by individuals, organizations, or countries during an outbreak. During an infectious disease epidemic, there is a significant potential for public-private sector collaborations that can help offset some of the government's cost of controlling the epidemic.

Objective: The main objective of this study is to understand the *'fearonomics'* of Ebola in Nigeria and to evaluate the incentives and the role of the key private sector stakeholders in Nigeria's Ebola response.

Methods: This qualitative retrospective study was conducted in Nigeria and utilizes grounded theory to look across different economic sectors in Nigeria to understand the impact of Ebola on Nigeria's private sector and how it dealt with the various challenges posed by the disease and its *'fearonomic effects'*.

Results: Due to swift containment of Ebola in Nigeria, the economic impact of the disease was limited especially in comparison to the other Ebola infected countries such as Liberia, Sierra Leone, and Guinea. However, the 2014 Ebola outbreak had more than just direct impact on the country's economy and despite the swift containment, no economic sector was immune to the disease's fearonomic impact. The potential scale of the fearonomic impact of a disease like Ebola on the private sector was one of the key motivators for the private sector engagement in the Ebola response.

The private sector in Nigeria played an essential role in facilitating the country's response to Ebola. The private sector not only provided in-cash donations but significant in-kind support to both the Federal and State governments during the outbreak. Swift establishment of an Ebola Emergency Operation Centre (EEOC) was essential to the country's response and was greatly facilitated by the private sector, showcasing the crucial role of private sector in the initial phase of an outbreak. The private sector contributed to Nigeria's fight against Ebola not only by donating material assets but by continuing operations and partaking in knowledge sharing and advocacy. Some sector such as the private health sector, telecom sector, financial sector, oil and gas sector played a unique role in orchestrating the Nigerian Ebola response and were among the first movers during the outbreak.

This paper utilizes the lessons from Nigeria's containment of Ebola to highlight the potential of public-private partnerships in preparedness, response, and recovery during an outbreak.

## **Dedication**

I would like to dedicate this thesis to the memory and spirit of my grandmother Late Sharda Dutta. I would also like to dedicate this thesis to the memory of my room-mate in Lagos-Late Doyin Sarah Fagbnero.

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## **Acknowledgements**

First and foremost, I would like to thank Dr. Muhammad Ali Pate and Prof. Kearsley Stewart for their invaluable support, advice, mentorship, and faith in my capabilities. This thesis would not have been possible without their guidance. I still remember going to Dr. Pate's office with a half-baked idea of what I wanted to do for my project. I am indebted to him for taking me under his wing, for nurturing my ideas, and for pointing me towards a path that would become this entire thesis. I am grateful to Prof. Kearsley Stewart for helping me give form to the vast amounts of data that I collected. Her advice and encouragement was invaluable as I encountered and resolved numerous challenges throughout the data analysis. Special thanks to Prof. Chris Woods, for igniting my early interest in studying Ebola response and pandemic preparedness. His constant encouragement and positivity is a source of inspiration.

I am also indebted to the Private Sector Health Alliance of Nigeria (PHN) and its staff for their incredible support during my time in Nigeria. A special note of thanks to my on-ground mentor Muntaqa Umar-Sadiq, for providing resources and contacts to make this thesis a reality. Special thanks also goes to Dr. Hala Daggash, Dayo Lomuwagun, and the entire staff of the PHN Lagos office for their warmth, invaluable discussions, logistics help, and for making the office an enjoyable place. I am also indebted to Dr. Lawal Bakare for his friendship, for incredibly riveting discussions, and for connecting me to his peers. I am thankful to Dr. Ahmed Ogunlaja for his assistance with managing my survey team and to Ruth, Chrissy, Emmanuel, Akinlolu for helping me conduct the survey.

I would also like to thank Babasoji Maurice-Diya and his beautiful family for their support, helping me feel at ease in a new unexplored environment. Thanks to you all, I had an opportunity to experience the amazing 'Naijja' culture. Thank you for making me feel like a part of your family. Thanks to Nikki for introducing me to Yinka and to Yinka for introducing me to Soji. You powerful ladies showed me what collaboration and networking could achieve. Special thanks to the staff at the Dixie Suites (especially Chrissy and Tessy) for their support, for making sure I could do my work without worrying about anything else.

This acknowledgment would be incomplete without mentioning my family - both in India and in Nigeria. Thanks to my mothers and my fathers - both biological and through law - for their support throughout this thesis. Special thanks to Tola Aunty for being a motherly figure throughout my stay in Lagos, who provided me motivation when the going was tough, and who provided me with emotional support, inspiration, and maternal love throughout my stay in Lagos. I thank her for her prayers when I fell ill and for her astute thinking when there was a situation during my field-work. I will always cherish and love my Nigerian Yoruba nickname 'Folasade'. I thank my Nigerian sister Doyin for her friendship, camaraderie, and sisterhood. She took it upon herself to introduce me to the Lagos that I came to love so much. It still seems like yesterday, when we dressed in matching outfits for an event and went to the Nikki Art Centre, trying a variety of Gele. It still pains and shocks me that you are no longer amongst us mortals. Fate took you away too soon. I would also like to thank Bankole Cardoso for his friendship and for his encouragement.

I am also thankful to the DGHI staff Lysa MacKeen, who encouraged me to reach out to Dr. Pate in the first place. In addition, I would like to give a special thanks to Sarah Martin and Michael Russell for their support.

Last but not the least I would like to thank my partner Venkat Kuppuswamy for his patience and for putting up with crazy work/sleep hours and my time away from home with a smile (most of the times!). Thanks for being my kryptonite and my source of strength. Thanks for always encouraging me to reach for the stars.



## CHAPTER 1. Introduction

“You cannot have development in today's world without partnering with the private sector.”

— Hillary Clinton

Primo Levi once said of holocaust, “It happened, therefore it can happen again... It can happen, and it can happen everywhere.” An interviewee repeated these very same lines to me during the course of the research for this thesis. As he repeated these lines, I was reminded of humanity’s constant battle against epidemics and the vulnerability of the global health system to infectious diseases in a time where global is the new local. In the short while since the recent West African Ebola outbreak, the world has had to grapple with the Middle Eastern Respiratory Syndrome (MERS) virus in South Korea and the Zika virus outbreak across Latin America. Could it really be true? Would the “microbes indeed have the final say” as Louis Pasteur had once famously remarked. Or is there a way to still win this tug of war by building a more resilient global health system?

This thesis is a humble attempt to look at the small but key component of a resilient global pandemic response system – a resilient private sector. In this era of partnerships, and rising power of the non-state actors in global health, one cannot ignore what the private sector brings to the table with it – a steely buoyancy to deal with shocks and epidemics. Global health is about partnerships about multi-lateral, practical, and holistic approach to solve health problems. Where does the private sector fit in that picture during times of an epidemic? That is the question this thesis tries to answer. This thesis focuses on the 2014 Ebola Outbreak in Nigeria and tries to

understand the impact of the outbreak on the private sector, and the unique role played by the private sector in participating in the country's Ebola response. As was once said of AIDS by Peter Piot is now said of Ebola: "*no business is immune from it*". Despite the relatively smaller scale of outbreak in Nigeria compared to its other Ebola infected regional neighbors (Sierra Leone, Guinea, Liberia), the outbreak in Nigeria still had major repercussions on the private sector. However, the private sector in conjunction with the Nigerian government responded to the outbreak swiftly and successfully. The private sector was an essential partner in Nigeria's Ebola response. This thesis for the first time attempts to find out the how and the why?

### **1.1. The 2014 West African Ebola Outbreak**

2014 saw the relentless spread of Ebola Virus Diseases (EVD) across Western Africa. Discovered in 1976 in Democratic Republic of Congo, EVD or the Ebola Hemorrhagic Fever (EHF), is a zoonotic disease caused by Ebola virus of the *Filoviridae* group of viruses (Feldmann and Geisbert 2011). EVD is a disease of high case fatality rate that is transmitted through body fluids such as blood, semen, and vomit of an infected individual; consumption of infected bushmeat, or close contact with the deceased body, organs or contaminated fomites (such as needles) of an infected person or animal (Simarro, Franco, and Heymann 2015) Ebola virus disease", 2016). Despite its high case fatality rate, the reproduction rate ( $R_0$ ), or the number of secondary infections generated by an infectious index case, for EVD is low on average (between 1 and 4) compared to other infectious diseases such as Measles with  $R_0$  of 11-18, making Ebola a not a very contagious disease (Beeching, Fenech, and Houlihan 2014, Plans-Rubió 2012).

The EVD outbreak in West Africa started with Guinea in December 2013 with the index case being a two-year-old boy. By July 2014, the outbreak had spread to other neighboring West African nations, including Liberia, Sierra Leone, Nigeria, Mali, and Senegal (Shuaib et al. 2014,

CDC 2016). The outbreak was declared a Public Health Emergency of International Concern (PHEIC) by the WHO on 8<sup>th</sup> August 2014 (WHO 2015c). The emergence of *Zaire ebolavirus* EVD in West Africa led to the biggest outbreak of Ebola the world had seen. The EVD outbreak is now at its tail end. Over its course, the Ebola virus infected over 28, 000 people and killed over 11, 300 people across West Africa (WHO 2016b). The disease left in its wake, over 17, 000 survivors. For the first time ever, the downstream effects of EVD transcended beyond borders of countries and continents to remind the global health community that infectious diseases respect no borders, religion or socio-economic status (Baden et al. 2014).

Ebola, just like SARS prior to it, brought to the forefront the key issue of global health security and governance in global health. WHO defines global health security as “*activities required, both proactive and reactive, to minimize vulnerability to acute public health events that endanger collective health of people living across geographical region and international boundaries*” (WHO 2016a). The lack of timely control of Ebola revealed gaps and weaknesses in global health systems, institutions, and capacities to protect the public from the economic and social after-effects of Ebola. The most startling gaps that EVD outbreak revealed were pertaining to ‘global health governance’ defined as the “*use of formal and informal institutions, rules, and processes by states, inter-governmental organizations (IGO), and nonstate actors to deal with the challenges to health that require cross-border collective action to address effectively*” (Fidler 2010). Handling of the EVD response exposed systemic governance deficiencies for the roles and accountability across the four functions requisite for dealing with a pandemic- capacity building function, support function, knowledge function, and stewardship function (Moon et al. 2015). The failure of the political leadership, some national actors, delayed action by inter-governmental organizations, and lack of technical capacity were few of the factors behind the global failure to address the West African Ebola epidemic (Moon et al. 2015). However, other factors that

complicated the complex global governance structure to adeptly deal with the Ebola outbreak included lack of assertive leadership, focus on vertical diseases instead of horizontal health systems, and the rising number and power of non-state actors leading to changes in the 3Ps of problem priorities, processes, and players to deal with an outbreak in coordination and coherence sans complication. West African EVD outbreak became a reason for policymakers to look at epidemics not just from a health perspective, but from the lens of governance and security as well.

## **1.2. Ebola in Nigeria**

As we ruminate over how to prevent the next epidemic, it is essential to study countries that were successful in containing the outbreak despite the odds. Nigeria is one such example. The entry of an infected Liberian diplomat from Monrovia into Lagos - a densely populated city of 21 million marked the entry of the index EVD case into Nigeria - a country on the brink of an economic renaissance (Shuaib et al. 2014). Falling acutely ill on his arrival into Lagos, the index patient was taken to a private hospital in Lagos and initially treated for Malaria (based upon his negative Ebola exposure response and positive Malaria diagnosis) (WHO 2014b). The diplomat was soon suspected to be an EVD patient when he did not respond to the Malaria treatment. The index Nigerian patient died on 25<sup>th</sup> July 2014, and the subsequent single line of transmission resulting from him led to 19 lab confirmed cases in Lagos and Port Harcourt within Nigeria (Shuaib et al. 2014). Patrick Sawyer had exposed 72 people on the plane, airport, and the hospital by the time he died. The virus managed to spread to the city of Port Harcourt, another key Nigerian economic hub, via an official that had greeted and helped the index patient on arrival from Liberia (WHO 2014b). In Port Harcourt, this led to another small cluster of EVD cases (Vaz et al. 2016).

The 2014 EVD outbreak in Lagos was unique in that it was first time EVD had entered a dense urban city, which could have led to the explosion of cases within Nigeria and beyond. Although EVD spreads through contact with bodily fluids and is not airborne, the outbreak required limiting movement of people as the outbreak had already transcended international borders (Feldmann and Geisbert 2011). Multiple factors including lack of screening at the airport and withholding of information by the index patient resulted in a further exacerbation of the transmission. As a result, the  $R_0$  in Nigeria for the index patient was high at 9, reflecting the transmission potential of a ‘symptomatic’ infected person in the unique setting of a dense urban environment (Althaus et al. 2015). Despite the high  $R_0$  of 9 for the index patient, Nigeria was quickly able to reverse the tide and control the outbreak within 14 days (control being bringing the  $R_0$  down to unity) (Althaus et al. 2015).

The Nigerian government responded swiftly to the Ebola threat by setting up an Ebola Emergency Operation Centre (EEOC) modeled after the previously successful Polio EOCs for elimination of Polio in Nigeria (Vaz et al. 2016). The EEOC used good governance structure and incident management system to coordinate Ebola response in collaboration with the Nigerian Centre of Disease Control (NCDC), and both the state and federal governments (Vaz et al. 2016). The EEOC partnered with several private sector entities to not only perform contact tracing of the 890 contacts of the infected individuals, but also to streamline and implement Ebola containment and social mobilization strategies (Vaz et al. 2016). As a result, Nigeria was declared as Ebola-free on 20<sup>th</sup> October 2014- 93 days after the index patient arrived in Lagos (Vaz et al. 2016). This feat would have been difficult to achieve without applying the lessons from Nigerian Polio program, the incident management system adopted by EEOC, the skilled EEOC personnel, and support by the Nigerian federal and state governments (Vaz et al. 2016). Another key component to the Nigerian Ebola response was the private sector, which also participated in the Nigerian

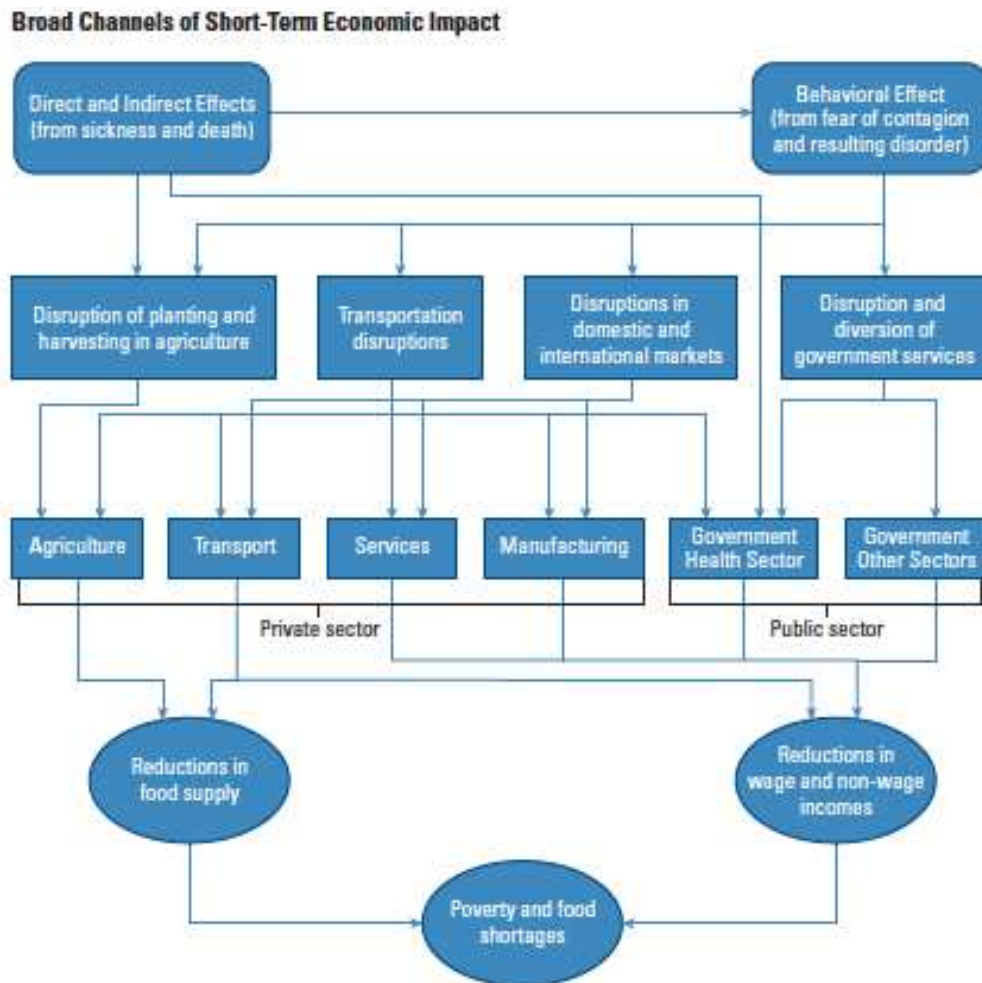
Ebola response (WEF 2015).

### **1.3. The Cost of Ebola Outbreak**

Infectious diseases can affect public perceptions to induce fear and fear related corresponding behavioral effects. These fear related behavioral effects were responsible for 80-90% of the economic impact of SARS, which depressed the economic growth of affected countries by 1-5% in 2004 (Thomas 2015, Analytica 2014). An outbreak or an epidemic can affect the economy and security of a country in two distinct ways. The first would be through direct effects, such as through the loss of life, loss of labor force, or the increased consumption of healthcare resources. The second avenue would be the indirect effect on behavior and consumption due to fear. Fear can drive significant changes in the behavior, leading to border closures and the disruption of businesses, trade, tourism, and social events (WBG 2014).

As further evidence of the dual impact of infectious disease outbreaks, the EVD outbreak in Liberia, Guinea, Sierra Leone had a significant adverse impact on affected nations due to sizeable direct costs (e.g., the cost of treatment, reduced government revenue, limited economic activity), as well as indirect costs, such as forgone output, rising prices, and a greater fiscal deficit (KPMG 2015, Thomas 2015). An outbreak such as EVD impacts an economy across all its sectors, including tourism, construction, mining, agriculture, sales, transportation (*Figure 1*). The departure of expatriates, a reduced labor workforce, and market closures reduces both the demand and supply of goods and services in the economy. This reduction in the size of the economy leads to subsequent investment aversion (KPMG 2015, Thomas 2015). The EVD outbreak in West Africa not only consumed health resources, but also diminished labor participation from the fear of contagion. The limited mobility and disruptions in cargo shipments that followed affected both

the public and private sectors. In addition to the direct and indirect costs incurred by companies and individuals, governments were also forced to increase their spending to meet the health crisis and its related security needs (KPMG 2015, Mordi 2014, Thomas 2015).



**Figure 1: Economic impact of Ebola- direct and indirect channels (WBG 2014)**

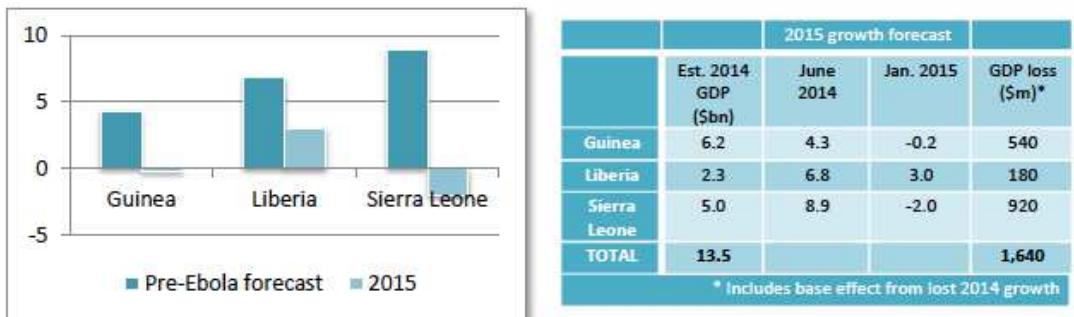
According to World Bank, the foregone income in Liberia, Guinea, and Sierra Leone is expected to be more than 12% of their GDP taken together – a loss of 1.6 billion US\$ (500 million US\$ for Guinea, 200 million US\$ for Liberia, and 900 billion US\$ for Sierra Leone) (*Figure 2*) (Thomas et al. 2015). The total cost of the Ebola epidemic according to the World Bank is set to be between 3-4 Billion US\$ by the end of 2015 (KPMG 2015). However, in contrast to other Ebola affected nations, Nigeria fared significantly better. The economic cost incurred by Nigeria due to the EVD outbreak was estimated to be 186 million US\$. Although significant, this amount was much less in comparison to its GDP (0.5% of its GDP) as the country's swift containment efforts contained the outbreak and its macroeconomic impact swiftly (KPMG 2015, Thomas 2015).

As noted earlier, limited mobility coupled with fears related to the disease can lead to several negative effects on an economy, particularly in the service facing sectors, tourism, and cross-border trade. This economic setback might not only reverse years of developmental progress, but it can disproportionately affect the poorest and the most vulnerable of the population. The potential closure of ports, the disruption of trade and transportation, and the closure of businesses due to the aversion behavior (resulting from the fear of contagion)- it creates unemployment and food price shocks. In an already high-stressor epidemic environment, such events can trigger instances of human rights abuse, conflict, and insecurity. According to a recent analysis, pandemics could lead to a tremendous global economic loss of 60 billion US\$/year (Sands, Mundaca-Shah, and Dzau 2016) Consequently, an investment of 4.5 billion US\$/year to bolster pandemic preparedness, to strengthen health systems, and to accelerate R&D has been recommended to avert this potential loss due to pandemics (Sands, Mundaca-Shah, and Dzau 2016). The return on investment (ROI) for each dollar spent on pandemic preparedness and response is high. Additionally the 4.5 Billion US\$ is only a fraction of global 1 Trillion US\$



budget allocated for defense. However, countries with already stretched budgets will find it difficult to justify such expenditure. This is especially true for countries in conflict or countries battling with debt. Unfortunately, these are also the countries where pandemic preparedness and resilient epidemic response is needed the most.

Given the economic loss businesses face from a pandemic and the need to expand both the fiscal and technical space for pandemic preparedness, there is a significant potential for public-private sector collaborations. More specifically, public-private sector collaborations can help offset some of the government’s cost of controlling the epidemic and can lead to a more resilient epidemic response system.



**Figure 2: Forecasted drop in GDP growth rate due to Ebola (a) and Lost productivity due to Ebola (b) (Thomas 2015)**

### **1.4. Private Sector in Disaster Relief**

As outlined in the section 1.3, pandemics and their ripple effects can lead to severe disruptions and business discontinuity for companies in the private sector. The private sector also faces similar concerns of business discontinuity in the face of natural disasters (Chikoto, Sadiq, and Fordyce 2013). In general, business discontinuity refers to operational or

organizational disruptions that cause a reduction in revenue. As a result, the private sector has been an essential stakeholder during emergency and disaster response. The private sector can assist recovery efforts in times of a disaster in two distinct manners: direct and indirect (Zyck and Kent 2014). During disasters such as natural calamity, the private sector can directly support relief efforts through both financial and in-kind donations. The private sector can also collaborate with non-state and state actors to provide humanitarian relief. This was extensively observed in the aftermath of the 2004 Indian Ocean tsunami, where the private sector mobilized 565 million US\$ in assistance and formed over 30 partnerships with multilateral agencies to respond to the crisis (Binder and Witte 2007, White and Lang 2012).

However, it is essential to note that the private sector contributes to disaster response indirectly as well. Private companies possess a range of assets – both tangible (e.g., trucks, distribution systems, etc.) and intangible (e.g., knowledge and expertise) – that can significantly help during a crisis. The private sector can also serve as drivers of innovation and research and development (R&D). While innovation and R&D spending may not prove useful in immediate efforts, they can prove critical in addressing relief efforts when future disasters strike. This was seen in the example of Ebola outbreak itself. Designated as Neglected Tropical Disease (NTD), the disease had few pharmaceuticals investing in research until the 2014 outbreak in West Africa escalated. Business continuity in times of crises contributes to economic stability and recovery by strengthening core infrastructures and by ensuring some level of financial security (Zyck and Kent 2014) .

### ***1.5. Impact and Gaps in the Literature***

The West African Ebola outbreak offers many lessons to the global health community. While there has been scholarly work on the Ebola outbreak highlighting lessons for the public

sector, governance reforms, operational efforts, WHO reforms, and state-level reforms; there has been little focus thus far on the private sector and what we can learn from its activities during the Ebola outbreak. Today, there is significant need and impetus to expand the fiscal space for health. With a 13.33 US\$ return on investment each year per dollar spent on pandemic preparedness, the economic case for investments that improve global health systems and global health security worldwide is self-evident. However, with a significant price tag of 4.5 Billion US\$ per year required for pandemic preparedness, there is a vital need to engage the private sector in the conversation.

The role and incentives for the private sector in disaster preparedness and response has been studied extensively (Chatterjee and Shaw 2015, White and Lang 2012, Zyck and Kent 2014). Pandemics and their ripple effects can affect businesses just like a disaster or natural crisis, by causing shocks to the supply of labor and other resources required for business to operate smoothly. Moreover, pandemics can threaten investments and transform into global crises, affecting even businesses located outside the immediate pandemic region. Consequently, pandemics pose a significant threat to the health and sustainability of private sector companies around the world. According to data from Office for the Coordination of Humanitarian Affairs (OCHA), Ebola Private Sector Mobilization Group (EPSMG), and World Economic Forum (WEF), over 150 countries participated in Ebola response and donations worth 100-200 million US\$ were made (WEF 2015). However, the total value of direct and indirect contributions from the private sector in Ebola response to be worth 3 to 6 times more than this amount from the public sector (WEF 2015). Nevertheless, despite willingness on the part of private sector to assist in Ebola response, there has been little research that has looked at the incentives for the private sector to be involved in pandemic or epidemic response. The report by WEF has attempted to make the case for public-private collaboration in managing future epidemics, and has outlined

models for collaboration. However, the WEF report took a forward-looking high-level regional approach to their analysis.

Nigeria represents a success case in the West African Ebola response – a country that contained the Ebola outbreak within 93 days. Apart from benefiting from the stewardship shown by the state, and the existence of the Polio EEOC program, the Nigerian private sector was also very involved in the Ebola response (PR-Newswire 2014, KPMG 2015, Vaz et al. 2016, WEF 2015). Currently, no in-depth study has been performed that looks at both the impact and role of the private sector in an epidemic response, especially with respect to the 2014 Ebola outbreak in Nigeria. Nigeria, by the virtue of its successful Ebola response and huge economy (compared to Sierra Leone) offers unique insights and lessons regarding private sector mobilization. So far, most studies regarding the West African Ebola outbreak have focused on the public sector.

This thesis also seeks to address the difficult question of how the government can increase engagement with private sector during an epidemic. There also exists a gap in understanding the motivations and incentives for the private sector to participate in epidemic response. This study hopes to fill the afore-mentioned gap. This evaluation of the role of private sector in Ebola containment in Nigeria would allow me to identify the key drivers and enablers for public private partnership and private sector engagement in times of an epidemic to mitigate the socio-economic impact of an outbreak. This would be useful in designing public-private partnerships (PPP) interventions for countries still battling Ebola as well as for future outbreaks. The findings of this study would hopefully help governments in identifying opportunities for private sector to take part in national response efforts especially with respect to epidemic response.

## **1.6. Objectives and Aims**

The objective of this qualitative study is to identify how the private sector can participate in pandemic preparedness; and to highlight the potential of PPP in disease surveillance & containment efforts, including health financing and social mobilization. The secondary goal of this study would also be to identify the key incentives for private sector in taking part in these PPPs.

The specific aims for this study are:

- Aim 1. Describe the impact of Ebola outbreak on Nigeria's private sector.
- Aim 2. Evaluate the role of the private sector in Nigeria's Ebola response and identify the first movers (the private sector entities to respond first).
- Aim 3. Understand the rationale for the private sector engagement.

## **CHAPTER 2. Methodology**

### **2.1. Key Terms**

“Any economic entity that is not part of the state is a part of the private sector” (Twigg 2001). For the purposes of this study, the private sector is defined as any non-state and non-multilateral intergovernmental organization. Both non-profit and for-profit entities from various economic sectors have been included in this study. Although public sector and inter-governmental organizations were interviewed during the course of this discussion, the focus of the study is on the private sector.

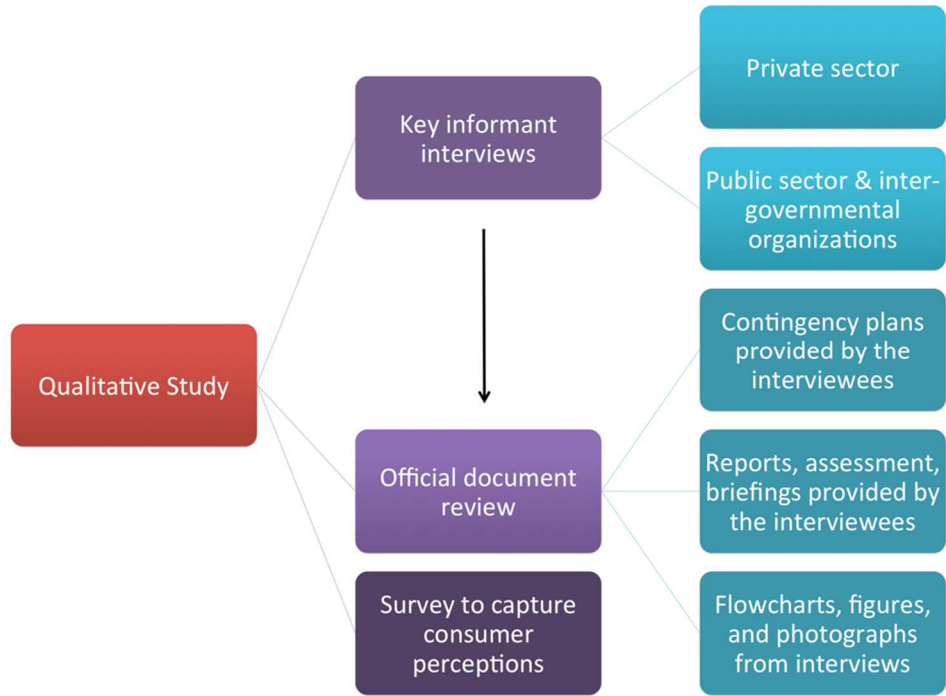
In this study, the terms Ebola and EVD are used interchangeably. Likewise, the terms ‘private sector’, ‘businesses’, ‘companies’, ‘stakeholders in private sector’ have been used interchangeably as reflected by the complexity of terminology used in this area. Similarly, ‘business continuity plan’, ‘Ebola management plan’, ‘contingency plan’, ‘pandemic preparedness plan’ have been used interchangeably throughout this thesis. For the purposes of this study, private sector engagement in Ebola response is used broadly to describe any role played by businesses in Ebola aftermath. This could refer to direct roles or indirect roles such as supplier or technical advisors to the government.

### **2.2 Setting**

This study was conducted in Lagos, Nigeria in collaboration with the Private Sector Health Alliance of Nigeria (PHN). Fieldwork was conducted in Lagos from May to September 2015.

## **2.3 Study Design**

This study is designed as a retrospective, qualitative study. The study is designed to assess the impact of Ebola on the Nigerian private sector, identify the current and potential roles of the private sector in Ebola response, as well as capture the motivations and incentives for the private sector stakeholders in outbreak response. Given that the nature of this study is to capture a holistic understanding of the role of the private sector in response to Ebola, use of qualitative methods such as in-depth interviews, group interviews, surveys, and document reviews was deemed appropriate (*Figure 3*).



**Figure 3: Study design showcasing the primary and secondary data sources in this qualitative study**



## **2.4. Recruitment and Sampling**

### **2.4.1. In-depth Interview**

This paper utilized a two- pronged approach of literature search and snowballing to identify the key stakeholders and interview participants. First movers (first responders in Ebola response) and private sector stakeholders involved in Nigeria’s Ebola response were identified using media database LexisNexis. The key word searches “Nigeria”, “Ebola”, “Private sector” for dates between 1st May 2014 and 1st May 2015 were used. Texts reviewed included newspaper clippings and ‘grey’ literature. A researcher’s guide of key stakeholders names, economic sectors, and possible themes was created. The list was crosschecked via snowballing with key informants from partner organization and the public sector. Once the first movers were identified, a master list of contacts and key stakeholders was created. For the purposes of this study, over 127 key informants across Nigeria were contacted via personal referrals, emails, LinkedIn, phone, and in-person office visits. 114 replies were received and followed up. This eventually culminated into 66 interviews (9 telephonic interviews and 57 in-person interviews) of 78 persons representing 50 stakeholders (42 private sector stakeholders, 8 public sector stakeholders) (*Table 1*). Out of the 66 interviews conducted, 62 interviews are included in this study. While two interviews are excluded due to ethical constraints two other interviews were excluded due to short length of interview (*Table 2*).

**Table 1: Number of stakeholders and individuals interviewed**

PUBLIC/PRIVATE	CATEGORY/ECONOMIC SECTOR	No of stakeholders/businesses	No of interviews	No of people
<b>Public Sector</b>	EEOC staff	1	1	1
	Lagos State	1	1	1
	Federal Ministry of health	1	1	1
	Inter-governmental organization	1	1	1
<b>Private Sector</b>	Private health sector	3	9	9
	Public health sector	3	4	4
	Private sector alliance	1	1	1
	Philanthropic foundations/NGOs	7	7	9
	Natural resource companies	6	8	12
	Telecom & social media	6	8	9
	Aviation companies	5	5	5
	Pharmaceutical & Devices *	3	3	6
	Consumer goods *	2	2	4
	Hospitality	3	3	4
	Retail	3	3	3
	Banks	4	5	8
	<b>TOTAL</b>		<b>50</b>	<b>62</b>

**Table 2: Inclusion and exclusion criteria**

Inclusion Criteria for Study	Exclusion Criteria for Study
EEOC staff, Lagos state and Federal government	
Private Sector Health Alliance for Nigeria	
Businesses or corporates that came up during snowballing or interviews or in literature review	Businesses/corporate that did not participate in Ebola response and were not affected by it
Sectors that came up during interviews: Aviation, Natural Resources, Telecom, NGOs, Foundations, Consumer goods, Pharmaceuticals, Hospitality, Retailers/Malls, Banks, Hospitals	Businesses or corporate without an office in Nigeria
Consumers: Recruited at 3 popular markets	Businesses from sectors that did not come up during literature review or interviews
Private sector hospital involved in Ebola response and other private sector hospitals	Public sector hospitals not involved in Ebola response
Public sector hospital functioning as Ebola treatment unit or involved in Ebola response	Two providers interviewed were excluded from the interview due to ethical constraints

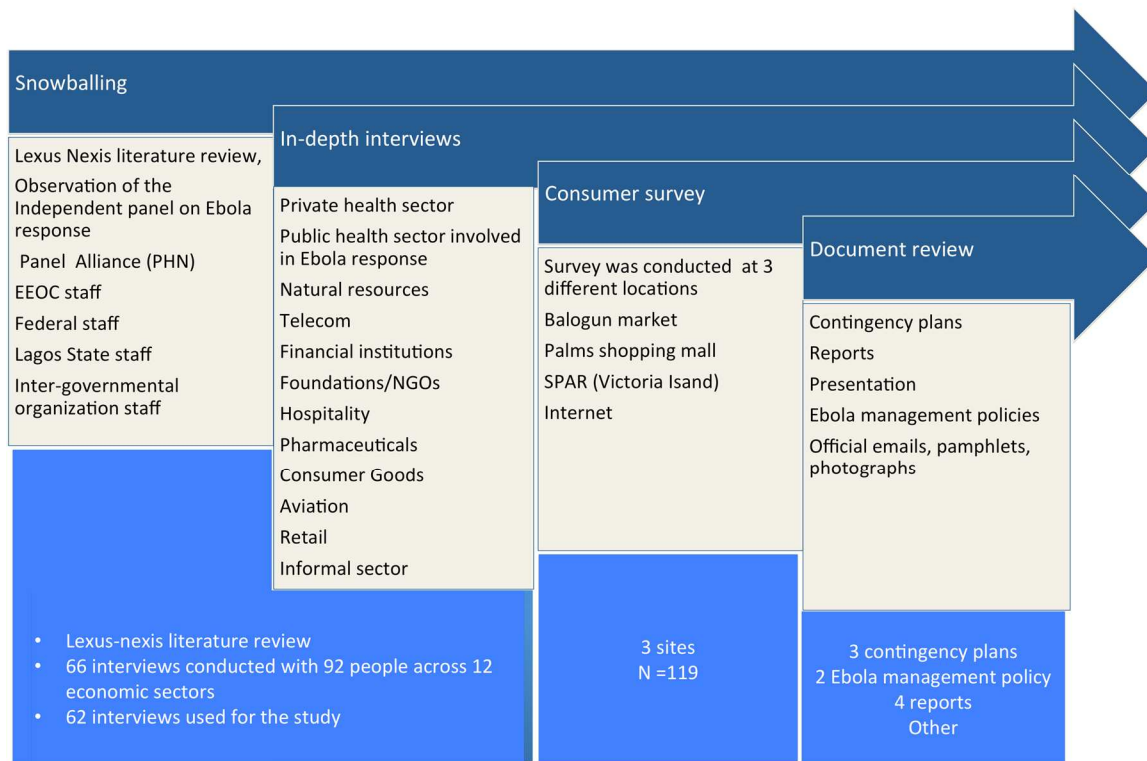
### **2.4.2. Surveys**

Interviews conducted were used to inform the surveys for consumers to see if the rationale for corporate involvement translated in putative benefits in terms of brand perception/popularity. The consumer survey also included questions to understand the perception and awareness of Ebola among the urban population in Lagos. This survey was designed to supplement the qualitative findings. The survey was administered both online and in form of paper-based questionnaire. A two-pronged approach was used to ensure that the drawbacks of online administered survey (such as low response rate) were compensated for. Convenience sampling was used to conduct the survey. However, measures were taken to ensure a somewhat equitable distribution of genders and ages.

### **2.5. Data Collection**

Data was collected in form of qualitative interviews, surveys, and documents. *(Figure 4)*. I conducted 66 interviews with 78 people representing 50 stakeholders to allow for explorations of common themes within innovations in Ebola response and incentives for private sector involvement in response to Ebola. 47 of the interviewees were male and 31 were female. The profile of the interviewees was diverse (Heads of corporate communications, CSR team leads, Directors, Government affairs, Health providers, Healthcare workers, CEOs, Risk managers, Country directors, HR executives) as different organizations had different executives or managers associated with the Ebola response. The in-depth interviews were supplemented with shared documents, interviews, and surveys of other stakeholders such as government officials and consumers respectively to probe in their perception of private sector involvement in response to

Ebola and whether it impacts brand image or popularity in any way.



**Figure 4: Data collection explained**

### **2.5.1 In-depth Interviews**

Snowballing and media database (LexisNexis) search was used to identify the participants. 66 interviews were conducted across 12 economic sectors in Nigeria. The in-depth interviews were conducted in English and lasted approximately 60-90 minutes each. The author conducted the interviews and the interviews were audio recorded to aid transcription. The interviews were mostly conducted face to face with the respondents to allow gathering of additional information by observation as well. However, due to logistical or security constraints, 9 interviews were conducted via telephone or skype and recorded using skype recorder while 53 interviews were conducted in person.

Written or oral (recorded) informed consent was obtained prior to commencing the interviews. A topic interview guide covering questions about the impact of Ebola on the business, how business dealt with Ebola and its role in Ebola response, motivations behind participating in Ebola response was created and utilized during the interview. The interviewee's perceptions on Ebola, lessons from Nigeria's experience with Ebola were also probed during the interview. Further details of the instrument can be seen in the appendix. At the conclusion of the interviews, the participants were informed of the dissemination plan. The interviews were then transcribed to proceed with the data analysis.

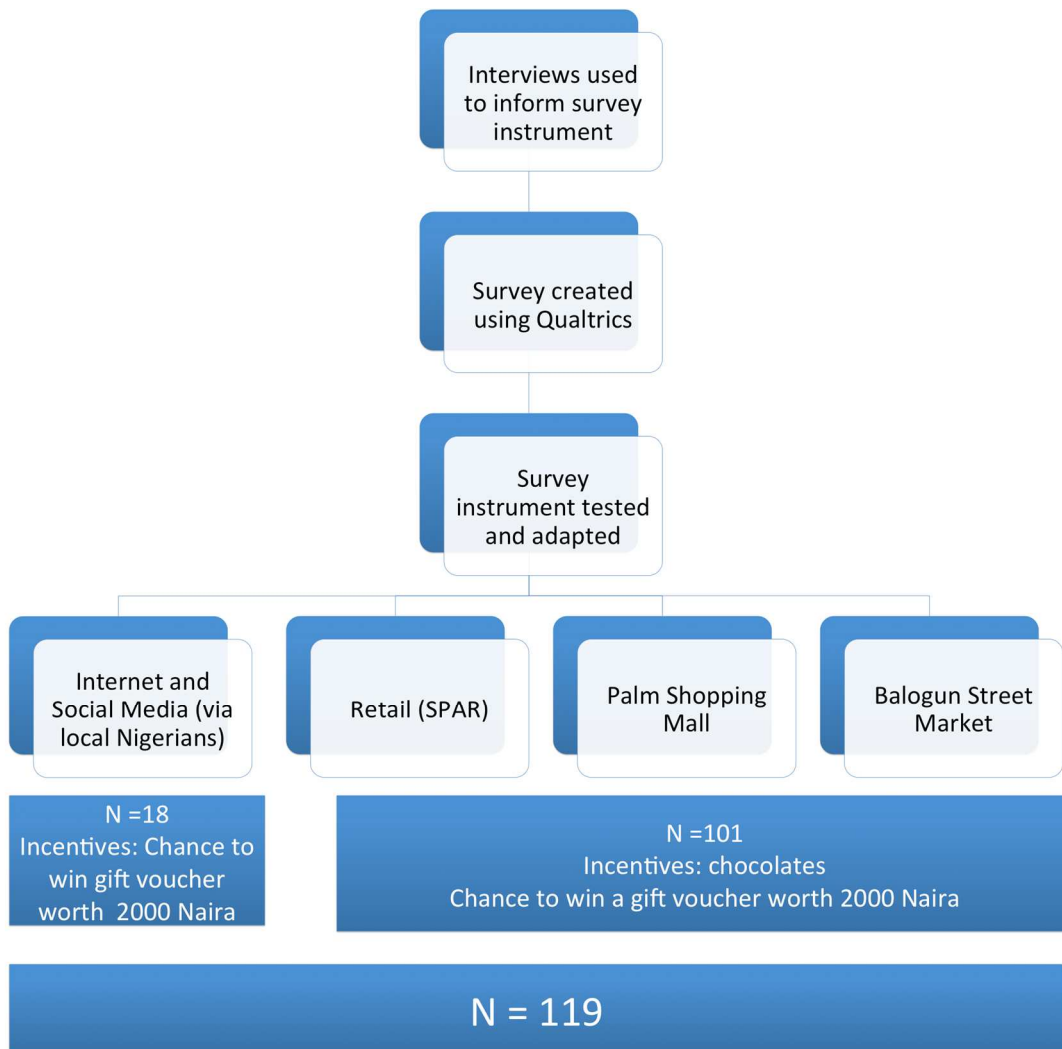
### **2.5.2 Survey**

The survey was prepared using the Qualtrics electronic survey platform. After testing the survey, the online survey was administered via social media platforms of local Nigerian contacts. The link was live for 4 days (between 11<sup>th</sup> August to 15<sup>th</sup> August 2015) and special measures were taken to ensure retaking of the survey was not possible. While online surveys have distinct advantages in an urban metropolis setting such as that of Lagos (controlling for geographical

location, ease of administering, low cost, speed), it also has disadvantages in that it has low response rate and that it does skew sample selection to only people who have internet access. To compensate for the drawbacks of an online survey, paper based surveys were also administered across 3 different locations in Lagos over a span of 2 days (between 13<sup>th</sup> and 15<sup>th</sup> August 2015). Popular markets and shopping malls (Balogun market, Palms shopping mall, Spar) were chosen as site for administering paper based surveys (*Figure 5*). Data was collected using structured, survey team-administered, paper-based questionnaires on socio-demographic characteristics, active knowledge on EVD, perception, behavioral practices and sources of information. Incomplete forms (more than 50% incomplete) were excluded from the sample.

Survey administration assistants were recruited and three gender-balanced teams (1 girl, 1 boy) were formed to administer the paper-based surveys. The team was trained in survey administration by the author a day prior to the survey administration.

The teams were fluent in English, local Yoruba and Pidgin dialects to ensure any doubts could be clarified and the surveys were administered could be administered a culturally competent manner. To compensate for the low response rate and the length of the survey, incentives of 2 popular brands of chocolates were offered to the paper respondents, while a lucky draw chance of winning two gift cards worth 2000 Naira (approximately 10 US\$) each was offered as an incentive for all the respondents.



**Figure 5: Survey procedures and data collection**

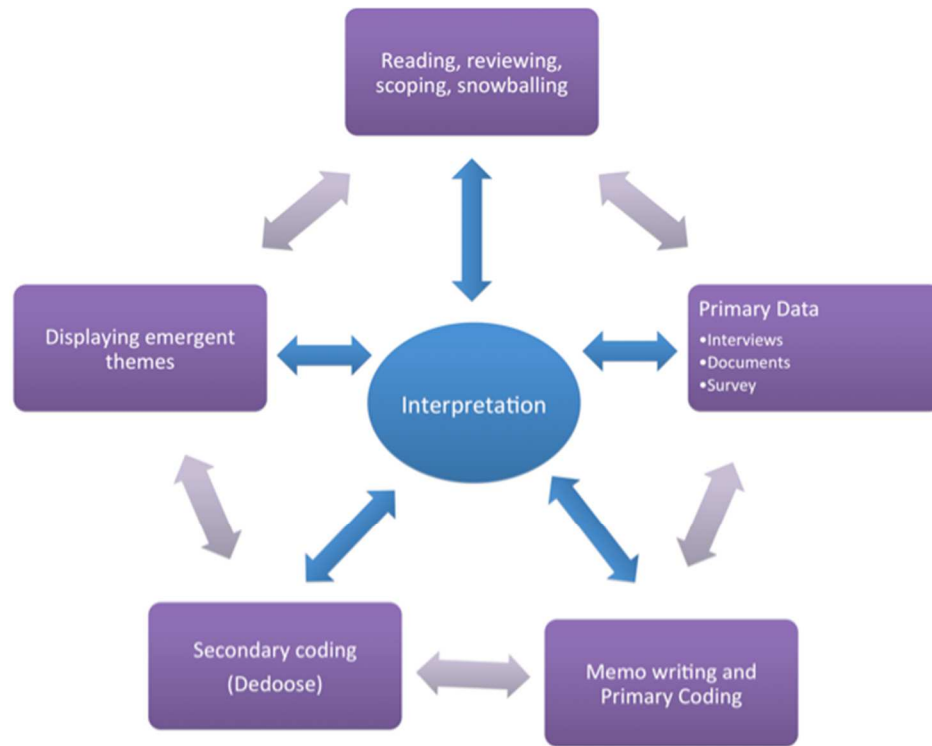
## **2.6. Data Analysis**

This thesis utilizes the interpretivist approach of grounded theory to analyze the qualitative data. In the grounded theory approach, interpretations are continually derived from the raw data with comparative analysis as the key themes emerge from the data (Strauss and Corbin 1994). The processes of coding, memos, and diagrams were used to analyze the data and the data was interpreted continuously throughout the process (*Figure 6*).

Audio-recording of the interviews were transcribed and the text was analyzed using a two step approach. Primary coding was done using Word. Analytic memos were written to summarize and organize the data in to major themes by combining the initial coding insights for the businesses within each of the 12 economic sectors. Relevant quotations were incorporated into the emerging themes within the memos. Key themes were allowed to emerge from the data and supplemented with literature review where appropriate.

The completed memos were reviewed and uploaded to qualitative analysis software Dedoose to enable secondary coding to identify over-arching themes across sectors and ensure credibility and transferability of emerging themes. Representative quotations were identified to support each of the primary themes, and the corresponding memos and transcripts for each quote were revisited in order to contextualize participants' words within their overall narratives. The emergent themes were interpreted and organized in the Results section. The survey data was analyzed using Qualtrics and Excel and used to supplement the findings from the in-depth interviews.





**Figure 6: Data analysis (Adapted from Huberman and Miles, 1994)**

## **2.7. Ethics**

This study had been exempt by the Duke University Institutional Review Board (IRB). This study does not require any interviews with Ebola survivors and is solely focused on the private sector. However, the ethical considerations in this study include issues of confidentiality, informed consent, beneficence, and non-maleficence. To uphold the participant's right to confidentiality, the data and the anonymity of the participants would be maintained and the name of the organizations interviewed are anonymized. Voluntary, written informed consent from each of the participants was obtained prior to the commencement of the interview. All participants were treated without discrimination.

## **CHAPTER 3. Results- Fearonomics of Ebola**

### **3.1. Timeline of Ebola in Nigeria**

In order to understand the impact of Ebola in Nigeria, it is imperative to first understand the sequence of events. Ebola came to Nigeria via air. A Liberian diplomat landed in Lagos on the 20<sup>th</sup> of July with Malaria-like symptoms and became Nigeria's index patient. The diplomat was a delegate to the Economic Community of West African States (ECOWAS) Convention that was taking place in Calabar, a city in Cross River State. An ECOWAS official received the diplomat escorted the patient to a private hospital on the other side of town, due to an ongoing strike by public sector doctors. At the hospital, the index patient refused to divulge details of his clinical history. Most importantly, he refused to disclose that he had recently attended the funeral of his sister who had died of Ebola, and that he was supposed to be in quarantine in Liberia. The patient was tested for HIV, HBV, HCV but all tests were negative. The test for Malaria was positive, but the patient did not respond to Malaria treatment and continued to deteriorate.

*“When he got here, that evening, 9 o' clock; he was seen in our emergency room, the history was given, he was feverish, he was sweaty, been feeling very poorly, had some vomiting, which is not unusual in our environment because people have malaria, and the guy said, ‘actually, I am a malaria patient, and I have my own medicine.’”*

- Male, Medical Director, Index Hospital

*“He wanted to be rehydrated. So they took his blood for basic tests and other tests, and then started an IV line for intravenous fluids to rehydrate him.”*

- Male, Medical Director, Index Hospital

The patient was interrogated by one of the lead consultants when he did not respond to the Malaria medication and had developed hemorrhagic signs. The lead consultant triggered an Incident Management Meeting, based on which the patient was isolated. A decision was taken to send blood samples for Ebola testing and to notify the appropriate State and Federal authorities, as well as the CDC in order to receive appropriate technical protocol for handling a suspected Ebola patient. Samples were sent to Lagos University Teaching Hospital (LUTH), the WHO laboratory in Senegal, and to Redeemer's University. On receiving the initial positive signal of Ebola from LUTH, a press conference was arranged by the Lagos State government on Thursday, 24<sup>th</sup> July 2014 to inform the public of a suspected Ebola case at the index hospital.

As the isolation facility was not yet ready, the hospital was requested to keep the index patient for a longer period. Over this time, the hospital resisted significant diplomatic pressure at multiple stages. First, the hospital refused to release the patient after initial tests of Ebola were positive. Second, the hospital fought off pressure to release the patient's body once he had died. Moreover, the hospital endured hostile and non-compliant behavior by the index patient, as highlighted by instances where he physically yanked his IV lines and other such behavior.

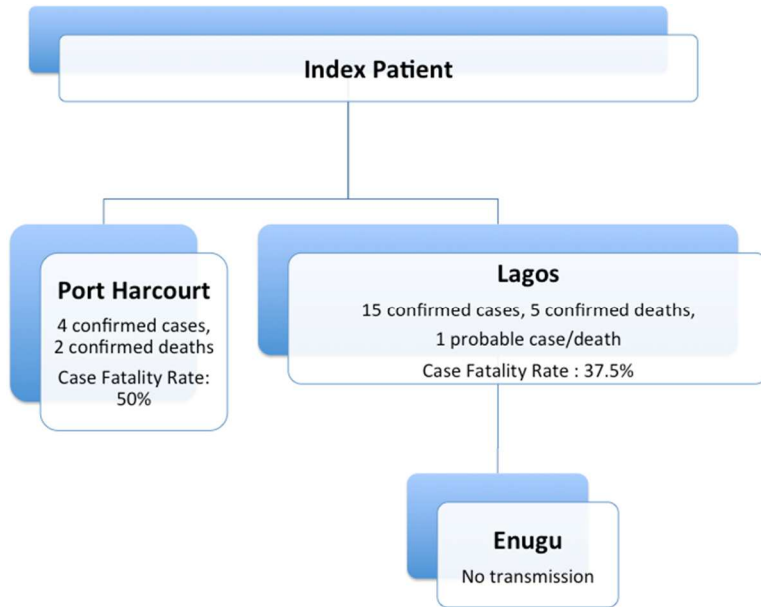
The index patient died on 25<sup>th</sup> July 2014. Following his death, the index hospital staff, along with the WHO representative, and Lagos State arranged for chemicals and equipment to decontaminate the facility and proceeded to incinerate the index patient's body. The hospital was shut down for two months to carry out the decontamination and staff was quarantined. Nevertheless, the index patient had infected one Economic Community of West African States (ECOWAS) official and 10 staff members from his stay at the index hospital. Four of the 10 infected staff eventually succumbed to Ebola. Two spouses of index hospital staff and another

patient were also infected during this period in Lagos. Meanwhile, the ECOWAS official who received the index patient for the convention broke quarantine and travelled to Port Harcourt. In the process, he purposely switched off his mobile phone to prevent tracing. In Port Harcourt, he sought medical attention at his hotel from a doctor, and in turn, triggered a second outbreak cluster (*Figure 7*).

In addition, another woman, who was a close friend of one of the infected nurses, delivered her baby at the index hospital before being evacuated. After developing symptoms on August 3<sup>rd</sup>, she sought care at another hospital. She did not disclose her link to the index hospital out of fear of stigma, and was first suspected of having puerperal sepsis and malaria before her condition deteriorated. Following an examination of records revealing her link to the index hospital, her samples were sent for Ebola testing. These tests confirmed that she had Ebola and that the baby was not infected.

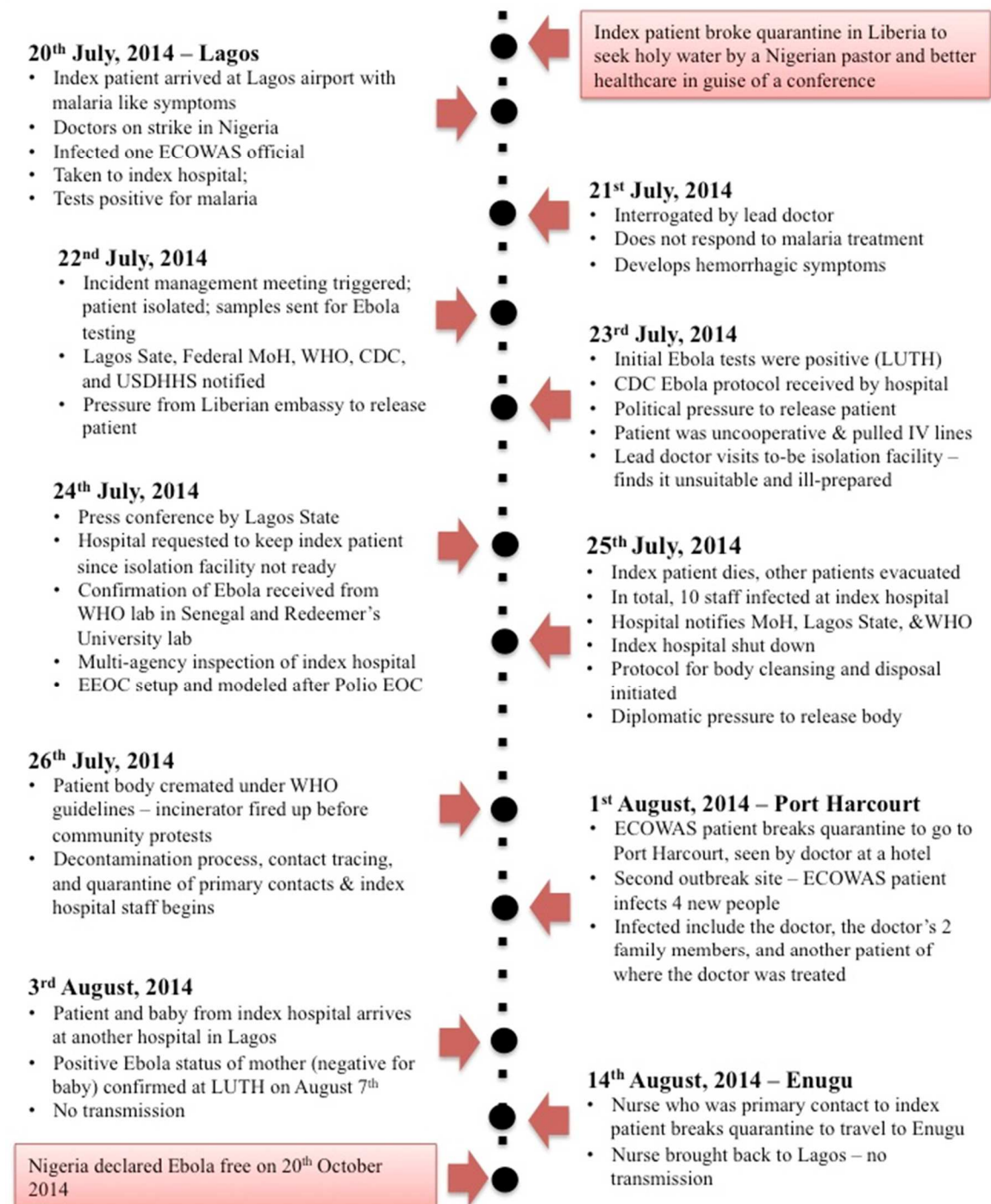
Finally, a third outbreak cluster (*Figure 7*) was narrowly averted after one of the primary healthcare workers who helped treat the index patient broke quarantine to travel to Enugu. The patient was traced and brought back to Lagos as she started becoming symptomatic. No transmission occurred in Enugu and the contacts of the nurse were put under surveillance as well.

This timeline (*Figure 8*) is important as it shows how lack of sufficient knowledge about Ebola and fear of stigma played a role in the disease spreading to three different geographical locations in Nigeria. The account above also highlights the challenge that healthcare workers (HCWs) faced with regards to differential diagnosis for Ebola, a key point that will be addressed in subsequent sections.



**Figure 7: Ebola in Nigeria spread to three geographical locations**

## Timeline of Ebola in Nigeria



**Figure 8: Timeline of Ebola in Nigeria compiled from interviews**

### ***3.2. 'Will Ebola reach Nigeria?' - Differences across companies in perceived reach of Ebola***

The size and regional scope of the companies appears to be correlated with perceptions of whether Ebola posed a risk for Nigeria. Specifically, more local and smaller companies indicated that Ebola seemed "very far" and distant, and that they had not expected it to reach Nigeria. In part, this was due to the fact that there were still other Ebola-free countries situated between Nigeria and the current set of Ebola affected countries.

This difference in expectation may be because bigger companies, with international offices, had access to better information or that they had previous experience with the disease in other Ebola hit countries in West Africa (Liberia, Guinea, and Sierra Leone). Those that expected Ebola to eventually reach Nigeria highlighted the fact that West Africa is a relatively confined region, with Nigeria representing a major hub for inter-regional trade and travel. Moreover, given that cultural practices and trade were interlinked throughout West Africa, larger companies that operated in other Ebola-affect countries considered it as matter of time before Ebola reached Nigeria.

Apart from the risks posed by trade and travel conducted through the air, several interviewees expected Ebola to reach Nigeria through its porous land border. They revealed limited confidence in Nigeria's ability to control suspected patients at land immigration borders in particular. Moreover, the ECOWAS Free Movement Protocol mandated no border restrictions for citizens of West Africa. As a result of this protocol, the free flow of humans, personnel, and cargo significantly increased the likelihood that the disease would eventually reach Nigeria. It is important to note though, that despite the high probability of an Ebola patient eventually coming to Nigeria (due to it being a major hub) no efforts were made to prepare for that eventuality.



### ***3.3 Understanding the impact of Ebola in Nigeria and the ‘Fearonomics’ of the disease***

Infectious diseases or health shocks are known to affect nations in two distinct ways – through the effects of disease itself, and through behavioral responses to the disease within the population (Kinsman 2012, Ogoina 2015). The direct impact of a disease is captured by both the mortality and morbidity associated with the disease, as well as losses in productivity incurred as a result of the disease. While considerable scholarly attention has been paid to understanding and investigating these direct effects of an epidemic, our understanding of the indirect effects that arise from fear of the disease is limited.

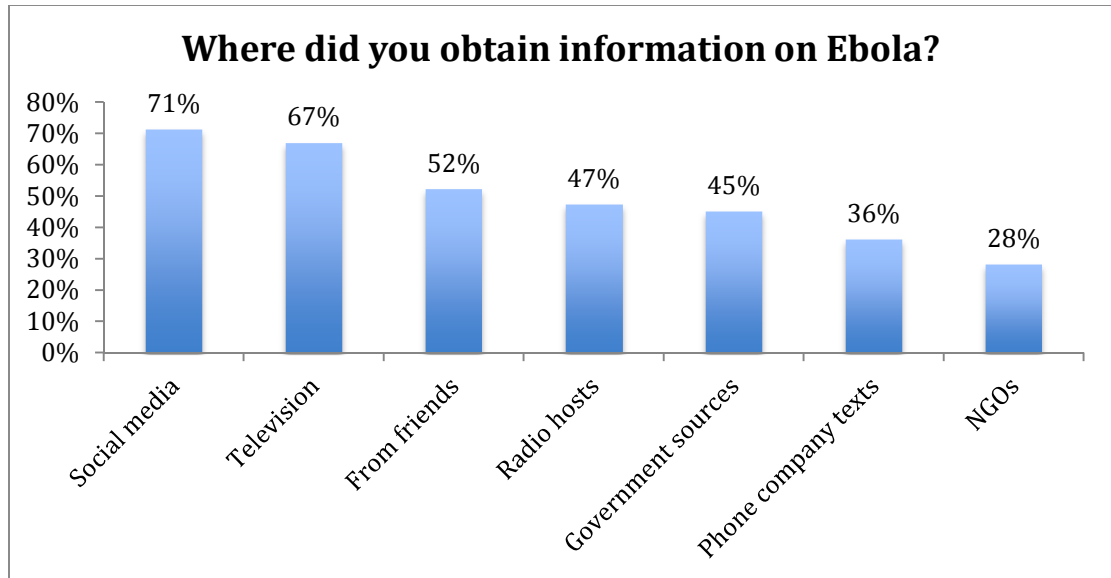
In this thesis, I seek to introduce an original term ‘fearonomics’ or the “fearonomic effects” of a disease is defined as the economic effects of both informed and misinformed aversion behavior exhibited by individuals, organizations, or countries during an outbreak. A focus on the direct effects of an epidemic significantly underestimates the true cost of disease and fails to account for aversion behavior-related consequences experienced during an epidemic (WHO 2009). Aversion behavior exhibited during an outbreak can have far-reaching economic effects, not all of which are easily quantifiable. The use of a qualitative approach in this thesis allows one to capture both tangible and difficult-to-measure consequences that result from informed and misinformed aversion behavior. The present thesis documents and investigates aversion behavior exhibited at multiple levels – from the individual to the country level. Given my focus on fear-induced aversion behavior, the 2014 West African Ebola outbreak provided a valuable research opportunity. My interviews illustrated that while diseases like Ebola may not be particularly infectious, perceptions of these diseases can be very dilapidating.

#### **3.3.1 How did the misinformation and rumors drive the fearonomic**

## **effect?**

Prior to Ebola arriving in Nigeria, there was fear that if the disease did reach Nigeria soil, Nigeria would in turn become an “exporter” of the disease due to its status as a major international hub (Tilley-Gyado; Ritgak 2015). Misinformation and myths regarding Ebola were fuelled by the novelty of the disease in the region, the international media attention, and the lack of widely available accurate sources of information about the disease. In fact, after the first confirmed case of Ebola, social media was set ablaze with conversations regarding Ebola. People sought any information they could get their hands on – whether it came from credible sources or not.

Data from Google Trends revealed that the demand for information on Ebola in Nigeria surpassed all other web searches generated from other news topics (Ogoina 2015). To better understand how people obtained information on Ebola, we conducted a survey in Lagos that queried respondents about their reliance on various sources of information – both online and offline. Results from the survey revealed that 71% of the 110 respondents obtained their information on Ebola from online social media, while only 45% relied on information from the Government (*Figure 9*). Nevertheless, the importance of social media as the primary source of information represents an area of potential concern. While social media facilitates the rapid dissemination of information across great distances – there are no constraints on the credibility or accuracy of this information, As a result, the potential for the rapid dissemination of inaccurate information increased multifold. Rumors based on inaccurate information can pose a significant health hazard for individuals eager for information about the disease (Jin et al. 2014).



**Figure 9: Social media, television, and friends were the top sources of information on Ebola**

Some of the rumors circulating at the time of the outbreak closely mirrored society's mistrust of international and national politics. This is crucial; as such rumors can impact institutional trust, which in turn can hamper disease containment efforts by the Government. For example, in Liberia the Ebola crisis was exacerbated by a belief that the disease was a hoax or being spread by HCWs. Of 200 people surveyed in a study, 70% Liberians believed Ebola was not real when they first heard of it (Mukpo 2015). Despite numerous efforts on the part of government to inform the public about Ebola's presence during the early stages of the outbreak, ordinary citizens echoed theories propagated through social media that the disease was a fabrication by Government officials and a conspiracy to get foreign aid money (AllAfrica, 2014). The quotes below highlight the prevalence of harmful rumors and a significant mistrust of Government officials, both of which undermine time-sensitive efforts to contain the crisis.

*“I think should have been addressed properly which was in a lot of people's minds that it was not real, and if it is real it was brought into Nigeria by force by certain countries.”* – Male, Country Director of a Major Multinational Retailer

*“There was a strong feeling on Nigerians that because Mr. Jonathan didn't cooperate with America (Boko Haram), that America had sent few batches of people from Liberia or wherever into Nigeria to get this country off.”* – Male, Country Director of a Major Multinational Retailer

### **3.3.1.a Rumors and misinformation promote high-risk behavior**

Propagation of misinformation and rumors during an outbreak can be particularly harmful since false rumors can encourage high-risk behavior and false sense of security. One key example of this from the Nigerian context were claims of “anointing water” or “holy water” having the ability to cure Ebola and other infectious diseases by a Nigerian Pastor. Securing this rumored holy water was a primary reason why the index patient broke his quarantine to travel to Nigeria. After the outbreak, the Nigerian government took strict measures to ensure that such claims were not made.

*“He (Index patient) came to find one of those spiritual preachers and those mega churches to heal him”* – Male, Business Executive, Telecom device company

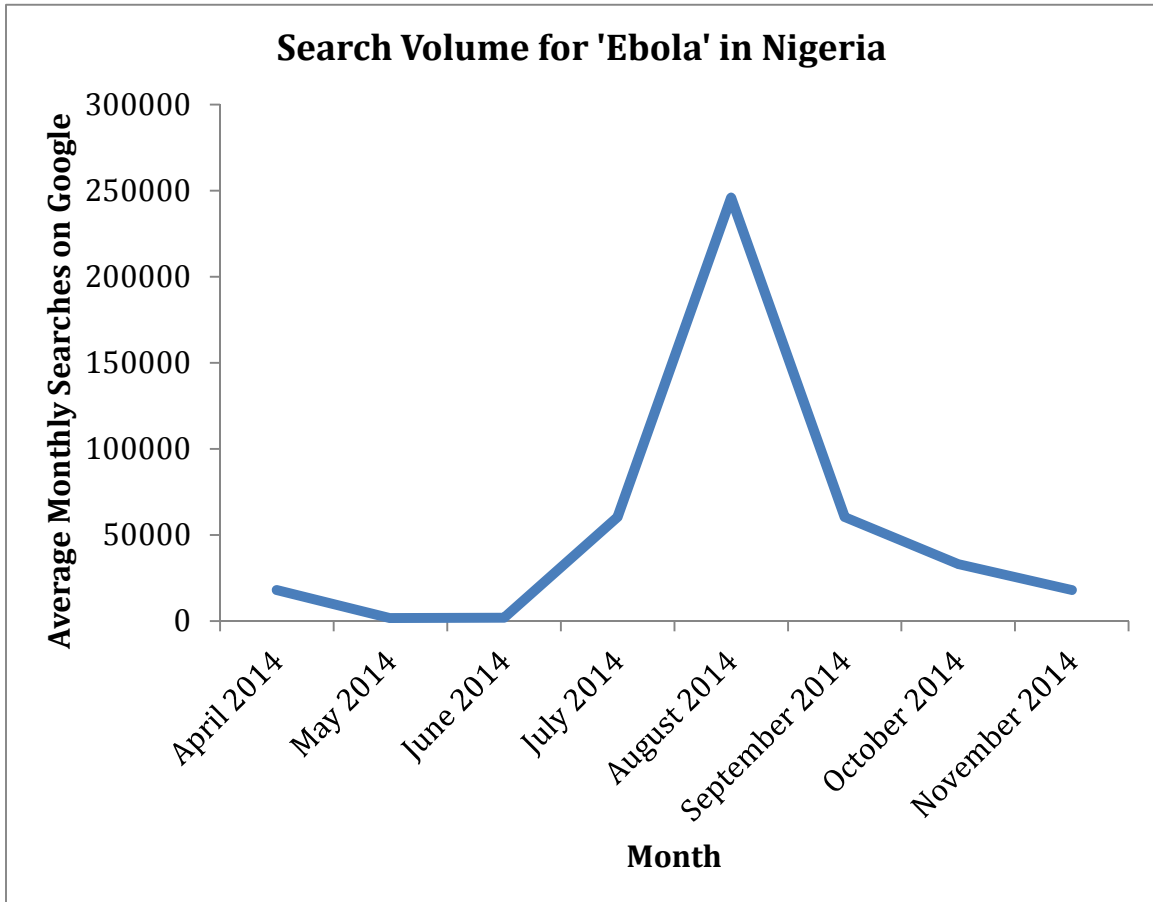
*“He (Nigerian Pastor) got a call from the governor saying don't even try that you will go to jail for a very long time, you will be arrested immediately.”* – Female, Associate Director of Policy & Advocacy at a Foundation

Another notable hoax prevalent during the outbreak in Nigeria was that bathing with hot water and salt would prevent an Ebola infection. Texts such as *“Please ensure that you and your family and all your neighbors bath with hot water and salt before daybreak today because of Ebola virus which is spreading through air”* were circulated across Nigeria around August 8, 2014 (Ogoina 2015). According to Symplur, a company tracking health information trends on twitter, Twitter keywords "salt water drinking" and "Ebola" collectively started appearing on August 4, 2014 and had peaked to 450 tweets/per day by August 8, 2014 (Fung et al. 2014, Oyeyemi, Gabarron, and Wynn 2014).

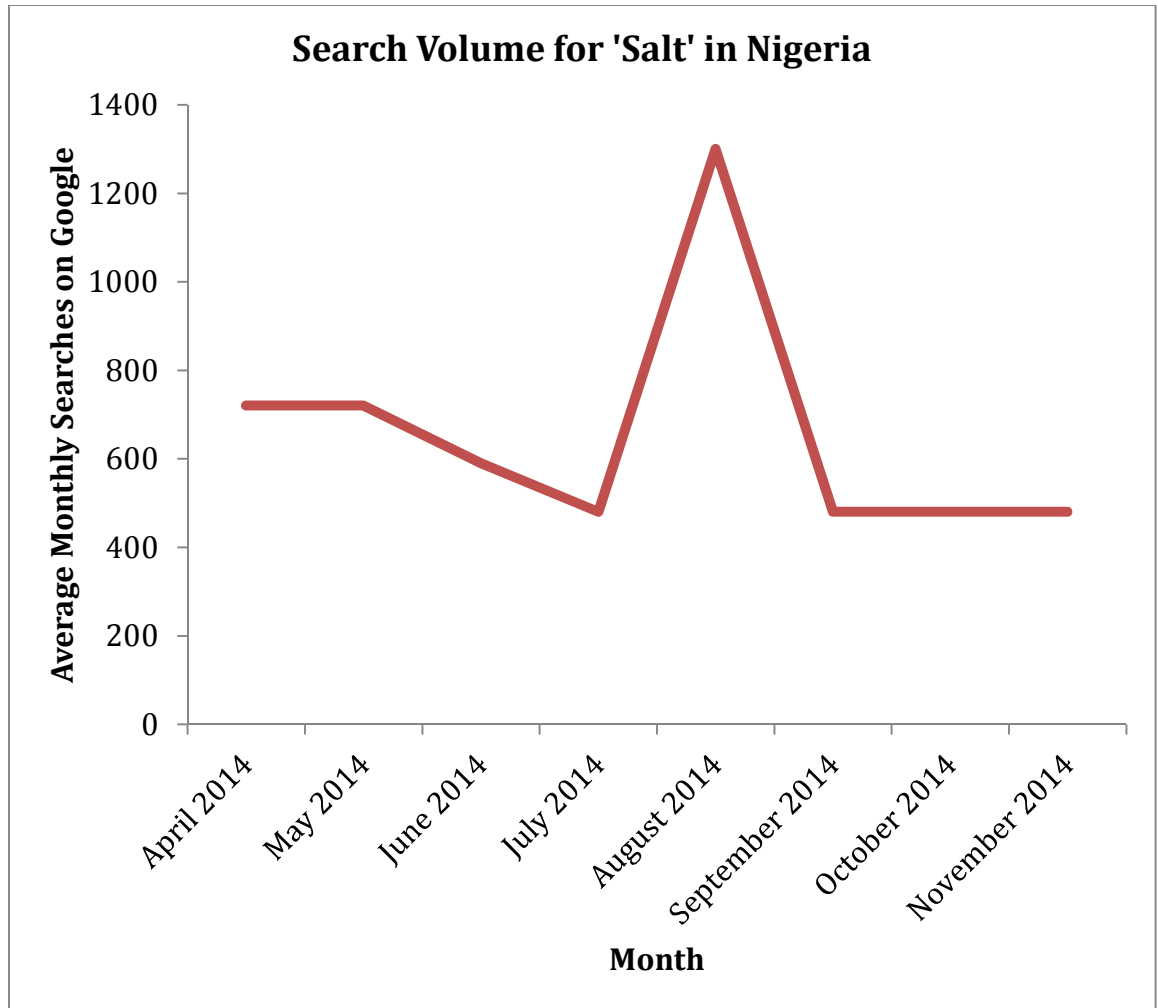
I further investigated the rumored link between salt water and Ebola by examining the volume of Google keyword searches in Nigeria separately for “Ebola” and “salt” over time. Using monthly data on Nigerian searches from Google Adwords, I provide evidence of a large spike in searches for “Salt” that match the spike in search volume for “Ebola” during August 2014 (Figures 4 and 5). The increased volume of searches for salt during the Ebola outbreak in Nigeria support the prominence such rumors can achieve, when there is a lack of accurate information. In fact, the salt rumor was mentioned in a number of interviews, with many of the interviewees receiving texts or calls from home to bathe with salt. Unfortunately, such rumors can cause actual physical harm. Misinformation that drinking excessive amounts of salty water would prevent Ebola lead directly to the death of two people and the hospitalization of 20 others (ABCNews 2014).

The rumors of salt propagated throughout the Nigerian society. One of the nurse mentioned that 80% of patients who came to the facility at that time confirmed that they bathed with salt and water prior to visiting the hospital.

*“Many people drank salt water. One of my brother’s friends drank and ended up in the hospital because he was hypertensive. Luckily he didn’t have a stroke.”- Female, Head Matron at a facility in Victoria Island, Lagos*



**Figure 10: Average monthly searches on Google for the keyword 'Eboa' in Nigeria (Source: GoogleAdwords)**



**Figure 11: Average monthly searches on Google for the keyword 'Salt' in Nigeria (Source: Google Adwords)**

**3.3.1.b Rumors and misinformation and can result in malicious behavior**

*“There were text messages all over the place, "don't even go near XXXXX", "don't pass the street", "patients, please leave the place now." - Male, Medical Director, Index hospital*

*“Before he died, he believed that we could manage it, but when the news broke out, people started sending text messages and he managed to get a message, and immediately he got it, he exclaimed that “why is Nigeria like this?” – Male, Employee, Index hospital*

Misinformation also resulted in unwarranted malicious behavior towards individuals and businesses, endangering livelihoods or community’s health. During the outbreak there were a series of rumors going around targeted at individuals and businesses. These messages of panic ranged from those warning people to avoid specific establishments, such as the hospitals that treated the index patients; to personal messages targeting specific individuals. For example, at one point there were messages circulating across the community that the Director of the index hospital had died from Ebola – this when the Director was very much alive and importantly, not infected by Ebola. Messages carrying rumors of Ebola and panic started to circulate quickly, even making their way to the index patient’s phone. Rumors and panic-stricken messages not only created an air of hysteria, but also played a key role in the downstream economic effects of the outbreak on individuals, businesses, and in turn the whole economy.

### **3.3.1.c Misinformation regarding the transmission of Ebola**

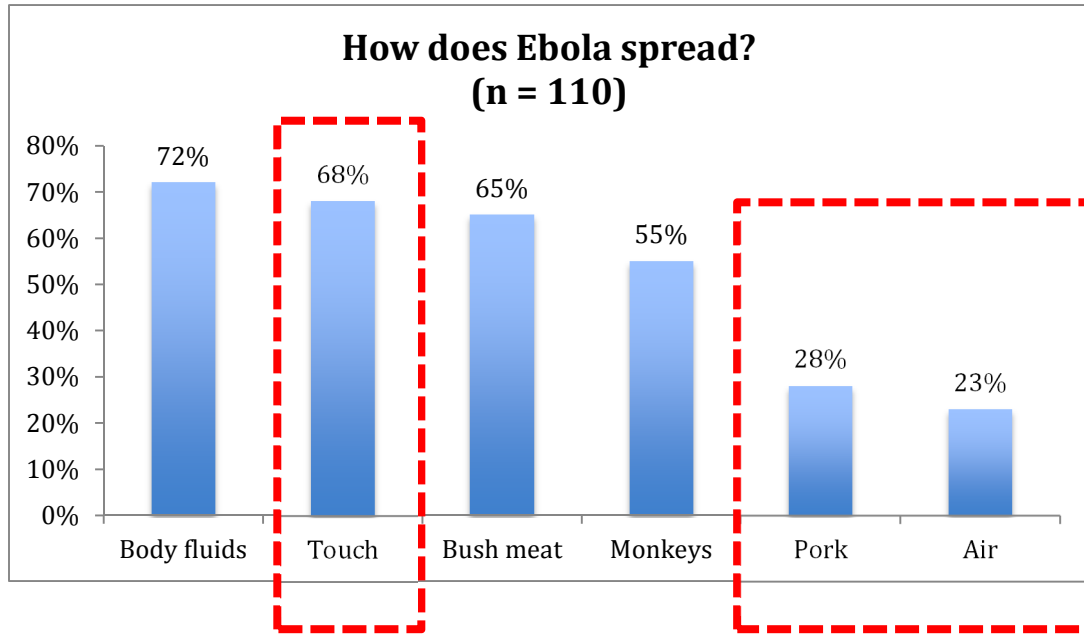
Misinformation about how Ebola is transmitted was widespread during the Nigerian outbreak. According to the survey that I conducted in Lagos (Figure 12), 68% of respondents believed that Ebola could spread through touch, 28% thought that Ebola could spread through the consumption of Pork, and 23% even believed that Ebola could spread through the air. These misconceptions could significantly impact Nigeria’s formal and informal private sector, where people would alter their behavior and related consumption patterns



in unwarranted ways to protect themselves from infection. Despite awareness efforts, misconceptions regarding Ebola were ubiquitous – a fact that was further supported in interviews. For example, while some interviewees highlighted their company's awareness and disease education efforts, they went on to mention that Ebola could be transmitted from touch – evidence that misinformation was still rampant. Also captured in the interviews were instances where those working in places with strong temperature checks were still worried that the disease could “*spread through door handles*”. The clustering of the disease at the index hospital bolstered the belief that Ebola could be transmitted through touch. However, it is important to note that Ebola gets infectious with the appearance of symptoms and spreads through body fluids (Beeching, Fenech, and Houlihan 2014, Prescott et al. 2015).

*"From the way it was presented, its so easy to contact and spread through door handles, stairways hand rails, through mere contacts like hand shakes".* – Female, Sales Manager, Hospitality

*“This staff is okay he left today he was okay, the next day he comes to work, how are we sure he is okay, how are sure he has not touch someone that has that.”*- Female, GM, External Affairs & Communication, Oil & Gas



**Figure 12: Survey results- How Ebola is transmitted**

### **3.4. What were the social and behavioral effects of Ebola on the private sector?**

Fear and panic due to Ebola was a major theme in interviews. It was the first time the disease had come to West Africa. As noted earlier, the novelty of disease meant people tried to source information from various avenues and not all of them provided accurate information. This misinformation and fear led to aversion behavior in individuals and amplified panic across the community.

*“It was the information; the major thing at that period was the information. People were panicking more because of lack of information.”* – Male, Corporate Affairs, Oil & Gas

*“Because we’ve heard so much about this disease, about how you touch somebody and you have it.”* – Male, Business Development Executive, Pharmaceutical

People were also generally terrified of the disease due to its high fatality rate. Sensational coverage of Ebola and its misrepresentation as a highly contagious and incurable disease along with lack of credible information were major reasons for the widespread panic (Ogoina 2015).

Consumer habits, and thus the retail industry, were affected in notable ways during the Ebola outbreak. For instance, people started shopping earlier in the day to avoid crowds and the mix of goods they purchased was different compared to the period before the outbreak. Other social behavioral impact included that people stopped going to crowded areas like open markets, cinemas, clubs, and super markets. This was an insight that emerged in the survey as well. According to the survey, 75% of 105 respondents stayed away from crowded places, 65%

decreased the use of public transport, and 48% said they reduced number of times they went to a store. A new form of greeting emerged and was termed the Ebola handshake. It involved touching elbows and became quite common in Nigeria. The fear of Ebola also led to an increase in mistrust, as people were unable to freely talk to each other, hug, or shake hands. This decrease in trust was particularly directed towards those from poorer socio-economic backgrounds. One interviewee mentioned how she took temperature of her house worker and people coming inside home, while another interviewee touched upon how she kept a thermometer in her office for people coming in. These changes in turn affected the retailers in the marketplace. The effects on the consumption behavior of Nigerian consumers were the result of fear-induced aversion behavior i.e., the fearonomic effect, and circulating misinformation. In the sub-sections that follow, I describe the significant changes in consumption patterns identified through interviews and the survey of Nigerian consumers.

### **3.4.1 Sales of hygiene products increased abnormally**

Both the fear of Ebola and awareness efforts produced significant behavioral changes in people, who sought to protect themselves from the disease. Perhaps the most notable change in everyday habits was in terms of sanitation. Hand washing was stressed and hand sanitizers became extremely popular. Due to Ebola, sales of hygiene products and certain medicines increased but due to forecasting and logistical issues stemming from lack of preparedness, companies were not able to convert that into profit and ended up incurring heavy costs. These costs were in turn transferred to the consumer and led to 100-200% increase in prices of certain products such as sanitizers. Despite the popularity of hand hygiene products, more often than not, the act of washing was performed ignorantly, without a proper understanding of the concept of hygiene. This was evident from the anecdote below:

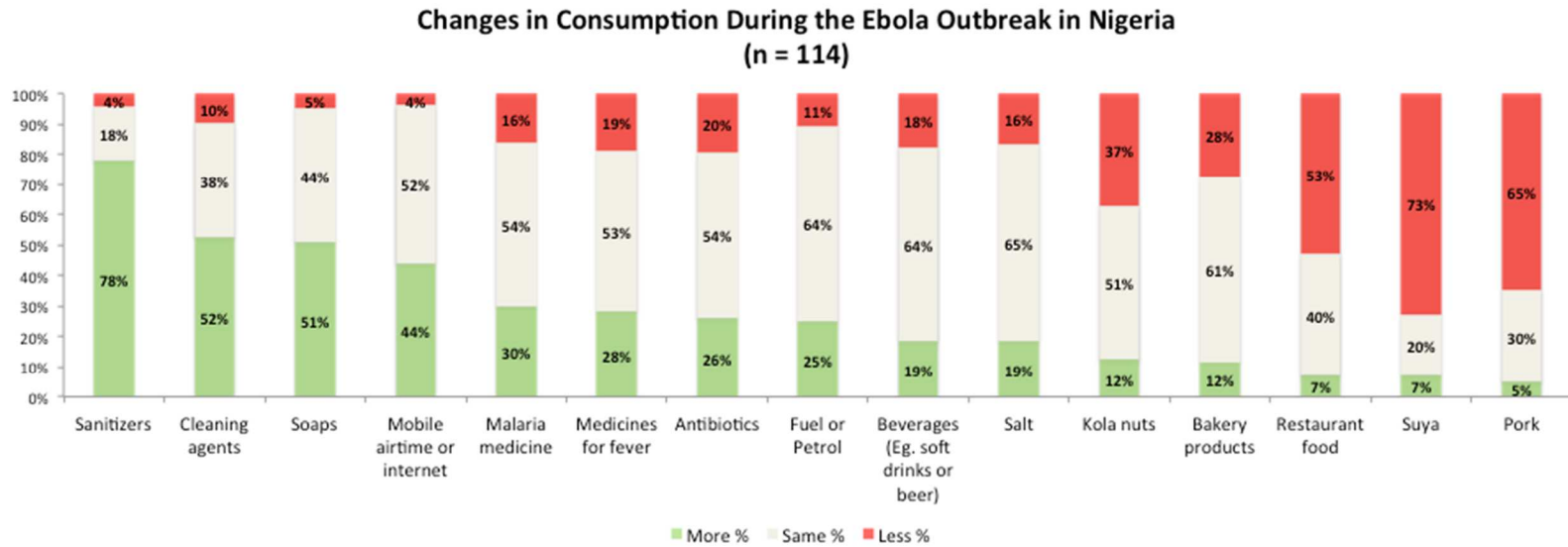
*“I remember I went to XXXXX bar in Ikeja, so they started substituting hand wash for sanitizers. However, the funny part was that they don’t rinse off after using the hand wash. And people didn’t really take note because they just want their hands clean. If I wasn’t working here as well, I would not have seen that too. So people were just squeezing and entering.”* – Male, Head of Compensations & Benefits, FMCG

According to several retailers, there was a 40-50% increase in the sales of hygiene products. One retailer specifically remarked that such was the demand for sanitizers that a month’s worth of stock was sold in 3-4 days. The sales of sanitizers and antiseptics increased. According to one major consumer goods company with an annual turnover of 400 Million US\$, there was 400% increase in sales before they experienced a stock-out, indicating that there was still unsatisfied demand. Post-outbreak, the demand for sanitizers had more or less stabilized but was still about 30% more than it used to be prior to the outbreak. The increase in sales of sanitizers, soaps, and other hygiene-related revealed in interviews was corroborated by the survey on consumption behavior (Figure 13). According to the survey, 78% of the 114 respondents reported buying more sanitizers than usual. 52% and 51% of respondents reported buying more cleaning agents and soaps, respectively.

*“That was because the way it was publicized was that this is the best way to save you guys from Ebola, that is one thing.”* - Male, National Sales Manager, Pharmaceutical company

It is important to note that there were cheaper alternatives to protect oneself from Ebola. However, the media coverage and publicity surrounding sanitizers, coupled with the lack

of accurate information on protective measures, meant that most people believed that sanitizers were the only way to protect themselves. As a result, the demand of sanitizers shot up disproportionately compared to the other hygiene products. While other hygiene products did experience an increase in demand, these increases were dwarfed by the increased demand for sanitizers.



**Figure 13: Survey results regarding changes in consumption due to fearonomics of Ebola**

### **3.4.1a Why did the price of sanitizers increase and why was it not profitable for the private sector?**

*“How many people use hand sanitizers in normal circumstances? Very few. Now there is huge demand and they have to respond to the huge demand.”* –Male, Managing Director, Pharmaceutical

Unlike medicines and other mass consumed products, sanitizers experienced stock-outs due to their relatively low demand prior to the outbreak. Despite the preceding outbreaks in Sierra Leone, Guinea, and Liberia; suppliers of sanitizers did not foresee the outbreak reaching Nigeria. As a result did not seek to augment their supply or build a buffer stock in any way. Due to their incorrect forecasts, the sudden surge in demand led to severe logistical problems both in supplying product to the end-consumer, as well as in obtaining adequate stock from the manufacturers. As a result, stock-outs in sanitizers were common.

*“This machine has the capacity of producing 10million doses per annum, and suddenly you have demand for 100million. Even if you run 3 shifts, you would probably be able to do 30 millions. That is increased volume by 3 folds by multiplying the number of volumes by 3 shift.”* – Male, Managing Director, Pharmaceutical

*“It was so high, Oh my god!, it was extremely expensive, and people started importing sanitisers as a new form of business.”*- Female, Sales PR Manager, Hotel



The surge in demand for sanitizers overwhelmed the existing supply chain of retailers and the suppliers, who had to resort to expensive means to meet the demand. Moreover, both manufacturing and storage capacity were often insufficient, leading to additional operational and procurement costs. These additional costs were passed on to the consumer and the price of sanitizers increased by 250%. Contrary to the popular perception that many pharmaceutical companies and consumer goods companies exploited the conditions to make profits, findings from this study reveal that increased prices was a function of more expensive alternative methods to meet demand. One common method used to procure additional sanitizers was to import them quickly via air-freight from international manufactures. For example, in an interview one supplier described flying product in from a sister factory in Indonesia, which further added to their cost of procurement and hence the price.

*“Our hand sanitizer business went over the roof. But not as profitable as it should be because our local products were not sufficient and we had to import by air-freight which was more costly than shipping. That ate into the margin we should have gotten, however we just made sure that the products were available.”*- Male, Head of Compensations & Benefits, FMCG

*“We were not prepared for it commercially because we didn't have the large volume of products that could manage the situation locally. So it was during the outbreak we had to start importing. So what we could have shipped, we had to fly it down and the cost were higher so we couldn't take advantage of the situation.”*- Male, Head of Compensations & Benefits, FMCG

*“Had to fly hand sanitizers from London because as a category, as a customer, we didn't want to not have that in our shelves because it was part of our top 100 items.”*- Male, Country head, Retailer

Despite the higher cost of procurement and absence of profit in doing so, retailers and consumer goods companies imported sanitizers when faced with stock-outs to maintain their brand image and to build brand equity. Brand equity is especially important for consumer goods companies as it can influence consumer choice and in turn product sales.

*“At that period, we didn't really make any profit on the goods but we made some brand mileage that we could really leverage on in the future.”*- Male, Head of Compensations & Benefits, FMCG

**3.4.1b How did the outbreak impact the sales of non-sanitizer hygiene products, disinfectants, and medicines?**

*“As far as the average man was concerned, the world told the average man that hand sanitizers was the way to go.”* - Male, National Sales Manager, Pharmaceutical company

The quote above highlights the public perception about sanitizers vs. non sanitizer hand hygiene products. An alternative hygiene disinfectant product manufactured by a leading pharmaceutical and health consumer goods company experienced a surge in demand but nothing close to the 400% surge in demand for sanitizers. This was interesting as the product is a

disinfectant made of phenols and chlorophenols, which have 27 multiple uses. The product is supposedly superior to (if not, as effective as) sanitizers but people seemed to be relatively unwilling to adopt this disinfectant product compared to sanitizers. According to the manufacturer, the product works better than sanitizers as phenols stay on the palm longer than alcohols. Leveraging their brief window of opportunity during the outbreak, efforts were made to spread awareness about the product, maintain a price ceiling, eliminate stock-outs, and to position the brand clearly against the alternatives. The brand tried to position itself in the market by even creating pocket friendly bottles. Despite these efforts, the success of the product was limited in the market relative to sanitizers. Simply put, consumers were obsessed with hand sanitizers. Eventually, the company decided to manufacture sanitizers containing the disinfectants, and released the product in October 2014.

*“I think if I should compare our sales for the Presept in 2013 with our sales in 2014, I'm thinking we had something close to almost 200%.”* - Male, Sales Manager, Pharmaceutical

The period during the Ebola outbreak in Nigeria also saw an increase in the demand for disinfectants and other products used for sterilization. According to a pharmaceutical and medical device company, their advanced sterilization division responsible for disinfectants did really well during the outbreak. Sales of products such as an effervescent Chlorine-based tablet (sodium dichloroisocyanurate), which is 4 times more potent than bleach for disinfection, went up by 200% from 2013 to 2014. This product is unique in that it is effective through the entire biocidal spectrum, and is resistant to organic soilage to which bleach is susceptible. Nevertheless, a 50%

drop in sales was observed for other medical products (such as products for hernia, stitching, etc.) being sold by the company.

*“People are not showing up but a greater part of them was still going on self-medication; going to pharmacy and medicine stores to get something to use.”* –Male, Managing Director, Pharmaceutical

*“We saw a greater demand for antibiotics.”* –Male, Managing Director, Pharmaceutical

Interviews indicated that while the sales of prescribed medicines reduced during the outbreak, pharmaceutical companies observed an increase in sales of antibiotics. The decrease in prescription medications could be potentially due to the reduced health-care seeking behavior. Interestingly, the increased demand for antibiotics observed during this period is evidence of an increase in self-medication behavior during the outbreak. Consumers increasingly self-medicated to avoid hospitals, where suspected Ebola patients could turn up, or coming into contact with health-care workers. Minimal changes in analgesic purchasing behavior were noted.

The increase in antibiotic sales reported by suppliers is consistent with changes in consumption behavior captured by the survey (Figure 13). According to the survey, 26% of survey respondents reported buying more antibiotics than usual. Although, increases in the sales of anti-malarial and analgesics were not mentioned in pharmaceutical interviews, survey data showed that 30% of respondents bought more anti-malarial, and 28% of respondents bought more analgesics than usual during the outbreak.

### 3.4.1.c How did the outbreak impact sale of food?

Fearonomic impact affected sale of food as well as misinformation about transmission of Ebola coupled with aversion behavior led to changes in consumption of certain foods such as suya, pork, and baked goods.

According to a major retailer, the sales of bakery products (and meat products) decreased by 10% between August and October 2014. This was reflected in the survey results as well because 28% of respondents reported buying fewer bakery products than usual (Figure 13). The reduction in sales of bakery products was not surprising due to the fearonomics associated with Ebola. People exhibited aversion to any food products that were not made in front of them or by people not known to them

**Bakery products**, because it is produced in-house by us, it is not manufactured from a company. At the store level, the lead store has its own bakery, fresh baked products.- Male, Country Director, Retailer

*“I had stop selling **pork** because I think it was somehow related to Ebola virus so we stopped selling pork to our customers, we stopped serving pork. We started selling only chicken and beef in our menu.”* – Male, Manager, Mall

*“OK I think there was a food item then that was not in good; was it chicken or something. Chicken, because they say you can easily catch it so people ran away from chicken. And **suya spots**”* – Male, Directorate Head, Lagos & West Africa, Ban

According to a major retailers, their meat sales decreased during the outbreak. Some interviewees reported that they stopped serving pork due to customer concerns that Ebola could be spread through pork. The survey results echoed these sentiments - 28% of respondents

thought that Ebola could be spread through pork (Figure 13). At least seven interviewees mentioned that they stopped eating or buying suya (a Nigerian kebab-like meat delicacy made of chicken or beef) during the period or knew of people who did. This too was corroborated in the survey, with 65% of respondents bought less pork than usual while 73% of respondents reported buying less suya.

### **3.4.2. How did the fearonomic effect manifest into stigma and discrimination**

The arrival of Ebola in Nigeria was marked with various kinds of stigma and discrimination. This stigma and discrimination stemmed in part from misinformation about the disease and in part from excessive caution to protect oneself from infection. In the sub-sections that follow, I explore the prevalent stigma and acts of discrimination in greater detail for different groups of individuals.

**Ebola survivors** and their families faced immense stigma and discrimination. While some were told to evict themselves from their accommodations, the spouses of others were fired. Some examples and anecdotes are in quotes below

*“The family suffered from stigmatization from office workers of the husband and neighbors. The neighbors did not want anything to do with them. They finally had to move out of that house. Yes, everybody here thinks once you have Ebola virus disease it's a death sentence.”*

The interviews noted several instances of stigma against the survivors of Ebola. The husband of one survivor had to move out of his accommodation with his entire family, even after his wife was declared Ebola-free. One of the nurses who had survived experienced stigma when

an elderly doctor took a microphone after her speech. He said that he would not hug her as he unsure whether it was safe, and to protect himself from potential infection. Out of fear, a landlord evicted the children of one of the victims, while the fiancée of another victim was fired after her death.

The **hospital** that had admitted and diagnosed the index Ebola patient bore the brunt of stigma with many people calling it the “*Ebola hospital*”- a term that was also observed in the course of my fieldwork. At the time of the outbreak, many tricycles refused to go in the vicinity of the hospital. The rumors and stigma surrounding the hospital were so significant that even a year after the outbreak, people are afraid to visit the index hospital.

*“The tricycles wouldn’t go to Obalende because everybody knew XXXX (index patient) was taken to a hospital in Obalende.”* – Female, Corporate Communications Head, Foundation

*“Even till now, people are still afraid of entering, but we keep on telling them that there are no traces of ebola in here anymore.”* – Medical Director, Index hospital

Even **staff not infected by Ebola** faced immense stigma. The children of a non-infected staff member from the index hospital was banned from attending school, due to immense pressure from other parents. Other staff members were evicted from their housing as they worked at the ‘Ebola hospital’. The stigma stemmed from misinformation that Ebola could be spread by touch, a rumor that was also reflected in the survey I conducted. From the survey, 68% of respondents

believed Ebola could spread by touch. Stigma of non-Ebola infected staff and their families is displayed below in some of the many anecdotes gathered during this study.

*“There was an Indian doctor at XXXX hospital. It happened to be her kids of hers or something, happened to be in our one only Indian school and all this parents of this Indian community said to the school that their kids would not be coming to school, we will not be sending our kids, that's one sad thing that happened.”* – Male, Country Manager, Retailer

*“One of our housekeeping officer were ejected alongside her husband, because they believed they had ebola, in short they believe we all working here escaped from where we were locked up somewhere in order to spread the virus.”*- Male, Employee, Index hospital

Yes, outside here, if you want to buy something and they know you are working here, they will even run from you, that “take your money, i dont want ebola”. It was terrible.” - - Male, Employee, Index hospital

*“For example, there's a common bus that takes them. The senior and junior staff they come in the buses. They don't want to stay on the buses with them. So we now had to go around doing advocacy to tell them that even if somebody has Ebola confirmed just sitting with the person, you cannot get infected. You need blood fluids either form sweat or from blood to get infected. So we had to tell them just sitting by each other's side, you cannot get the infection.”* – Female, Head Matron, Public hospital with Ebola patient in Lagos



Fear ran both ways - hospitals and healthcare workers were fearful of patients running a fever, and potential patients were quite scared of both hospitals and health care providers. This is discussed in detail further in section 3.5.

The stigma and discrimination was not limited to behavior within Nigeria, but was observed internationally. In particular, many countries flouted International Health Regulations (IHR) special provision to impose travel or trade restrictions on Ebola-hit countries. Nigerians faced significant stigma abroad. Moreover, the neighboring countries of Cameroon and Chad closed their borders with Nigeria. Although the fear and stigma against Nigeria was nowhere close to what other Ebola-hit countries experienced (Sierra Leone and Liberia), the fear was still a grim reminder of the ignorance and the false perception that Ebola was everywhere in Nigeria. This led to a lot of negative attention and the stigmatization of Lagosians and Nigerians. Nigerian athletes faced stigma as well. There were reports of their stigmatization or discrimination during the Africa Cup of Nations qualifiers and Youth Olympics. This stigmatization came up during the interviews as well. ( 2014, Ogoina 2015).

Nevertheless, Nigerians also feared and discriminated against individuals from other nations affected by Ebola i.e., people from Liberia, Sierra Leone, and Guinea. This was especially so in the hospitality industry. However despite the underlying fear, both awareness activities and the customer-facing nature of the industry minimized the extent to which the fear manifested into overt stigma.

### ***3.5. How was the health sector affected by the fearonomics of Ebola?***

This section discusses aspects of the fearonomic effect of Ebola that potentially affected health outcomes and health system overall. The Ebola outbreak in Nigeria was unique as it affected the health outcomes through fear-induced aversion behavior at both ends – by the health care provider and the healthcare seeker. Hospitals were afraid of getting an infected Ebola patient and as a result turned away people with high fever – a phenomenon that has also been documented in literature (Maduka and Odia 2015). At the same time, patients were afraid to seek services at hospitals, due to fear of being suspected Ebola patients and being put in close proximity with actual Ebola patients. This led to a reduction in service utilization at the hospitals. Hospitals reported a reduction in the outpatient volume between 35% to 50% during the outbreak. One of the hospitals reported a reduction in emergency room utilization by 40%. Interestingly, a reduction in health service utilization was reported during the SARS epidemic in Taiwan, where a reduction of 35.2% in inpatient care utilization was observed during the four month peak period of the SARS outbreak (Chang et al. 2004). Apart from impact on health service utilization, the Ebola outbreak in Nigeria could have potentially impacted human resources for health (HRH) and health systems by impacting the staff morale and staff absenteeism during the period of the outbreak. Fearonomic impact of Ebola on health service utilization and health system would in turn affect health outcomes of other diseases. It must be noted here that an increase in mortality due to an increase in number of untreated HIV and Malaria has been estimated for other Ebola hit countries of Sierra Leone, Liberia, Guinea due to Ebola related reduction in healthcare capacity (Parpia et al. 2016, Walker et al. 2015).

### **3.5.1. Ebola led to health service outage for febrile patients in Lagos**

Private clinics stopped seeing people with fever due to fear of Ebola. The index facility served as a stark example of how a leading healthcare facility could shut down and lose revenue after a case of Ebola. As a result, hospitals started turning away patients with fever during the initial phase of the Ebola outbreak. This would have a detrimental impact on health outcomes as Nigeria is a Malaria endemic region and differential diagnosis between Ebola and Malaria is difficult early on. This represented a grave ethical challenge (Maduka and Odia 2015). No facility wanted to follow in the footsteps of the index hospital. While many facilities adopted a policy of not seeing febrile cases early on, they later started screening and conducting triage. Hospitals reasoned that although they stopped a few people from coming in with symptoms similar to Ebola, they felt comfortable that they were not taking risks to get Ebola.

*“Some facilities that did have a policy of not seeing febrile patients, as the time unfolded they recognized that they needed to do something different, which was set up their own screening point and then do a triage, but the initial response was that of fear of concern and they stopped.”*

- Male, Group Medical Director, Oil & Gas

As doctors minimized contact with patients out of fear during this period, many hospitals would just refer febrile patients to the isolation facility at Yaba, even if they had not been to Ebola-affected areas or attended a funeral. This practice combined with lack of sufficient medical volunteers created significant pressure on the isolation unit initially. It is important to note that the initial situation at Yaba isolation facility could have spun out of control had clear non-Ebola patients continued to arrive at the facility handling Ebola patients. To mitigate this disaster this,

Lagos State government tried to take a proactive role by conducting seminars for general practitioners and in some cases, by providing direct feedback. Some hospitals introduced a triage questionnaire system to delineate non-Ebola patients from Ebola suspects.

*“And he said we always send all kinds of malaria cases, he called my boss and told him we should stop sending malaria cases, and told us to do further screening.”*- Female, Head of Quality and Risk Management, Hospital in Victoria Island

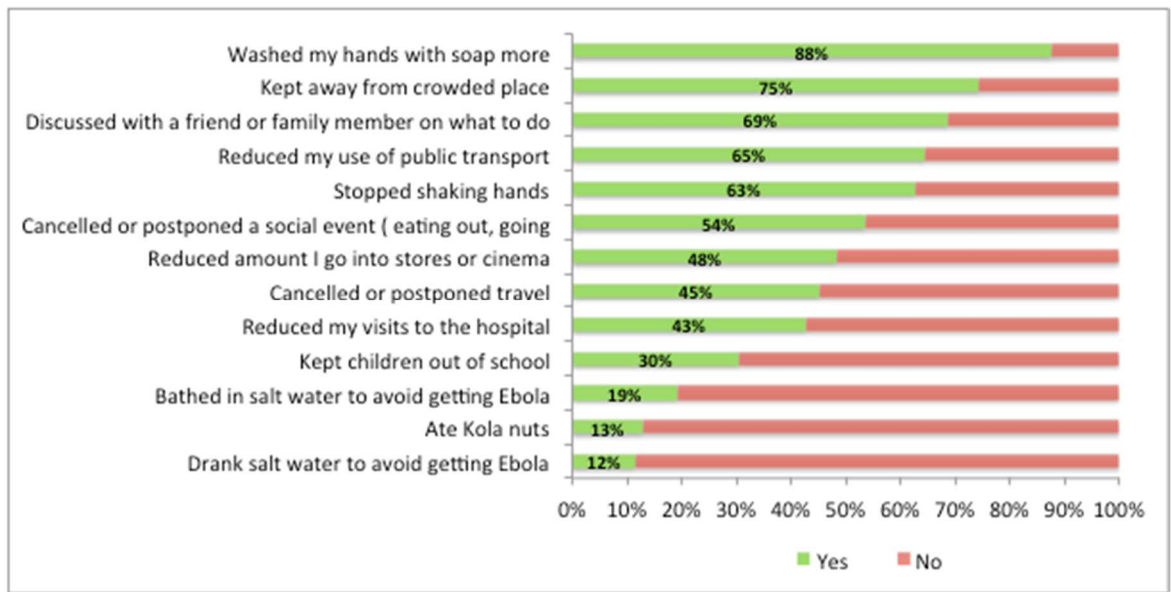
Another aspect of the fearonomic impact on health was the difficulty in mobilization of HCWs and doctors to volunteer for Ebola case management. The difficulty was due to the fear of catching the disease and fear of stigma. One of the interviewees involved with formation of the Ebola Emergency Operations Centre (EEOC) recounted how he mobilized 20 doctors for the isolation center. However, within 15 minutes as he drove from their location to the hospital, only 6 to 8 doctors remained. The stigma against healthcare workers who worked on case management made it difficult to build initial capacity for managing Ebola patients. At one point in the beginning, only the doctor from the WHO managed Nigerian Ebola patients. In such a scenario, monetary incentives were key to mobilizing doctors. However, despite their mobilization, stigma continued to stall the recruitment of healthcare workers. The stigma was so rife that even doctors exhibited stigma against healthcare workers, and feared interacting with the managed cases.

*“We had a case where a junior colleague of mine who happened to be a case manager went to see a senior colleague, and the senior colleague who knew he was a case manager was scared.”* - Medical Director, Infectious Disease Hospital at Yaba (Ebola Isolation Facility)

Due to fearonomic affect of reduced patient volume on hospital revenues, salaries of HCWs were delayed in some facilities. This combined with potential for stigma meant a lot of staff abandoned their posts or just left. For example, at the index hospital, several nurses left or relocated to escape the accompanying stigma and fear-induced aversion behavior. Another hospital reported the resignation approximately 10 staff members. While some staff simply absconded, others resigned after receiving stern pressure and warnings from their families. Interestingly, according to one facility, both fear and absenteeism/abandonment were more rampant amongst non-frontline medical staff than frontline staff. This could be due to the non-frontline staff feeling more vulnerable without the PPE that must have been provided to the HCWs. Loss of nurses and HRH would have potentially affected the health systems in Lagos. The nurses to population ratio for South-West Nigeria is dismal at 1.35 per 1000 people (Labiran et al. 2008). A longer outbreak would have reduced the number further due to increased loss of HRH due to disease or abandonment.

### ***3.5.2 Decreased health service utilization due to Ebola could impact health outcomes of other diseases***

There was significant fear amongst the population of visiting a hospital. This led to reduction in health-seeking behavior as well as increased challenges for work that involved hospital visits. One of the hospitals interviewed reported a reduction of 50% in patient volume at the time of the outbreak while another reported a reduction of 35%. This reduction is consistent with the survey conducted in Lagos, where I questioned individuals about their personal and social behavior during the outbreak (*Figure 14*). According to the survey, 43% of the 105 respondents mentioned they reduced their visits to the hospital.



**Figure 14: Change in social and behavioral practices during the outbreak (n=105)**

Patients avoided hospitals until they were very sick, as they feared coming in contact with suspected Ebola patients. Some patients even refused to be examined or touched by healthcare workers during their visit. One facility recalled a case where the patient refused to have her blood pressure checked out of fear of Ebola. Such misinformed fear of Ebola not only impacted the revenue of health facilities and other related sectors (such as the pharmaceutical sector), but it also distorted health outcomes of other diseases. The fear of healthcare workers and hospitals was partially attributed to the uses of PPE. Patients thought the staff dealing with febrile patients looked like astronauts. The attire combined with the risk of being sent to the isolation facility exacerbated the level of fear. One of the facilities reported that patients felt comfortable and reassured if the staff changed gloves in front of them.

Avoiding of hospitals may have also resulted in more deaths due to delays in seeking medical advice. At least three interviewees alluded to the fact that more people died of malaria than usual in Nigeria during the outbreak and that *“a lot of people lost their lives out of fear than the actual cause of Ebola itself”*- Male, Managing Director, Pharmaceutical.

Since Nigeria is a malaria endemic country, and the symptoms of malaria are similar to Ebola, it is possible that malaria-infected people avoided hospitals or were turned away from hospitals. This would result in greater morbidity and increase number of untreated malaria cases across the country.

The Ebola crisis could have also potentially impacted MDR-TB outcomes in Nigeria as well. The isolation facility was previously a facility for MDR-TB patients, who were sent packing soon after the facility was designated as an Ebola quarantine facility. In interviews, it was reported that MDR-TB patients were discharged to the community and to their respective states, after they had been discharged from the facility. Moreover, an NGO (FHI 360) was mentioned to be involved in following up these discharged patients. Nevertheless, the discharge of these patients from the isolation facility could potentially have an impact on MDR-TB outcomes for Nigeria in the long run.

### **3.5.3 Collateral damage: the loss of lives due to misinformed fear**

Many anecdotes came to light during the interviews where fear and stigma associated with Ebola caused patients not infected with Ebola to face discrimination and even death. This reflected a transition from being empathetic with illness to self-preservation. Individuals, who normally would go out of their way to help someone not feeling well, would avoid them and in some instances even run away. This was because it was difficult to differentially diagnose Ebola,

and discern real cases and from those that were not. Much of this behavior was also due to misinformation that Ebola could be transmitted via touch or air. The aversion behavior was displayed not only by individuals, but also by organizations and governments as well. When people had symptoms that mirrored Ebola, patients were stigmatized and in some cases resulted in the loss of life.

Multiple interviewees recounted the case of the British Deputy High Commissioner, who lost his life to cardiac arrest when no one came forward to help him. People feared that he had Ebola when he slumped down at the airport, soon after the announcement of the index Ebola patient in Nigeria. There was another case of an asthmatic patient who had an attack but no one came forward to help – no one wanted to touch him. He could have died had he not somehow managed to reach his asthma pump.



### **3.6. How did the Ebola impact the private sector financially?**

Overall, the Ebola outbreak caused a notable drop in revenues for companies across sectors, with hospitals, restaurants, airlines, and companies in the informal sector receiving considerably more damage. The companies related to travel and hospitality were particularly affected because individuals limited their movements (both local and international) during the outbreak, out of fear of infection. Similarly, establishments that operate in crowded environments like restaurants and open-markets experienced declines because people wanted to avoid physical contact with others as much as possible. In general, the outbreak was a period where financial performance dropped across the board, because revenue declined and operating costs spiked, from investments in protection measures to staff shortages. The one sector that fared relatively better than the rest was the banking sector, where lending practices smoothly switched over (nearly entirely) to commercial lending, and where cash deposits surged.

*“But then, if you look at the effects again, a lot of businesses went down, airline industry was severely affected, hospitality industry severely affected, in fact, a lot of the hotels, people stopped coming and it took quite a while again to start getting them back to come. Some sporting facilities, golf clubs, the foreigners stopped coming, the schools were shut for a while, a lot of the hospitals were shut. That is another issue again. More people died of other diseases than Ebola.”*

–Male, Lagos State Commissioner for Health

For epidemics such as Ebola, just measuring mortality and morbidity effects alone does not provide a full picture of the extent of the economic impact. In particular, it does not take into account the economic impact of fearonomic effects i.e., the tangible and intangibles economic losses due to fear-induced aversion behavior exhibited by countries, organizations, and individuals. According to a World Bank estimate, 1.08 Billion US\$ was lost to foregone income in Nigeria during the 4 months (July to November) of the outbreak (Thomas et al. 2015). While Nigeria was declared Ebola free in October, this World Bank estimation included November in its analysis window to account for continued aversion behavior

This section explores the financial impact of Ebola by investigating whether (and how) fear-induced aversion behavior affected the Nigerian economy as a whole and its effects on the financial performance of firms across a range of corporate sectors. Nigeria's GDP growth rate remained relatively stable (around 6% throughout 2014<sup>1</sup>) – a testament to the outbreak being contained swiftly. However, the damage could have been much worse according to a report by Lagos State Ministry of Health, which was provided to this researcher (Osibogun, 2015). The report estimated total foregone economic losses to the GDP of Lagos to be 1.08 Billion US\$, based on an aggressive estimate of a 2% reduction in GDP for 4 months (3 months of outbreak and 1 additional month to account for aversion behavior). This percentage reduction was chosen by the report author based on World Bank data, where the economic impact of Ebola in Guinea, Liberia, and Sierra Leone led to a 2-3.5 percentage point reduction in GDP growth rate. As a result, this may represent an overestimation, given the minimal extent of the Ebola outbreak in Nigeria. In fact, a World Bank report in 2015 estimated the expected foregone GDP due to Ebola to be 550 million US\$ in Sub-Saharan Africa (SSA) outside the core Ebola hit countries (Sierra

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<sup>1</sup> <http://www.tradingeconomics.com/nigeria/gdp-growth-annual>

Leone, Guinea, Liberia- where the collective foregone income was 1.62 Billion US\$ for 2015) (WBG 2014).

However, it is important to remember that the estimates above do not properly account for indirect fearonomic effects i.e., the indirect effects on economic performance brought on by fear-induced aversion behavior. As noted earlier, the economic effects of fear-induced aversion behavior can be difficult to identify or quantify in an aggregate economic analysis. Furthermore, these prior reports also fail to account for the effects of Ebola on Nigeria's sizeable informal sector, which also could be adversely affected by the outbreak.

**Retail sector** Prior research has reported a reduction in footfall (i.e., the number of people visiting an establishment) in many of the malls and shopping centres in Lagos, with a 20-40% decline in their revenue (Bank 2014). Interviews with stakeholders revealed evidence of fearonomic effects – fewer people attended movie screenings and dined out at restaurants. In interviews, retailers reported a reduction in footfall ranging between 30-40% (for the period of August to October 2014) for shopping malls, which was consistent with previous reports on the subject. Retailers selling essential and grocery goods reported a footfall reduction of only 7-8%. The reduction in footfall is a key metric as footfall impacts revenue. According to the stakeholders, approximately 80% of people visiting a mall buy something. Hence, the reduction in footfall directly affected the revenue of retail establishments during the outbreak.

**Pharmaceutical Sector** Several pharmaceutical companies incurred substantial economic losses during the outbreak. These losses occurred due to a combination of sales losses and outbreak response, which included donations to containment and preparation efforts. However, the cost of

donations were marginal in comparison to the potential costs they faced had the outbreak escalated.

One company in the pharmaceutical sector reported an overall reduction in sales by 10-15% during the length of the outbreak (2-3 months). Thus, fear-induced aversion behavior resulted in lost sales for the pharmaceutical industry. While patients stopped seeing doctors, the overall impact this aversion behavior had on sales was somewhat reduced due to an uptake in self-medication. Nigeria has a high rate of self-medication, which seems to have further increased during the Ebola outbreak. It is important to note that the fearonomic effect on sales would have been much more severe had the outbreak occurred in a country with stronger medicinal misuse laws. Furthermore, a rise in self-medication could in turn have caused more harm, by promoting antibiotic resistance or through other adverse effects from the medication taken.

*“Sales declined because people didn’t go to hospitals. People were self-medicating. So sales declined but not huge.”* - Male, Managing Director, Pharmaceutical

A medical devices company mentioned how their growth rate was reduced from 22-23% in 2012-13 to less than 1% during the year of the outbreak. During the outbreak, patients were more apprehensive about surgeries in hospitals. Even doctors were apprehensive about the risk of infection. Strikes by public-sector doctors already led to a reduction in the number of procedures, and the fear of Ebola amplified the drop further. Fewer surgeries triggered a substantial loss in sales by medical device manufacturers, and limited growth during this period. However, some products such as Presept (effervescent disinfectant tablets) did well during the outbreak, and compensated for the drop in device sales. The outbreak not only impacted revenue but it also

impacted decisions regarding long-term investments in Nigeria. For example, one pharmaceutical and medical device company interviewed was still not a full legal entity in Nigeria, despite Nigeria's status as an emerging market. The directors of the company were supposed to visit Nigeria to set up the full entity in 2013, when the Boko Haram attacks occurred. The Ebola travel advisory followed soon thereafter, which delayed setting up the legal entity and its associated structure in Nigeria by more than a year. This task was rescheduled for March 2016.

**Aviation sector** Across the board in West Africa, the aviation sector was severely impacted by the Ebola outbreak. At least 34 countries enacted measures such as restrictions on travelers and nationals from Ebola-infected countries, trade restrictions, flight suspensions, and border closures – all against the advice of the WHO (WHO 2015a). The countries of Guinea, Sierra Leone, and Liberia were hit the worst, as trade and travel restrictions became the norm. Out of 590 monthly flights, 216 were cancelled by August 2014 (Washington Post, 2014). By October 2014, just two airlines – Brussels Airlines and Royal Air Maroc – continued operations to Guinea, Sierra Leone, and Liberia (Time, 2016). As Ebola was designated a Public Health Emergency of International Concern (PHEIC) by the WHO, this was in violation of article 43 of the International Health Regulations (IHR). This article subjects States to take public health measures in accordance with WHO guidelines during a PHEIC. International Health Regulations (IHR) represents an international legal instrument that is binding for all WHO member states. IHR came into force in 2007 after the SARS outbreak, and aims to uphold PHEIC surveillance, response, and global health security. As per the article 43 of IHR, states can implement health laws or restrictions in addition to WHO guidelines during PHEIC as long as they are not restrictive of international traffic and are rooted in scientific evidence (WHO 2008).

One model projects that based on an epidemic conditions, 2-8 travellers infected with Ebola virus would depart from Ebola infected countries (based on Guinea, Sierra Leone, Liberia) (Bogoch et al. 2015). However, the study also outlined that simple measures of entry and exit screening are sufficient to prevent exposure to Ebola virus infection as the virus has a low R0 and only infectious from the onset of symptoms (Bogoch et al. 2015). Another study conducted a simulation instituting a 80% reduction in passenger traffic flow from the Ebola-affected region, and found that travel bans only delay the international spread of Ebola by a few weeks. While travel bans are ineffective in containing spread of Ebola to other continents beyond a few weeks, they can impose immense logistical constraints. These travel bans hamper the transport of supplies and healthcare workers to the region, and further promote conflict and insecurity (Poletto et al. 2014).

*“Because Nigeria is a big market for all the airlines and they cannot afford to stop flying to Nigeria.”*

– Male, GM West Africa, Major International Airline

Interestingly, the situation was very different in Nigeria as most flights continued flying except for Gambian Bird, and briefly Asky Airlines (personal communication during interviews). The airlines did not stop flying to Nigeria because Nigeria is a big commercial market and a hub for several airlines. Furthermore, the airlines felt confident flying given the swift government response following the outbreak. Many airlines that continued to fly into Nigeria had stopped flying to the other three Ebola-hit countries, which were much smaller markets. The continued flights between Nigeria and the rest of the world supported the minimal risk Ebola transmission through air travel, with the implementation of exit screening – Nigeria never exported an Ebola

patient despite the absence of a travel ban. However, this did not mean that the aviation sector in Nigeria was not affected by the Ebola outbreak. There was significant sensitivity surrounding air travel in Nigeria after the outbreak. The aviation sector in Nigeria was impacted in the following ways:

Customers reduced unnecessary travel, which affected the aviation sector financially through lost sales. Some of the key destinations from Nigeria (which included the Ebola-hit countries, as well as other destinations) imposed travel restrictions on nationals or travellers from Ebola-infected nations. This further affected the financial performance of some airlines and reduced profits. Some high-traffic countries not only restricted movement of people but also stopped cargo from coming in.

Some airlines were impacted more than others financially, as they travelled across West Africa extensively using Lagos as a key hub. The number of passengers flying at a time fell drastically, leading to a 30-40% reduction in revenue, according to one of the largest African airlines. The load factor of flights also dropped. Two airlines reported 40% and 70% reductions in flight occupancy for flights to and from Nigeria, during the outbreak and the period soon afterwards. Another major Nigerian airline reported major losses, as it had to forfeit one of its most profitable routes to Liberia and Sierra Leone, but also because other major country destinations imposed travel restrictions. The forfeiture or cancellation of routes not only directly affects sales but it also required airlines to refund money to passengers.

*“We are still refunding for some of those countries that we stopped going to. So it affected our sales and you know we are the biggest airline in West Africa, there was no sierralone airline.”* - Female, Ground Staff Manager, Major African Airline

*“Well, there were days when we would fly 30% but Nigeria is one of our best country in the market.”* – Female, Country Manager, Major African Airline

The impact of the disease was high for local regional airlines as their major destinations included the Ebola-hit countries and their neighboring nations. Even though no one on the plane caught the virus, details of the airline that brought the index patient into Nigeria were released by the media, which led to backlash and losses in revenue. In fact, the Federal Airport Authority of Nigeria (FAAN) banned the airline for one week; three to four days after the index patient had landed in Nigeria. This led to a short period of total collapse of the airline’s operations in Nigeria. Even after the ban was lifted, the airline had to change its routes and operations since the airline was unable to fly to Gabon, Ndjamena and Douala. To improve its load factors, some airlines deployed strategies of reducing their fare by 10-20%, but it still took time before sales returned to pre-outbreak levels.

Another interesting impact on the aviation sector was a change in policy regarding the transport of human remains from outside Nigeria. Nigeria is a funeral society, where significant cultural importance is given to the rites of a funeral. To further prevent the import of Ebola into Nigeria, the government prohibited airlines from transporting human remains into the country. This action further decreased airline revenue since the transport of



human remains represents a sizeable contribution to the overall income for a few regional carriers.

*“Human remains can come in from anywhere outside Nigeria, so government stopped airlines from bringing in dead bodies from any part of the world to Lagos, just to prevent the Ebola, people were not allowed to bring in dead body to Lagos as cargo, they were told to bury them anywhere they die”*

- Male, Airport Authority Manger, Major African Airline

**Hospitality** The hospitality sector in Nigeria was another sector in the country where the fearonomic effect of Ebola had a significant adverse impact on financial performance. A newspaper article had mentioned that during the period of the outbreak, occupancy in the Ikoyi area and Victoria Island nosedived from 65% to 30% and from 70% to 20%, respectively (2014). The hotels interviewed for this thesis reported similar figures. One of the major hotels in Victoria Island reported that their occupancy nosedived from 80-55% to 25%. Some guests already at the hotel decided to leave early. Another major hotel in Ikoyi reported a reduction in occupancy rate from 80% to a dismal 12%. Sales for a pan-African online hotel-booking agency based in Lagos were stagnant for Nigeria but went down by 15-25% in East Africa. It is important to note that Ebola did not affect East Africa. As a result, the drop in bookings may indicate unfamiliarity with African geography and/or wariness in travelling to Africa more generally (given that East Africa is a major tourist spot for international travellers).

Using average room prices and the number of rooms of provided by hotels during interviews, I calculated<sup>2</sup> their revenue loss during the Ebola outbreak i.e., the three months between August and October 2014. The loss in revenue amounted to approximately 2.6 million US\$ for one hotel, 3.3 million US\$ for another hotel, and 1 million US\$ for an online hotel booking agency.

Another adverse effect Ebola had on the hospitality sector stemmed from online cancellations. Many hotels offer restricted discounted rates online – rates that are cheaper but that are not non-refundable in case of cancellation. During the outbreak, hotels had to relax their refund policy regarding cancelled bookings to include those that booked the discounted rate. Given the significant number of online cancellations, this would have impacted the sector drastically. There was also an impact on firm growth. For the rapidly growing online hotel booking website, growth stopped during the outbreak and represented a step back for the rapidly growing website.

**Oil & Gas sector** The oil and gas sector in Nigeria was adversely affected as well. Although the potential for loss in this sector was particularly high (due to the economic importance of oil production to the Nigeria economy), the outbreak did not directly affect commercial production. Instead, most of the economic loss was due to fearonomic effects, such as the secondary impact of fear and misinformation on support services like shipping and logistics. Prior to the interviews, a search of news accounts revealed that one supplier of ships and crew to energy producers suffered a 6.3 million US loss due to delayed projects. Specifically, the company noted that the mobility of their vessels leaving Nigeria had been restricted by other countries (Bloomberg 2014).

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<sup>2</sup> Number of rooms x average occupancy percentage x cost per room x time (3 months)

One company reported that consignments never arrived because of the Ebola scare, leading to millions of dollars of additional costs for the company. It also reported an incident in which a rumor of a suspected Ebola case led to the diversion and eventual return of that vessel. This resulted in increased transportation costs for the vessel. The same company also mentioned that certain countries, such as Mexico and other developed countries, altogether stopped accepting vessels from Nigeria leading to huge costs for the company. Another company's drilling project was cancelled and their Nigerian office had to incur the cost of evacuating the staff.

*"People were afraid that vessels coming from Nigeria they will be infected with Ebola. So, Mexico and countries in developed part of the world were saying- no they will not accept vessels from Nigeria"- Male, Corporate Affairs, Natural Resources Company*

*During the peak of the infection; one of our vessels was suspected to be carrying an Ebola patient which is not true. Turns out to be just a fever, but because of that suspicion the vessel had to be diverted, returned back to bonny and that was a lot of money apart from the cost of the gas and cost of transportation back to Nigeria and all that was involved. So there was of economic loss because of that single suspicion."*

- Male, Corporate Affairs, Natural Resources Company

The cost of the outbreak was significant for the foreign joint-venture partners of the oil and gas companies in Nigeria, as they did not conduct business during that period. However, swift recovery efforts helped mitigate the impact. The stock prices of oil and gas companies were not affected as the outbreak was controlled quickly and the Nigerian state and federal governments acted proactively. The government's swift action was crucial as it ensured that investor confidence was maintained and that investments were not written-off.

**Hospitals** suffered major financial consequences due to reduced health-seeking behavior amongst individuals, resulting in a sharp drop in patient volume. All hospitals interviewed (except the isolation facility) reported a negative impact on revenue. One private sector hospital reported a 50% reduction in patient volume. While outpatient volume dropped by 35% during the outbreak (and an additional month following it), the emergency room utilization went down by 40%. The bed occupancy rate also dropped from 52% before the outbreak, to 39% after July 2014. Another public sector hospital that had an Ebola-infected patient reported a reduction of patient volume by 40-50%, even after the hospital was declared Ebola-free.

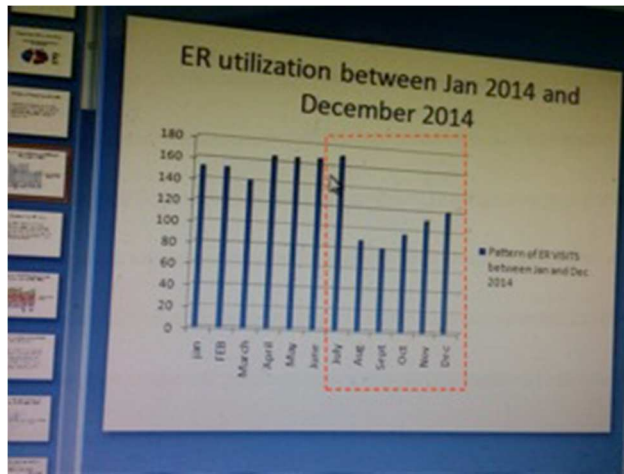
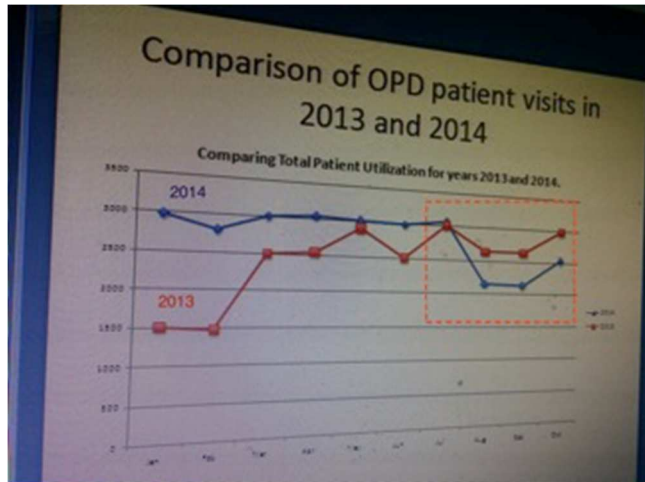
The worst affected among the hospitals was the facility that the index patient was taken to, and it became the 'ground zero' for Ebola in Nigeria. The facility was considered one of the finest facilities in the country prior to the outbreak. The index hospital lost 100% of revenue during 2 months of closure for decontamination and for 2 months thereafter (recovery phase). The hospital had to throw away the all lab equipment, laundry equipment, emergency and monitoring equipment because mere decontamination efforts could have meant taking a chance on the disease. Apart from the cost of wages, trauma, and capacity, there was a significant drop in patient volume. Patient volume declined by 90% after the hospital was declared Ebola-free. Apart

from a loss of expertise and capacity, the hospital lost significant market share, revenue, and brand equity due to Ebola. In fact, even after one year, only 20% of patients have returned to the facility.

*“‘How do I buy brand?’ ‘How do I buy market share?’ ‘How do I buy capacity core?’”*

- Male, Medical Director, Index Hospital

Just like the index hospital, the other hospital (public sector) with an Ebola-infected patient had to discard several items – the bed that the patient slept on, the lockers, everything in that room. In fact, the hospital moved to steel chairs for ease of cleaning after it had to discard the leather chairs for decontamination. The hospital spent over 16.6 million Naira (approximately 80,000 US\$) on personal protective equipment (PPE), replacing items, cleaning, welfare package for the staff (awards and TV) that treated Ebola patient, and on putting critical staff in hotels for two weeks.



**Figure 15a and 15b: Decline in outpatient volume (a) and emergency room utilization respectively for one private facility in Victoria Island, Lagos. Source: Personal communication**

**Banking sector** Ebola also affected the banking sector. Banks, being more risk-averse, had a strong response to the spread of Ebola. Many major banks had branches in other Ebola-hit countries in West Africa. In fact, many banks that had prior experience with Ebola (in Sierra Leone, Guinea, or Liberia) took a more proactive approach and participated in Ebola response efforts. This was partly due to the fact that the outbreak in other Ebola affected regions led to immense data challenges and monetary losses. For one bank, that meant spending money to evacuate staff, providing staff compulsory leave, and then moving staff to the head office in Lagos. The same bank also spent resources to ensure that a back up of all transactions from offices in Sierra Leone occurred every day. The data tapes were transported by air to Lagos, and later transported in bulk to London, in order to ensure business continuity. Data was required to keep track of credit positions, to ensure a swift recovery in the event of a collapse due to the Ebola crisis.

In addition, banks spent a significant amount of resources to buy PPE and to implement measures to contain Ebola. This made sense, as most of these banks were retail banks that came in direct contact with customers on a daily basis. One bank with 310 branches across Nigeria mentioned that touch-free temperature sensors cost 18,000 Naira each, and that they ordered 2-3 for each branch. This put the cost of temperature sensors alone at approximately 57,000-60,000 US\$. Another bank described how they spent 0.03% of their total operating expenses for creating awareness, purchasing hand sanitizers, and purchasing PPE for staff and customers. These expenses were incurred not only for staff but for customers, consultants, and third-party vendors as well.

The phenomenon of a ‘bank run’ is well established from economic history. During times of crisis, people may quickly seek to withdraw cash from banks out of fear that they won’t be able to access their funds later on, if the bank runs out of cash. In the process, the initial surge of demand for cash can overwhelm a bank’s cash reserves on site, triggering hostility and confusion. However, contrary to any expectations of a bank run, banks with branches in Sierra Leone reported an increase in cash deposits. West African countries, such as Nigeria, Sierra Leone, and Liberia, are predominantly cash-based economies, where people like to keep cash on hand. However, during a crisis, fear could develop from holding too much cash, encouraging people to deposit cash in banks with international branches. Banks with international branches saw an increase in cash deposits. This could also be due to the fact that these banks were international and so people could take out their cash from branches in other countries. Moreover, people may have considered international banks more reputable and trustworthy as places to deposit their money. Another reason could be that people felt safer and more comfortable coming to these banks due to the stringent protective measures (gadgets, sanitizers, strong gatekeeping with temperature checks) in place at the banks. The last point is supported by the results of my survey in Lagos; where 95% of respondents stated that they would buy services from places where they took visible measures to prevent Ebola. Similarly, 86% of respondents felt more comfortable going into stores where they sanitized their hands.

*“They believed, if they brought their cash to an international bank, if there is any crisis, they can be sure, because the international bank has a parent company in another country.”*

– Male, General Manager, Major Pan-African Bank



*“Because people felt safer coming to our bank.”*– Male, General Manager, Major Pan-African Bank

In Nigeria, while two of the banks did not report any change in cash flow, two banks reported a minor increase in cash inflow. According to the banks, there was a lot of commercial activity in cash within the informal market. The increase in cash flow (in Nigeria as well as other Ebola-hit countries) was also attributed to an increase in cash transactions for humanitarian reasons and even because of fraud, as some criminals took advantage of the situation to approach people to donate to the cause of Ebola.

*“They were having losses at that period, so that period is not the time to lend.”*

– Male, Directorate Head, Lagos & West Africa

Lending is a key source of revenue for banks. Lending in Nigeria was considered less risky than lending in Ghana or Sierra Leone during the Ebola crisis due to Nigeria being a comparatively more developed economy, and an economy with lower default rates. During the Ebola crisis, Nigerian banks reported no credit failures. However, the Ebola outbreak did impact the lending practices of the banks in Nigeria. Banks significantly reduced lending to individuals (they relied more on commercial lending) and all four banks interviewed reported that they had become more careful in their lending practices during the Ebola crisis. Although Nigerians were not considered significantly at-risk of Ebola, banks did become more careful of lending to small businesses and individuals from other Ebola-hit countries. The increased difficulty of securing credit by individuals and small enterprises could have delayed attempts at entrepreneurship and attempts to pursue opportunities for economic growth.

*So its better you lend corporate wise whereby you have two three more people, which means your risk is diversified as against lending to an individual.*

– Male, Directorate Head, Lagos & West Africa

The outbreak, and specifically the experience of banks in other West African Ebola-hit nations, changed their risk perceptions regarding different industries. For example, banks reduced lending to hospitality companies due to the fearonomic effects experienced by that sector. At least two of the four banks delayed and scrutinized loan applications from people in medical fields or hospitals more closely. Furthermore, schools were shut down for a period of 1-2 months beyond the holidays. As a result, educational institutions were also regarded as more risky clients. Overall, as banks exercised more caution in their lending practices, the processing of loan applications slowed considerably.

Other interesting observations from the banking sector were that banks reported an increase in number of new accounts even though they had to reduce their marketing calls. Moreover, there was an increase in number of NGO accounts being opened for Ebola victims.

### **3.7 How did Ebola impact on operations and business continuity?**

Employee absenteeism was a significant threat to business continuity efforts. While some sectors saw absenteeism increase, others experienced no change from pre-outbreak levels. It appears that absenteeism only increased in settings where employees felt unsafe at work during to a high-perceived risk of infection, such as in the hospital sector. Instead, when visible protection measures were taken at work, the staff actually felt safer coming into work than staying away and absenteeism was not an issue (e.g., the oil and gas sector). The Ebola outbreak also caused more disruptions for companies that relied significantly on international supply chains due to port and travel disruptions. Supplies were either delayed or unable to reach Nigeria altogether. Similarly, shipments of product out of Nigeria were delayed at times. As a result, business continuity efforts of firms with more international suppliers or customers were significantly affected during the outbreak

#### **3.7.1 Logistics disruptions and travel restrictions**

*“The ports of entry were not closed down, the sea port was working as well as the airports. Flights were still coming into the country and people were still going to offices and all. So there wasn’t huge impact.”*- Male, Managing Director, Glaxosmithkline

Nigeria is an import-based economy. Stricter measures and checks at the ports led to minor delays but despite the “teething problems” at the ports, pharmaceutical companies did not experience outages for life-saving drugs. Major credit (in 9 out of 10 sectors) was given to the

fact that ports of entry were open and that flights were still operating. This reflects on the importance of keeping the trade channels open to ensure that other health outcomes are not affected during an epidemic. However, consumer goods companies did experience stock-outs due to abnormally high demand for otherwise low to medium demand hygiene products such as sanitizers (discussed in prior sections).

One of the more interesting observations about Ebola in Nigeria was that the flights continued to fly to Nigeria. This was one of the key reasons why supplies of essential medicines and other goods were not disrupted during the Ebola outbreak. As noted earlier, this was in stark contrast to the Ebola-hit countries of Sierra Leone, Liberia, and Guinea, to where most airlines stopped flying. Airline routes within Africa mimicked government restrictions on travel by nationals of those countries. Some airlines also had to discontinue their routes from Lagos to certain countries such as Gabon, Ivory Coast, and Cameroon – countries that had stopped Nigerian passengers from entering.

At the same time, there were countries far from West Africa that banned Nigerians and West Africans from entering. These countries included countries from Asia and Latin America. Other countries such as Thailand, India or China reduced the number of visas being issued to Nigerians. Some countries such as Seychelles, Botswana, and Mauritius also banned Nigerians from entering. For Nigeria's regional airlines, this was a severe disruption since most of their routes had to be halted briefly. One interviewee also alluded to travel restrictions in Bahrain, where his friend was only able to enter using his United States passport, as he was a dual citizen.

No flights, except those from Gambian Bird and Asky Airlines for a period of one week, were stopped from entering Nigeria. Despite this, many regional flights flying to Lagos stopped their direct routes from Lagos to Liberia, Sierra Leone, and Guinea after the entry of the index

patient into Lagos. This seems to have been done to pacify the government. Most airlines interviewed were aware of the WHO's recommendations and statement that travel restrictions would not stop Ebola. The reasons given by major international airlines for their double standard i.e., for why they continued to fly to Nigeria (and Ghana) but not to Sierra Leone, Liberia, or Guinea were as follows:

Nigeria, unlike the other three Ebola hit countries, is a major airport hub and a top seller for all airlines and fewer people were infected with Ebola in Nigeria compared to the other Ebola-affected countries like Liberia. Even the rate of transmission was much lower in Nigeria. Peer pressure also impacted the decisions of airlines to fly. As most airlines stopped flying to Liberia, Sierra Leone, and Guinea; no airline wanted to take the risk. In Nigeria on the other hand, as no airline stopped flying, airlines continued to fly despite losses and low flight occupancy. The difference in medical infrastructure was also a factor in their decision to operate routes. The comparatively better health system and infrastructure in Nigeria gave airlines more confidence to fly there. The airlines realized that after training and implementing screening measures, the risk of Ebola was not high for the airline to stop flying. Airlines also continued to fly to Nigeria, despite low flight occupancy, in order to maintain customer loyalty, brand equity, and show the company's commitment to integrity. The fact that the Nigerian government reacted swiftly and that it was proactive in setting up the screening measures at airports gave airlines additional confidence to continue flights to Nigeria. This highlights how government's swift response can boost the private sector's confidence during an outbreak.

### **3.7.2. Impact on operations**

Travel restrictions also had an impact on business continuity as movement between offices was restricted and meetings were cancelled. All corporate sectors cancelled all non-essential travel during the period of the outbreak. There were fewer international trips, and most suppliers or partners did not send any personnel down to Nigeria during that period. Most meetings were cancelled or re-scheduled for a different time or venue. This meant delays in client engagements, finalizing contracts, and social events like weddings were also affected. One telecommunications company described how a Master's Training Program for all of its African employees that was scheduled in Seoul was cancelled by South Korea.

A product launch was cancelled when senior leadership from Nigeria was unable to travel due to travel restrictions. A major oil and gas company estimated that just the cost of rescheduling and cancelling meetings for them was as high as 2-3 Million US\$. Imperative meetings were held at an alternate country venue, or virtually to minimize risk. No meetings were held unless they were absolutely necessary. A few banks and telecommunications companies reported beefing up their video conferencing facilities, which required a larger number of IP phones to enable conference calls.

The telecommunications sector, FMCGs, and the pharmaceutical sector were particularly vocal regarding the impact of travel restrictions on business, and on the availability of products or medicines. One telecommunications company described how air travel restrictions would drastically impact the mobile devices market since they were normally shipped via cargo flights. Any disruption in flights would mean the products would take 30 to 45 days, rather than 3 days by flight, to reach from the ports. This delay would increase the price of those devices by at least 20-30%.

Due to fear of Ebola, some consultants with oil and gas companies refused to travel to Nigeria. As a result, companies' access to key technical resources was limited in many cases during the outbreak. A major telecommunications company from the Middle East reported that due to the inability of getting consultants to come to Nigeria, projects were stalled. Moreover, in one case, the venue of a project was moved from Lagos to Dubai.

Other companies reported that they had to shut down their recreation center since they could no longer guarantee safety in places where there would be sweat. Work crèches were also shut down, as the bank in question did not want to take responsibility for other people's children during an outbreak. Another bank mentioned that their canteen was shut down briefly during the outbreak. One of the foundations involved in education had to cancel a teacher's training program. The program was being arranged in collaboration with Pearson Education from the United States, but the trainers were afraid to come to Nigeria. This led to a major setback on their project.

It should be noted that the Ebola outbreak also impacted project delivery. Many companies (especially in the telecommunications and the banking sectors) implemented stringent measures, such as taking temperatures and using sanitizers. This led to a general slowdown, and sometimes caused a backlog of activities. One foundation also reported that there was a delay in project delivery because they were waiting on the outcome of the outbreak and could not travel. Corporate Social Responsibility (CSR) programs from other companies also got delayed or put on hold as companies allocated CSR money for other programs towards Ebola. One oil and gas company dropped a CSR program on cervical cancer and changed the scope of other CSR programs due to Ebola. Sometimes the disruption was at the community-end. Even host communities where the CSR team worked were scared of the team since they were from Lagos. The company had to look at safety measures seriously to curtail fear.

For the oil and gas sector, contractors were afraid to come and carry out contractual functions, which impacted operations and potentially delayed projects. Delayed projects could levy fines depending on the nature of the contract, leading to increased project costs. Another oil and gas company gave an example of suppliers who transported gas, but were afraid to come to even lift the gas. The quarantine of contractual staff also impacted the operations of one major oil and gas company.



## **CHAPTER 4 RESULTS- How did the private sector participate in the Nigerian Ebola response?**

Companies in the private sector can play three critical roles during the outbreak(Daly 2000, Zyck and Kent 2014). First, companies represent an important reservoir of valuable resources and expertise. Tangible assets such as trucks and technology, and intangible assets such as logistics and coordination expertise can be of immense use during response efforts. Furthermore, in times of crisis, the government may struggle to secure timely and cost-efficient access to such resources. As a result, in-kind contributions of these tangible and intangible assets from the private sector can significantly boost the success of response efforts.

Second, companies play an important signaling and communications role during an outbreak. Companies can leverage their brand equity with consumers to promote a sense of calm and proper practices amongst individuals. When misinformation and rumors are rampant, companies can assist government efforts to dispel rumors by communicating accurate information about the disease and about prevention measures. Furthermore, given that there may be significant mistrust of government efforts, public gestures of government support (e.g., in-cash donations made direct to the government) from reputed companies can boost confidence amongst the public.

Third, companies can significantly assist government response efforts by shoring up health and safety practices with their own employees. By investing in screening measures, training programs, and educational efforts, companies can reduce the likelihood that their employees exercise bad judgment and engage in risky behavior both inside and outside the company walls.

#### **4.1. Role of the public sector**

In order to understand the role played by the private sector in Ebola response, and to understand the value it brings to a sustainable epidemic response, it is first important to evaluate the role played by the *public sector*. Nigeria was fortunate that the Ebola outbreak occurred in Lagos, where the Lagos State government and the Nigerian Federal government took proactive measures to utilize polio control infrastructure. Soon after the first case of Ebola was diagnosed in Nigeria, a Rapid Response Team (RRT) was assembled. The RRT consisted of representatives from the Lagos State Ministry of Health, federal government, Nigerian CDC (NCDC), Nigerian Institute for Medical Research, and soon metamorphosed into the EEOC. The EEOC was modeled after the successful Polio EOC and many people involved with the Polio EOC were brought over to the EEOC. The incident manager organized the EEOC into six functional units – Coordination and Management, the Epidemiology and Surveillance unit, the Social Mobilization unit, the Point of Entry (POE) unit, the Laboratory Services unit, and the Case Management unit. The EEOC utilized the polio infrastructure, the polio surveillance network, as well as related personnel, which included epidemiologists, government officials, and access to partner organizations (Vaz et al. 2016).

Key players orchestrated the public sector's Ebola response from within the EEOC. These key players included the Nigerian CDC and WHO leading the Epidemiology and Surveillance unit, the WHO leading case management and the development of Standard Operating Protocols (SOPs). UNICEF led coordination efforts amongst others. Other key stakeholders and players in the response included the federal government, which served as the

technical, financial, and communications ringleader. It also coordinated the Ebola response in other states and played a role in mobilization of the private sector.

## **4.2 Role of the private sector**

The *private sector* contributed both directly and indirectly to the Ebola response and to the EEOC. The private sector was crucial in creating momentum and facilitating the overall response. In fact, although the EEOC's development was a critical factor in the success of Nigeria's Ebola response, control efforts caught steam only after the private sector collaborated with them. To deconstruct and evaluate the role played by the private sector in Nigeria's Ebola response, I separate its various roles across the three important phases of a PHEIC outbreak - preparedness, response, and recovery (*Figure 16 and 17*). The private sector participated in the Nigerian Ebola response in different ways – some companies donated money, while some contributed in-kind. Each firm has both tangible or material assets and intangible or expertise based resources, which vary significantly across both firms and sectors. Consequently, the actual types of in-kind contributions made also vary. This section provides a roadmap of how firms can help build a resilient epidemic response system.

S.No.	SECTOR	COMPANY	LOBBYING AND POLITICAL ACTION			PREPARATION					RECOVERY			IN-CASH			
			Meeting Govt	Meeting State	Collaboration for Advocacy activities	Collaboration with other stakeholders	R&D	Capacity building	Prevention planning	Risk Assessment	Business continuity	Rehabilitation	Documentation of best practices	Knowledge transfer to other organisations/ members	Federal	State	Other
5	ONG	Company 1															
6	ONG	Govt Focal point															
7	ONG	Company 2															
8	ONG	Company 3															
9	ONG	Company 4															
10	ONG	Company 5															
11	ONG	Company 6															
12	Pharma/FMCG	Company 1															
13	Pharma	Company 2															
14	Pharma	Company 3															
15	FMCG	Company 2															
16	FMCG	Company 3															
18	Private sector	Private sector 1															
19	Index Hospital	Private sector 2															
20	Hospital	Private sector 3															
21	Hospital	Private sector 3															
23	Hotel	Hospitality 1															
24	Hotel	Hospitality 2															
25	Retailer	Retailer 1															
26	Retailer	Retailer 2															
27	Retailer	Retailer 3															
28	Hotel	Hospitality 3															
29	Bank	Bank 1															
30	Bank	Bank 2															
31	Bank	Bank 3															
32	Bank	Bank 4															
33	Telecom	Telecom 1															
34	Telecom	Telecom 2															
35	Telecom	Telecom 3															
36	Telecom	Telecom 4															
37	Telecom	Telecom 5															
38	Telecom	Social media/Telecom 6															
39	Aviation	Airline 1															
40	Aviation	Airline 2															
41	Aviation	Airline 3															
42	Aviation	Airline 4															
43	Aviation	Airline 5															
44	Foundation	Non-Profit 1															
45	Foundation	Non-Profit 2															
46	Foundation	Non-Profit 3															
47	Foundation	Non-Profit 4															
50	Foundation	Non-Profit 5															

Figure 16: Role played by different private sector entities in Ebola response. Yellow means active and orange means potential role

IN-KIND										INTANGIBLE: OPERATIONAL SUPPORT & EXPERT CAPABILITIES				CORE BUSINESS OPERATIONS				Information and effective communication (IEC)	Accountability	Surveillance	Mobilization		
PRE	Medicine or pharmacy	Internet or phone or e-health for EDOC	or office supplies or e-health for EDOC	TV or Radio	Health Transport	Food security	Technology	Production or supply chain	filling the gaps in health service intervention	Coordination and management for EDOC	Crisis management Team	Sentinel site	Employee health and safety	Site structure or standards for focal	IEC	Financial diligence measures	Data & surveillance	Resource mobilization	Knowledge relay and partnership	S.No.	SECTOR		
																					5	OnG	
																						6	OnG
																						7	OnG
																						8	OnG
																						9	OnG
																						10	OnG
																						11	OnG
																						12	Pharma/FMCG
																						13	Pharma
																						14	Pharma
																						15	FMCG
																						16	FMCG
																						17	Hospital
																						18	Hospital
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																						22	Hotel
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																						30	Bank
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																						34	Telecom
																						35	Telecom
																						36	Telecom
																						37	Telecom
																						38	Telecom
																						39	Aviation
																						40	Aviation
																						41	Aviation
																						42	Aviation
																						43	Aviation
																						44	Foundation
																						45	Foundation
																						46	Foundation
																						47	Foundation
																						48	Foundation

contd.

**Table 3: Contribution in Ebola response by different stakeholders**

			(100,000 US\$) to Lagos							
Public	Federal Ministry									
			Orchestrated Nigerian Ebola response: Coordination unit, Social mobilization unit, Point of entry unit, Case management, Epidemiology and surveillance unit, Laboratory services unit							
Public	EEOC									
Public	Multi-lateral agency		5000 PPE donated	provided IEC material	Led coordination, management efforts, mobilization of finances					
Public	Lagos State		1.2 Billion US \$ (6 million US\$)	2 Million Naira (10,000 US\$) to each of 13 survivors	Activated Lagos State Crematorium Law 2013	Activated Public health law		50 Million Naira donated to index facility		
OnG	Company 1	Oando	Fuel for 5 vehicles for 3 months- no cap on volume	Education trust fund for Ebola orphans	Commissioned property to serve as containment zone		Ordered PPE 5000	scholarship 100,000 Naira/year for 4 children of Ebola survivors an a trust of 3 million Naira for two infant children		
OnG	Govt Focal point		Synchronized the oil & gas sector's involvement in the response to ensure no duplication of efforts happens							
OnG	Company 2	Exxon	Infrastructure development in Akwai Ibom	Held first meeting between industry and government to set stage for collaboration	Donated thermometres and PPE to Akwai Ibom (500 PPE) and River state (200 PPE)	4 vehicles to EEOC at Port Harcourt		Foundation granted 150,000 US\$ (40 Million Naira according to another resource) to CDC for capacity building and supply kits	Facilitated WHO accredited consultant to provide advise and capacity enhancement at EEOC in Lagos and Port Harcourt	Got Baylor medical college team to train 100 HCWs and government personnel in Akwai Ibom State
OnG	Company 3	Schlumberger	Initiated health forum with government	Donated ambulance, generator, electricity, furniture, vehicle, decontamination equipment	coordinated private sector response for Port Harcourt	Contributed expertise		Helped set up fever clinics an helpines		Encouraged vendors to develop continuity plans
OnG	Company 4	Shoreline	100,000 US\$ to African Union							
OnG	Company 5	NLNG	Evacuation centre for Bonny Island	Procurment of office equipment for EEOC in Port Harcourt	Logistical support- vehicle for EEOC in Port Harcourt	Furniture donated		Donated 10 Million Naira to International Red Cross (40% staff, 60% Company)	River state infrastructure	
OnG	Company 6	Seplat	20 Million Naira t Lagos State	14 Million Naira to Index hospital						
		Chevron	2 Ford ambulances							
		Total Plc	5 Ford Ranger double cabin wans	fuel for van and generator for 6 months						
Pharma/FMCG	Company 1	Neimeth	IEC	Donated NCP	Handwashing campaigns					

Table 3 contd.

Pharma/FMCG	Company	Partner	Activity	Impact	Handwashing campaigns				
Pharma	Company 1	Neimeth	IEC	Donated NCP	Donated antibiotics and supplies and medicines to NGOs. Eg. Save The Children, Amiceres in West Africa	Reinvest 20% profit in health system strengthening			
Pharma	Company 2	GSK	Donated medicines to Federal government	Donated 433,000GBP to NGOs. Eg. Save The Children, Amiceres in West Africa	Donated antibiotics and supplies and medicines to NGO worth 740,000 GBP in West Africa		5% profit invested in R & D		
Pharma	Company 3	Johnson & Johnson	Capacity building	Knowledge transfer	technology				
FMCG	Company 2	PZ Cussons	Hand washing campaign	Handwash launched in Sep 2014					
Hospital	Public sector 1	LUTH	Diagnosis lab						
Hospital	Private sector 1	FMC	Epicentre	Diagnosis	Knowledge curation and relay	Resisting klout			
Hospital	Private sector 2	Osuntuyi	No info						
Hotel	Hospitality 3	Jovago	IEC						
Bank	Bank 1	Zenith	No info						
Bank	Bank 2	Access	Donated 5000 GBP to Oust Ebola campaign						
Bank	Bank 3	Stanbic	No info						
Bank	Bank 4	UBA	1 Million US\$ donated						
Telecom	Telecom 1	MTN	Partnered to set up call centre for Ebola	Provided 10 man helpline	Training and capacity building	Encouraged partners to develop contingency plans, shared their contingency plans	Audited hotels and developed a bak up plan for operational continuity	Donated 1 Million US\$ to African Union	Donated equipment
Telecom	Telecom 2	Etisalat	Partnered with Red cross	Sponsored EVD information radio programs	Sponsored airtime to dispel myths and released 4 EVD information and prevention messages to subscribers	Provided airtime worth 4 Million Naira			
Telecom	Telecom 3	Airtel	100 disposable handsets with complimentary airtime and closed groups	Training for employees and partners- even cleaning staff	Provisions made for alternate operational continuity such as VPN access to work, alternate data SMILE				
Telecom	Telecom 4	Samsung	Provided 100 phones						
Telecom	Telecom 5	eHealth & Information Systems	Designed technology and IT tools for data collection and surveillance	Private sector mobilization	Helping in infrastructural set up of EEOC	converted paper based proces to electronic proces			

#### ***4.2.1 How did companies protect internal core operations?***

All companies interviewed had some form of sentinel temperature monitoring before entering the building either by a staff, nurse, or by a thermo scanner cameras that went into alarm on detecting fever. In one Oil and Gas company, logistics team that picks people at airport was also trained to screen and monitor temperature. A similar process was applied for taking people off-shore. Employees that travelled often had to fill a form stating they had temp or not. They could not travel in fever. Some companies in the banking, Oil & Gas, Telecom sector preferred unobtrusive scanners for temperature where camera measured temperature without the notice of the person. Measures like temperature camera reassured people and helped continuity and morale in staff.

Sequestered chains were set up (if you are ill you report to supervisor) to ensure business continuity and operational continuity in Oil & Gas companies. Special training was provided to the managers and standard operating protocols were put in place. This helped contain panic and differentially diagnose and manage non-Ebola cases such as when an employee had chicken pox and was initially mistook for Ebola but was managed quickly in accordance with the SOPs.

All companies stocked up on sanitizers and PPE using their procurement chains and collaborated with pharmaceutical companies to ensure timely delivery of sanitizers. Many of these companies already had relationships with PPE manufacturers and sourced industrial PPE. International companies based I South Africa or companies with offices in other Ebola affected region were more proactive and purchased sanitizers, scanners, PPE, even before the index case of Ebola happened in Nigeria.

All companies in Oil and Gas sector, Telecom sector, Banks set up cross-functional crisis management teams or had pre-existing crisis management teams to deal with crisis. These teams



were often cross-functional and featured high level executives who can make decisions, HR, legal team, operations, medics, etc. to look at disease from strategic point of view & guide company. These teams had different names but a similar function- to ensure employee safety and business continuity given the crisis. This often included creating contingency plans as well as capacity building, IEC, advisory and policy functions. Health, Safety, Security & Environment committee (HSSE) in one company served as the point of contact for clarification for crisis management- any sick employee first reported to HSSE, who had a policy for sickness & disease. HSSE then informed HR and sent employee home. Other companies termed these teams, Emergency Health Safety & Quality (EHSQ) or Initial Emergency Management Team (IEMT) or Emergency Support Group (ESG). These crisis management teams helped in business continuity and management of stakeholders. Various departments often involved in these cross-sectional teams included human resources, operations risk, corporate communication, operational health and safety, finance department, business partnering, and security.

All the organizations spoken to were involved in educating their employees about Ebola in one way or another. Companies used traditional communication tools, such as emails, newsletters, and posters. Others used more innovative methods to share information about Ebola, such as screensavers, videos, radio jingles, and social media. HR in most corporate sectors provided information to staff about how they could protect themselves from Ebola, how to discern the disease's symptoms, and warned them against misinformation and rumors. However, in one instance, a financial company contributed to the propagation of misinformation (despite its best intentions), due to a poor understanding of how the disease was actually transmitted. It highlights that misinformation was not limited to ignorant individuals, but that it could even be found in the most respected corporate environments.

*“The health benefits of certain fruits were emphasized. Like calcium and Vitamin C and the need for you to always use soap, take a bath when you get home every day. Because they say that even if the thing touches you, it takes some time before it can go in. So, if you wash immediately with soap, even if you get in contact, you may not be infected.”*

- Access Bank

Most major corporate organizations however tried to give out accurate and credible information sourced from reliable resources, such as the CDC, WHO, iSOS, and American Embassy. These organizations worked hard to dispel rumors, myths, and legends that arose during the emergency. As a result, the private sector served as a key source of credible information. One pharmaceutical company interviewed even held a town hall meeting to allay fears and unclear details about Ebola.

Many companies across economic sectors (telecommunications, oil and gas, aviation, banking, pharmaceutical, FMCG), including a few private health facilities, brought in external health experts to educate staff on Ebola through trainings, demonstrations, and direct advice. Lagos State was also involved in training. Some banks, telecommunications companies, and oil and gas firms even brought in public health and medical consultants to train their staff and any cross-functional crisis teams. Interestingly, I observed that companies with cross-functional crisis teams responded particularly well during the outbreak. In addition, a couple of companies (one oil and gas and one pharmaceutical) also conducted online certification and training courses.

The occupational drills were useful in mitigating the fear of Ebola, and to ensure that if a person did collapse – the worst-case scenario – that trained individuals would step forward and implement the best practices taught to them. One pharmaceutical company used simulations of

different kinds of scenarios to prepare for the outbreak. The goal of these drills was to ensure business continuity from both a commercial and social perspective in the event of a crisis, or a complete lockdown due to quarantine.

The sharing of preparedness plans and other resources across sectors illustrates another way that companies helped response efforts. For example, one telecommunications company carried out audits in hospitals designated for their employees, to see whether they had any PPE available. A few oil and gas companies that did not have their own satellite clinics partnered with other oil and gas companies or hospitals. Due to such collaborations, sick employees would not be turned away – a healthcare worker in a safe environment would actually see them. Some companies even brought in experts from abroad to train healthcare workers at their designated facilities. There was a strong spirit of collaboration as some major companies encouraged their partners to develop contingency plans, and even shared their own preparedness plans. For example, Huawei shared its preparedness plans with another telecommunications company to help the latter develop its own Ebola contingency plan. Some companies also audited hotels that were approved for their use, to ensure the hotels had a contingency plan and measures in place to prevent the spread of disease.

#### **4.2.2. In-cash donations vs. In-kind help- What do companies prefer to give during an outbreak response?**

Most private sector organizations involved in Ebola response were wary of donating cash. Instead, many of them preferred in-kind contributions. Nevertheless, there were still a few organizations that did prefer donating cash. In particular, the majority of private sector cash contributions came from non-profit foundations. For example, the Tony Elumelu Foundation donated 300,000 US\$ to the Nigerian government for Ebola response and donated another

100,000 US\$ in unrestricted funding to other Ebola-hit countries. Additionally, the UBA Foundation donated 1 Million US\$ in cash to response efforts.

One foundation preferred donating cash directly to the government in times of crisis, since the government is the entity most directly involved in developing initiatives and programs to address the emergency (compared to other NGOs). By giving cash directly to the government (and not to NGOs), the government was freer to direct financial resources to areas it deemed most critical, and was not beholden to the preferences of NGOs, whose immediate priorities may differ from the government. Furthermore, donations of cash to the government also sent a strong signal to put trust in government response efforts. Given that governments in Ebola-hit countries face considerable mistrust from the public, NGOs working in the area typically receive the bulk share of financial contributions. Understanding the leadership role that a government must play during an outbreak despite the public mistrust of it, organizations gave the government a strong vote of confidence through their direct cash donations. Ebola represented more than just an outbreak. Ebola revealed fundamental flaws in the health system and the pre-existing infrastructure. Cash was provided as a way to empower the government to strengthen their systems to address Ebola.

A firm's in-cash donations also encourage employees to donate. For example, one oil and gas company used cash as a tool to mobilize resources. It encouraged employees to donate and matched their donations. In-cash donations were often given as an early response to mobilize other stakeholders, or they were given as a late response. In the case of the latter, cash was donated to save face after pressure from other stakeholders. This was noted by one company, which donated money to the African Union after the outbreak in Nigeria was already over.

Cash donations were also given as restitution funds. For example, the ANAP Foundation donated 100,000 Naira per bed space to the index hospital – a total of about 4 Million Naira in cash. An oil and gas company that was among the first private sector entities to respond during the outbreak donated money to the index hospital, an act that was covered in the newspapers. The company recognized the role of the hospital in the timely diagnosis of the disease and decided to help the hospital recover. The funds were provided to help support the hospital financially, since it had lost most of its business to fear-induced aversion behavior.

Other private sector entities preferred donating to either regional multilateral organizations or to non-government entities. Sometimes this was done because of individual ties between companies and these external entities. For example, the owner of Dangote, a major African conglomerate, was also associated with the African Union's campaign against Ebola. Consequently, Dangote made a financial contribution to the African Union to help fight Ebola. In other cases, companies contributed to regional multilateral organizations or to non-government entities to ensure no conflicts of interest. For example, the MTN Group donated 1 Million US\$ to the African Union (rather than the Nigerian government) as the latter had no role in regulating Nigeria's telecommunications sector.

Despite the potential issues with accountability, it must be noted that in-cash donations are essential to facilitate the initial response during an outbreak. Without adequate funds, it is very difficult to mobilize resources. As one of the first responders, the Dangote Foundation played a key role facilitating the initial response. It actually paid the salaries of the EEOC staff for a period of six months, amounting to 152,956,250 Naira.

Most companies preferred donating in-kind because it ensured delivery and saved the government time and effort. Some companies in the telecommunications and pharmaceutical sectors donated in-kind rather than in-cash because they did not want their contributions to be misconstrued as bribes for favors in the future. Donating in-kind also means that companies or groups of companies don't have to set up a body to oversee management of the funds. Donating in-kind is also more cost-effective, as some companies already have expertise in procurement and logistics for key items. As a result, the private sector can often procure critical resources at a lower price than what the government would be able to secure.

*“If somebody is in charge in the Government, in the Ministry of Health of buying cameras, the cameras are going to cost twice what they cost versus if we buy it ourselves.”*

- Female, CEO, Foundation

*“They need a generator why don't you save them the trouble transfer the money, they search for generator. Why don't you just go ahead provide the generator?”*

- Female, CEO, Foundation

In-kind donations by the private sector included (but were not exclusive to) donations of equipment, phones, airtime, medicines, fuel, vehicles, and PPE. In addition companies contributed with technology, logistics, training, and expertise. In fact, much of the work at the airport, such as setting up screenings and quarantine facilities, was paid for by the private sector through in-kind contributions.

### **4.2.3. Contributions of the telecommunications sector to technology, data collection and surveillance efforts**

The success of Nigeria's Ebola response hinged on an efficient surveillance system. The private sector, particularly the telecommunications sector, played a key role in developing tools and providing the equipment essential for this surveillance. One organization worked with the EEOC to design data collection and reporting processes, in order to speed up the response. The organization converted a traditionally paper-driven process into an electronic one. It created electronic tools for tablets and smartphones, so that laboratory staff could report results quickly. Given the urgent situation, the telecommunications sector greatly sped up efforts to set up a system for surveillance and contact tracing. A real-time reporting system was developed for various contact tracing teams in the field. Whenever there was a report, all teams and units were notified immediately. The telecommunications sector was instrumental in connecting all teams, including members of contact tracing team with mobile devices. Contact tracing teams were also provided with another application that helped conduct a detailed investigation of potential cases, and to add potential contacts that would feed into the contact tracing system.

*“All things were connected including contact tracing. You could anytime within EEOC look on screen and see who was followed up and who was missing.” - eHealth Technologies*

Telecommunications companies also provided high-speed Internet access, Internet bundles, and disposable phones with credit for healthcare workers in the quarantine facility. Disposable phones were needed in the quarantine facility, because all items brought in had to be burned. A major telecommunications provider contributed 100 disposable phones. Another

partnered with Kaduna to provide phones, lines, and airtime for EEOC staff/frontline workers, when there was a suspected case (which ended up being negative).

Using GPS-enabled smartphones provided by the private sector, the EEOC was able to track social mobilizers and contact tracers. This increased accountability (that the contact tracer was really tracing and not sitting at home filling out the form) and ensured that they covered the correct radius. GPS access also helped contact tracers find address locations of suspected patients.

One example of private sector technology that has not been fully leveraged in a potential PHEIC epidemic is data from phone records, which could be used to trace people. However, laws in Nigeria specify that these records can only be shared with security such as the police. In a potential high-impact epidemic with significant security implications, rapid access and deployment of such technology would be very useful to trace a target suspect.

Apart from being a source of financing, the private sector can play a key role in infrastructure development and resource mobilization. A non-profit social enterprise, which had worked with the federal government and CDC to establish the Polio EOC, played a major role in Ebola response. It was involved in developing the infrastructure for the EEOC. The social enterprise worked in telecommunications space and was brought on board early on by the federal government to provide IT and software tools. Although the enterprise had not worked on outbreak response, it had access to technology and capabilities critical to setting up an emergency response. Once the enterprise was engaged, it also brought on board other telecommunication partners that it had worked with in the past. The organization used its networks and connections to mobilize the telecommunication sector, initiating what would become a broad response to the Ebola crisis by the private sector. The organization worked closely with the EEOC incident



manager and helped secure donations, such as fuel for ambulances. It also provided physical infrastructure support, apart from designing tools and providing IT support to the EEOC.

Telecommunications companies and social media were at the forefront of community engagement during the outbreak. One major telecommunications provider partnered with the International Red Cross Society to sponsor 4 Million Naira worth of airtime and radio programs, with Ebola-related messages and doctors so that people could call to clarify doubts. The same provider also collaborated with the government to send four different text messages dispelling myths and highlighting prevention measures to their entire subscriber base. Another telecommunications provider partnered with Lagos State Government to set up a call center called STOP EBOLA. The provider set up call routing and a toll-free number to help relay accurate information. Telecommunications providers also raised funds for the Ebola response through downloadable songs.

Social media proved to be a major tool to control the Ebola outbreak. Social media platforms such as Twitter and LinkedIn were used to mobilize volunteers and disseminate accurate information on Ebola. A platform called EbolaAlert was launched on July 26<sup>th</sup>, 2014 as a personal citizen's responsibility, and was soon incorporated into the government's operational system. This proved to be a beautiful example of collaboration between the private and public sectors. Twitter allowed the platform to mobilize volunteers and increase the reach of accurate messages to fight misinformation about Ebola. The platform was able to mobilize 150 volunteers to help with communications and call center to run Internet chats. Each volunteer worked to curate and relay accurate information about Ebola with hashtags #EbolaNews and #EbolaChat.

*“People do not believe or trust Government. It's almost like a global thing, it's almost similar in Nigeria, how do we work to build the trust in whatever we were doing at the EOC so that it will help us achieve our outcomes” – CEO, EbolaAlert*

More importantly, social media helped overcome institutional or governmental mistrust, which is prevalent in Nigeria and many other countries. EbolaAlert collaborated with people from the CDC at EEOC, and invited the @CDC twitter handle to participate in order to build credibility. EbolaAlert served as a third-party and helped build community trust in the government. The call center, which was collaboration between the telecommunications sector and EbolaAlert, also helped in contact tracing. When the Ebola outbreak broke out in Port Harcourt and the doctor who treated the ECOWAS official died, his wife reached out via the Ebola helpline. This provided the opportunity to react in a time-sensitive manner. Similarly, when an Ebola case emerged at the second hospital site in Lagos, EbolaAlert helped relay time-sensitive information. By communicating with hospital pharmacist (via Facebook), EbolaAlert advised him to begin counting people present and to build a contact roster. Apart from providing accurate information and mobilizing the community, a social media platform like EbolaAlert also provided reassurance to people. Although EbolaAlert was unable to contain the salt rumor in time, they learnt from that experience and subsequently managed to squash future rumors within 30 minutes. For example, when there was a rumor of an Ebola outbreak in Kaduna, they followed it up, contacted authorities, and were able to dispel the rumor.

#### **4.2.4. Unique Role Played by the Financial Sector**

The financial sector was one of the first movers in mobilizing the outbreak response and it set a gold standard for both risk management and setting up of stringent measures to protect staff and customers from Ebola. One of first banks to respond collaborated with the Lagos State Government to develop an independent verification system for their travelling employees. The bank paid Lagos University Teaching Hospital (LUTH) 500,000 Naira in return for this verification service. The financial sector donated cash to mobilize the government's response, and to put up advertisements in newspapers delivering information and effective communication regarding Ebola. The sector also participated in a meeting set up by the Private sector Health alliance of Nigeria (PHN) to explore how the private sector could bolster the Nigerian Ebola response. One bank also collaborated with campaigns such as 'Oust Ebola' with the Leone Foundation to raise awareness about the disease and how to protect oneself from it. Another bank spearheaded the sector's response by signing up with UN's private sector commitment to stop Ebola.

The financial sector's response was unique in that it went beyond donating money. The sector actively participated in raising awareness, education, and hygiene. Remaining operational was another way the sector was prepared to respond if the outbreak did escalate to an epidemic. The sector invested heavily in preparedness and risk assessments. Despite the numerous contributions made by this sector, there are still opportunities to do more during a crisis. The financial sector can do more in the future by setting up due diligence measures to reduce fraud. In assisting efforts to trace the movements of funds, banks could significantly increase accountability during an outbreak. In addition, the financial sector could take additional steps to share their considerable expertise in risk management with other companies and governments.

#### **4.2.4. Unique Role Played by the Pharmaceutical Sector**

The pharmaceutical sector and health-related FMCGs manufacture products for disinfection, sterilization, and chemical cleaning. These products and actual medicines represent valuable in-kind donations during an outbreak. Moreover, pharmaceutical companies might have underutilized products that could be use useful in controlling infections. Such opportunities much be recognized and Public-Private Partnerships (PPP) can be used to find efficient uses for critical but underutilized products during an outbreak. In fact, one company interviewed had a product for controlling infections called Glosair. It was an innovative decontaminant that when placed in a room and turned on, would decontaminate its surroundings. This vapor decontamination device uses ethylene oxides to decontaminate surfaces. An inquiry was made on this decontaminant by a hospital in Lagos, which had an Ebola patient. However, the product was never supplied as the pharmaceutical company was not yet a full legal entity, and the product was not registered within Nigeria. Apart from the legal issues, the required technical support for this product was not present at the time. As a result, a potentially useful technology during the Nigerian outbreak found little use.

During the Nigerian Ebola outbreak, the pharmaceutical sector actively engaged in knowledge transfer by training clinicians. One pharmaceutical and medical device company conducted more than the typical professional education sessions. The firm used these training sessions to educate and increase awareness about the use of disinfectants during outbreaks to manage infections. Another pharmaceutical company donated antibiotics to the government, and donated cash to NGO partners such as Save The Children, AmeriCares, Direct Relief, and Project Hope. The reason the company preferred working with NGOs rather than government, was to avoid conflicts of interest as well as concern about the government's accountability. The company also preferred working with NGO partners for Ebola response because the NGOs

typically had better access to frontline healthcare workers and the resources to both build capacity and interface with the community.

One of the three pharmaceutical companies interviewed donated cash worth 433,000 GBP and medicines and supplies worth 740,000 GBP to their NGO partners<sup>3</sup>. The company also enabled 5 healthcare practitioners to participate in an Ebola training course led by the CDC.

The unique way that the pharmaceutical sector was able to support the Nigerian Ebola response was through business continuity. Any obstruction to the production of essential medicines would impact health outcomes of other diseases. Apart from donating in-cash and in-kind, the pharmaceutical sector can help with health system strengthening and through additional R&D for neglected tropical diseases such as Ebola. Strong health systems are essential to building a resilient epidemic control system. A major pharmaceutical company interviewed mentioned that they would reinvest 20% of their profits to work towards strengthening health systems in least developed countries. This represents an example for all pharmaceutical companies to follow.

Pharmaceutical companies can also help by investing in R&D to develop treatment and vaccines for neglected diseases or diseases of the developing world. One of the companies noted that it spends less than 5% of its R&D budget on such diseases. This company is one of the companies that developed the Ebola candidate vaccine derived from Chimpanzee Adenovirus ChAd3 ZEBOV, which is genetically modified to express the Zaire Ebola virus glycoprotein, and is currently in Phase III trials in Liberia (WHO 2015b). The company understood that they spend less on such diseases than other projects (e.g., on NCDs). However, they pointed out that they

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<sup>3</sup> <http://www.gsk.com/en-gb/behind-the-science/access-to-healthcare/our-humanitarian-response-response-to-the-ebola-outbreak/>

were better off than many other pharmaceutical companies, since they did allocate some of their budget to such diseases. The company gave priority to the Ebola vaccine after buying the Swiss company that initially developed it, and were able to cut down the gestational period for vaccine development by 10 years. However, incentives are needed for the private sector to invest in R&D efforts for neglected diseases. Naturally, the private sector will not seek to invest in projects that with minimal financial returns. Policies that reduce the risks (e.g., liability) associated with R&D efforts for such diseases may encourage more private sector investment. Measures such as pools of funds or donor funding research initiatives would be helpful. Push and pull mechanisms, including guarantees of particular markets or advanced purchase commitments, would also help increase the expected return for R&D investments.

The pharmaceutical sector can also help response efforts by sharing crisis management expertise and technical know-how with the government. Specifically, they can share their pandemic preparedness plans with the government. Logistics and supply chain is another area where pharmaceutical (and consumer goods) companies can help the government during an outbreak.

#### **4.2.5. Unique Role Played by the Oil & Gas Sector**

The oil and gas sector played an extremely important role in Nigeria's Ebola response. Oil and gas companies were involved in infrastructure development, IEC activities, post-Ebola recovery efforts, and they brought in experts to train and build capacity for dealing with Ebola across various states. In addition, the oil and gas sector was proactive in providing in-kind resources such as fuel for ambulances, procuring PPE, procuring vehicles and office equipment.

Moreover, the sector provided stellar examples of how to coordinate complex activities during an emergency.

Learning from their experiences in other Ebola-hit countries, oil and gas companies realized that effective coordination was the key to success and that they *'could not do it alone.'* Consequently, the oil and gas sector responded to the Ebola crisis in a synchronized and collaborative manner. A focal point of contact was set up by the federal government to orchestrate the sector's response. This contact not only relayed the information between the EEOC, the federal government and the oil and gas sector; but also streamlined the sector's efforts to prevent duplication of efforts. This focal contact ensured that every company was addressing a separate need and overall, it promoted a sustainable response to the outbreak. In the process, there was immense collaboration between companies, who shared technical expertise and manpower.

The oil and gas sector addressed the issue of interrupted health service utilization at a time when most facilities were turning patients away. A few major oil and gas companies collaborated with each other and iSOS to set up satellite fever clinics for their employees and their families. These companies also collaborated with other companies to provide access to these fever clinics. Special Ebola drills were also performed at these clinics to ensure a prompt response in case an Ebola patient turned up. Companies that did not set up fever clinics partnered with 'reputable' private hospitals to ensure staff could go see them when sick.

#### **4.2.6. Unique role played by the private health sector, especially the index hospital**

*“Ordinarily, Doctors' strike means bad news, but the reason he came here was because the Doctors were on strike.” – Male, Medical Director, Index Hospital*

The private health sector played a very crucial role in Nigeria's Ebola response by providing health services at a time when such services were difficult to access, owing to a strike by public sector doctors. Hospitals in the private sector were providing service delivery when access to public healthcare services was limited due to the strike. The index patient came to Nigeria in middle of the strike, which is why he was taken to a private sector hospital.

*“Oga, it is not Malaria” – Dr. Adadevoh*

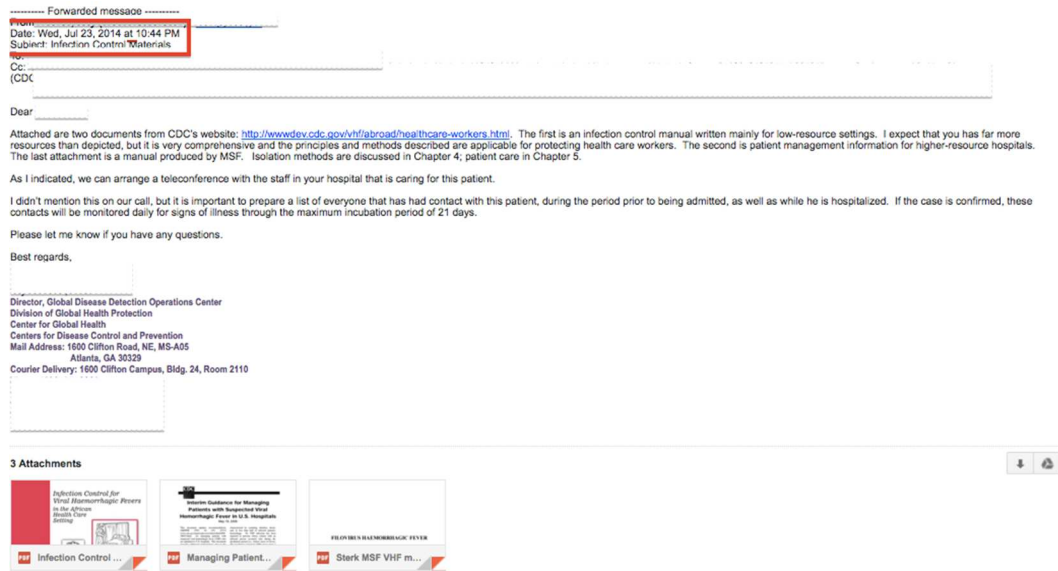
The index hospital was instrumental in the diagnosis of the index patient. While the index patient was being treated for malaria after testing positive for it, the lead consultant at the hospital recognized the symptoms of Ebola when the patient did not respond to treatment and developed hemorrhagic symptoms. Her timely guess triggered a cascade of responses – from triggering an incident management meeting to sending the patient's samples for Ebola testing.

The incident management and clinical governance system used by the index hospital played a key role moving the process forward after recognizing the index patient may have Ebola. This system allowed individuals to crosscheck with one other to make an informed institutional decision. This system was necessary as it allowed the staff to compare notes and move forward with next steps quickly during an emergency (despite the fact they were confused about origin of the patient, who had been dishonest). Since all three staff members of the incident management



team came to the conclusion that his samples should be sent for testing, it became an institutional diagnosis asserted by the lead consultant.

The index hospital also reached out to US Department of Health & Human Services to learn the protocol for handling a suspected Ebola patient, as no one within Nigeria had dealt with an Ebola patient before (*Figure 17*). The CDC provided the index hospital with protocols and the hospital led the initial knowledge gathering and implementation efforts, in collaboration with the federal and state governments. The proactive behavior of the hospital was critical as it triggered the Nigerian Ebola response. The protocols received by the hospital-included protocols on handling an Ebola patient and literature on case management. The hospital shared the protocols with the government as well, since it was not prepared for an Ebola patient either.



**Figure 17: Index hospital reached out to the US Department of Health and Human Services, the hospital played a key role in knowledge curation and relay**

*“There is no "big" man, because the reason they asked him to go on self quarantine was because he was a "big" man.”- Male, Medical Director, Index Hospital*

*"No, I am leaving the hospital, you cannot keep me here, I am going to exercise my right, I will leave against medical advice."- Index patient as per Medical Director, Index Hospital*

While the condition of the index patient deteriorated and his samples were sent for Ebola testing, the patient wanted to leave. The fact that the index patient was a diplomat and a “big man” complicated the situation. The index hospital recognized their responsibility in an emergency situation. The hospital used clinical governance practices to take the institutional executive decision regarding the discharge of the index patient. The decision was not to discharge the index patient despite immense political pressure. This led to warning of litigation by the Liberian Ambassador, stating that the hospital could be accused of kidnapping and that this could turn into a diplomatic row. The hospital as an institution banded together and refused to let the patient go. The hospital consulted both the Lagos State Government and the NCDC. Highlighting the hospital’s resourcefulness, the hospital cited legal precedence and invoked the Lagos State Public Health Law for epidemic response. Lagos State Public Health Law is a law that overrides personal liberty of an individual or patient when it threatens the health of the community/population.

This was a critical move because another hospital may not have been able to withstand the diplomatic pressure to release the patient. This would have led to many more clusters and potentially a much worse Ebola epidemic in Nigeria.

The hospital and the Lagos State government had to deal with diplomatic pressure once again, after the death of the index patient and his confirmation as an Ebola victim. The Liberian Ambassador wanted a death certificate and evidence of a positive Ebola test. Moreover, he wanted the facility and the State government to wait until the family confirmed whether they could proceed with cremation. It should be noted that the cremation of a dead Ebola patient is time-sensitive since the dead body is much more infectious. The viral load is the highest and the body can remain infectious up to seven days after death. The index hospital was once again instrumental in reaching out to the Ministry of Finance in Liberia. The Ministry confirmed that the index patient was in quarantine and they were furious that the index patient broke quarantine to travel to Nigeria. The Ministry provided permission to go ahead with the cremation. The Medical Director of the index hospital understood the emergency situation and again called upon the clinical governance system. As soon as they heard the statements from the Ministry, they converted it into a written statement and signed it.

The index hospital was resourceful, shrewd, and brave in its handling of both the patient and the dead body of index patient. The facility recognized the need for prompt action and put possible political ramifications aside. The hospital was willing to suffer political backlash that could come their way because they circumvented the traditional diplomatic process for public health. Apart from showcasing the role played by the index facility in their astute handling of the Ebola patient, this incident also shows how political channels don't always keep pace with the prompt and swift actions required for epidemic control. Nigeria's case was emblematic of the fact that diplomatic processes can actually impede efforts during a public health emergency. This is where private sector can potentially help, since companies act outside the political system in most respects. The facility also played a key role in collaborating with the WHO and the authorities. With guidance from the WHO Technical Officer, the facility used safe three chemical body bag

packing, followed by the disposal and swift cremation of the body. Later when the Ebola virus infected the staff members of the index hospital, the hospital played a key role in providing a support system. They provided a package of personal care items such as buckets, recharge cards for phone, bathroom slippers, etc. to the staff at the isolation center. The Director of the hospital maintained contact with infected staff over the phone and provided psychological support to show that somebody cares.

#### **4.3. Why did the private sector participate in Nigeria's Ebola response?**

*“When a group of people sees that you are not just interested in taking their money as a company which was created to make profits, you tend to make a positive impact on the lives of the people, they feel it more favorable than company that will come and turn in profit from them and go off without leaving any impact on those community. They feel the company cares about them. Of course if they say your product and services are crap, there is only so much good your CSR can do for you” – Male, Managing Director, Pharmaceutical Company*

From the earlier sections of this thesis, it is clear that Nigeria's private sector played a critical role in Ebola response efforts. More generally, private sector engagement is key to sustainable epidemic response. However, in order to mobilize the private sector to participate in epidemic response consistently, it is essential to understand their incentives. Put simply, why should the private sector care?

First and foremost, companies participated in response efforts to ensure the safety of their employees. Skilled employees represent some of the most valuable assets of an organization, and ensure that its day-to-day operations run smooth. Most companies feared the operational repercussions of losses to their trained work force. Infections to those essential to production or leadership could severely impact business continuity. The significant concern for employee safety stemmed from the fact that Ebola was perceived as a fatal disease. Many companies felt it was their responsibility to keep their employees safe. More than one interviewee highlighted the analogy of a chain being only as strong as its weakest link. As a result, businesses not only sought to protect their staff and contractors, but also their respective families. Concern for employee safety was a major factor behind the satellite fever clinics set up by some oil and gas companies. Given that hospitals initially refused to see febrile patients, there was significant concern for employees who did happen to fall sick. Proactive responses, such as the establishment of temperature checks and satellite clinics, helped the employees feel more confident and comfortable. As a result, employees noted that they actually felt safer coming in to work than staying at home. Such measures reduced tension at workplace and boosted overall productivity.

Companies also saw it as their responsibility to be a good corporate citizen by supporting the government, as it attempted to control a grave situation. Companies saw themselves as critical components to socio-economic growth and integrated their Ebola response within active CSR programs. CSR efforts can influence consumer loyalty by altering consumer perceptions regarding a company's products, or by promoting stronger identification with the company (Marin, Ruiz, and Rubio 2009). In interviews, companies who were quick to participate in response efforts highlighted the importance of CSR efforts during an outbreak. Building brand equity was a major reason why companies sought to participate in Ebola response efforts. This is because brand equity can be particularly important to product sales in competitive markets (e.g.,

the FMCG sector). To this end, all companies (except one) reported that their involvement in Ebola response had a positive impact on their brand awareness and perception (10 on a scale of 10).

*“Because with good brand the business will always come”* – Male, Head of Compensation, FMCG

Countries with offices in Liberia or Sierra Leone were also more proactive in their Ebola response, as these companies had already seen the impact of the disease on their business in those countries. Major international companies realized they would suffer large economic losses from a loss of business continuity. As a result, ensuring business continuity was a major motivator for almost all companies across economic sectors. Although there were significant costs associated with response efforts (e.g., insurance, pumps, IEC, etc.), these costs were insignificant compared to the potential losses from disruptions to business continuity. Prominent sectors, such as the oil and gas sector, even made the case that their business continuity was essential to Nigeria’s overall security. The oil and gas sector represents a considerable source of income for the country. Moreover, a break in business continuity would mean no power or fuel in a country that largely depends on oil for power, potentially triggering riots. By engaging in response efforts, companies would also help boost investor confidence in the country, preserving the relative stability of the economy.

Companies also got involved because the disease threatened their customer base, and hence their source of revenue. One oil and gas company remarked that the disease posed a risk to the company’s survival because customers were afraid to buy products from an Ebola-infected country. This spurred the company’s strong participation in response efforts. An epidemic could

drastically affect the size of a company's customer base, and their ability to purchase products. The fact was that anyone could get Ebola, irrespective of economic status, and there was no cure or treatment for the disease. This fear of the disease drove action.

## **CHAPTER 5- Discussion**

### ***5.1. Contribution to the literature***

This thesis shows that even when a country swiftly controls an outbreak, there can be downstream ripple effects on its economy. Importantly, these ripple effects may not be measured easily through traditional quantitative methods. The effects of fear and aversion behavior on an economy during an outbreak have been studied before (Kinsman 2012, Ogoina 2015, Smith 2006). However, this study is the first to take an in-depth look at the impact of Ebola on Nigeria's private sector, in particular. Moreover, it investigates how the private sector responded to the outbreak and the specific roles it played in the overall effort. While Nigeria contained Ebola swiftly, other countries such as Sierra Leone, Liberia, and Guinea struggled (CDC 2016, Shuaib et al. 2014). Despite the active role played by Nigeria's private sector in the response, no prior study has sought to understand the scope of the private sector's involvement in containing Ebola. In fact, prior to this thesis, there exists only one study that explores the role of private-public sector partnerships in the West African Ebola response (WEF 2015). In addition, a report on business during the Ebola outbreak briefly notes the impact of Ebola on the private sector (KPMG 2015). However, both these reports are focused on the entire West African region, and only briefly touch upon Nigeria.

This thesis builds on these earlier reports and fills an important gap in the literature. Specifically, this thesis conducts an in-depth exploration of the challenges faced by the private sector during Ebola, and how companies addressed these challenges. This thesis also identified the organizations that were first to respond to the outbreak, and how they chose to respond. In doing so, I hope to provide a road map for how the private sector can help governments respond to outbreaks and epidemics. This thesis deconstructs and evaluates the role of the Nigerian private



sector in Ebola response using a two-pronged approach. First, I aim to better understand the impact of the disease on the private sector. Second, I seek to better understand the role played by the private sector in Ebola response and the rationale behind it. In describing the impact of fearonomic behavior, this thesis makes a case for private sector mobilization during an outbreak. By taking Nigeria as an example, this thesis fills the gap in our understanding of how various economic sectors can leverage their strengths in an outbreak response. Sector by sector, this thesis highlights why the private sector should be more involved in outbreak response, and notes specific opportunities for the private sector to assist government efforts. The findings from this research will guide policy decisions and help inform governments on how to efficiently engage with different verticals within the private sector. This research also hopes to serve as a guide for the private sector on how to effectively support the government in disease containment. This section below describes a few insights from the study.

## ***5.2. What were the lessons from Nigeria's experience with Ebola?***

### **5.2.1. Preparedness is key**

Nigeria's initial lack of preparedness was the reason why it lost precious lives. When the index patient arrived in Nigeria, the country was not prepared. The lack of thermal scanners or temperature checks for passengers from Ebola-hit regions allowed the index patient to enter the country easily. No one had seen an Ebola patient before, and the general perception was that the disease was too far away and would need to cross several more countries before it reached Nigeria. While a few private sector companies did prepare for the outbreak, most other private and public sector organizations were not prepared. This was evident in that fact that little effort

was made to set up a quarantine facility until after an index patient was already in Nigeria. At the time of the index patient's arrival, no resources for handling a suspected Ebola case were immediately available to the index hospital. The hospital had to reach out the US Department of Health and Human Services and wait, before it could get access to resources needed for the Nigerian index patient of Ebola. Moreover, because the isolation facility was not ready in time, the index patient had to be kept in the hospital two additional days before his death. These two days potentially represented the difference between life and death for the consultants and HCWs from the index hospital, who lost their lives to Ebola. They were possibly infected just before the patient's death. It should be noted that an Ebola patient has high viremia and is most infectious in the late stage of disease until death, and remains infectious until a week after death (Dowell et al. 1999, Prescott et al. 2015, Towner et al. 2004).

However, the fact that Nigeria was able to address Ebola swiftly also had a lot to do with preparedness (Vaz et al. 2016). Prior experience in setting up an EOC for Polio and having epidemiology-trained personnel in the field made a huge difference in why Nigeria was able to react to the outbreak quickly (Vaz et al. 2016). Having a prior example for the EEOC in terms of the Polio EOC program also meant there was a minimal learning curve. The Polio EOC had been running for three years prior to the outbreak so the staff was experienced and trained. The EEOC orchestrated the Nigerian Ebola response and was instrumental to the country's success in ending the outbreak.

In the case of SARS, institutional infection control was undermined by a lack of knowledge (of SARS) amongst frontline HCWs (Naylor, Chantler, and Griffiths 2004). Ebola in Nigeria represented a similar situation - no one had dealt with an Ebola patient before, nor was anyone familiar with case management for the disease. This gap in training and resources is a gap that the private sector can help fill. The West African Infectious Disease Institute is just one

example of a non-profit private sector entity that is working towards building capacity for Ebola and other infectious diseases. Developing of isolation facilities, facilities for infectious disease treatment, building HCWs capacity, and establishment of EOCs would be a step in the right direction. Furthermore, the development of a standardized Infectious Disease Management Protocol, shared with all facilities, could be valuable during an outbreak.

### **5.2.2. Fearonomic impact of Ebola led to stigma and disruption of health services**

As per outlined in the previous chapter, the epicenter of the outbreak had played a key role in diagnosing the patient, curating resources, as well as taking legal risks to keep the patient in the facility. However, the hospital lost key members of staff and both its employees and the institution were subjected to immense stigma. As a result, the hospital has still not been able to recover its lost market share and is a shadow of its former self. Many of its former patients are scared to return to the hospital even a year later. This is important to note, as this served as a cautionary tale and was a major reason why other facilities initially violated their obligation to provide care by choosing to turn patients away (Maduka and Odia 2015). Fear of getting infected also led to abandonment by HCWs and non-clinical hospital staff in Lagos. Abandonment of patients or hospitals during epidemics brings to the forefront the ethical dilemma of ‘Duty to treat’, especially in epidemics which can potentially be nosocomial. Abandonment of hospital and patients was observed during the Ebola outbreak in Democratic Republic of Congo (DRC), when all the HCWS of Kikwit General Hospital fled (Sokol 2008). This is a phenomenon not just restricted to countries in Africa, in fact, a WHO survey in USA showed that over half HCWs thought it was acceptable to not show up for work during Avian flu outbreak (Bateman 2015). Ethical training of HCWs and non-clinical staff in hospitals, dissemination of accurate

information on transmission, provision of PPE, and monetary incentives are tools that can be used to over-ride the hurdle of HCW abandonment during an outbreak. It is also imperative for providers to include emergency staffing plans to proactively deal with potential decrease in capacity during an epidemic. This idea of emergency staffing for outbreaks has been described in greater detail in literature (Hall, Hall, and Chapman 2008).

Patient volume of non-Ebola infected providers also decreased by 35-50% (Section 3.5). Disruption of health services due to fear and stigma is not a phenomenon unique to Nigeria. Fear of HCWs by patients was also observed during the SARS epidemic. Just like Ebola, the fear of HCWs and hospitals during the SARS outbreak was caused by the novelty of SARS, its nosocomial transmission, and the vulnerability of HCWs to infection (Chang et al. 2004, Fan 2003, Naylor, Chantler, and Griffiths 2004, Smith 2006). The fear of SARS impacted health seeking behavior in Taiwan resulting in a loss of 18.8 Billion Taiwanese \$ (Chou, Kuo, and Peng 2004). Disruption of health services and decrease in health service utilization during Ebola outbreak was also seen in Sierra Leone, Guinea, and Liberia(WHO 2014a). Decrease in health service utilization has downstream impact on other health outcomes. An estimated 50% reduction in access to health services increased Malaria, HIV, and TB mortality rates by an additional death count of 6,269 in Guinea, 1,535 in Liberia, and 2819 in Sierra Leone(Parpia et al. 2016). Similarly, increase in maternal mortality was also observed due to reduced health seeking behavior during Ebola outbreak in Sierra Leone (Mukherjee and Marsh 2015, Ribacke et al. 2016). Information and effective communication is a key tool to reduce misinformation among patients. Visible measures for protection at a hospital (*Figure 21*) would improve patient trust and potentially improve health service utilization during an epidemic.

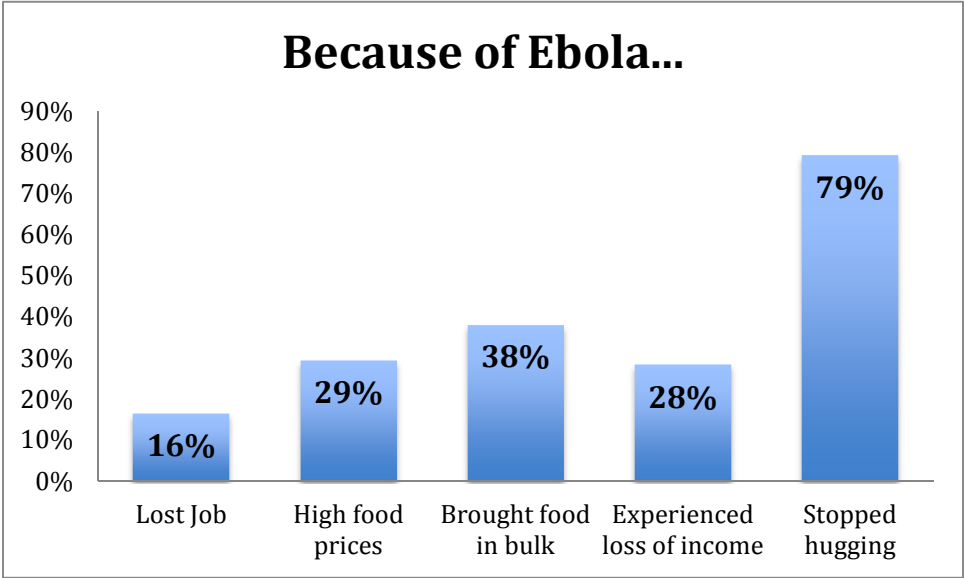
In outbreak situations like that of Ebola, it is also essential to develop incentives for private health sector facilities to come forward and be proactive. One way to do this could be by

having restitution funds or compensation funds to cover losses and to insure private health facilities for situations like these. Training programs and campaigns against stigmatization of Ebola survivors and their families would also be very useful. Another way to mitigate stigma and actually learn from the experience would be to set up a think-tank for disease control. Medical doctors, healthcare workers, survivors, experts, and policy makers could be brought together to work on prevention of future outbreaks and reduction of stigma.

### **5.2.3. Fearonomics amplifies a disease's impact on the economy**

The largest effects of Ebola in Nigeria (and other Ebola-hit countries) were not direct. Ebola's most significant effects stemmed from fear-induced aversion behavior exhibited by individuals, organizations, and countries. Fear led to trade restrictions, changes in consumption patterns, the spread of rumors, and an epidemic of fear (Analytica 2014, Kinsman 2012, WBG 2014, Ogoina 2015). This was similar to the outbreak of SARS. The indirect macroeconomic impact of SARS on the global economy was estimated to be 30-100 Billion US\$ or 3-10 Million US\$ per case (Chou, Kuo, and Peng 2004).

In this study, I coined and defined the term 'fearonomics' of a disease. Fearonomics represents the indirect impact of a disease on the economy due to both informed and misinformed fear-based aversion behavior exhibited by individuals, organizations, or countries. As shown in Section 3, the combination of fear, aversion behavior, and misinformation significantly affected the formal sector of the economy as well as people's individual lives. According a survey run as part of this thesis (*Figure 18*), 16% of respondents reported losing a job due to Ebola, while 28% experienced a loss of income, and 29% paid higher food prices. This illustrates how the fearonomics can impact an economy and how it potentially result in temporary financial insecurity.

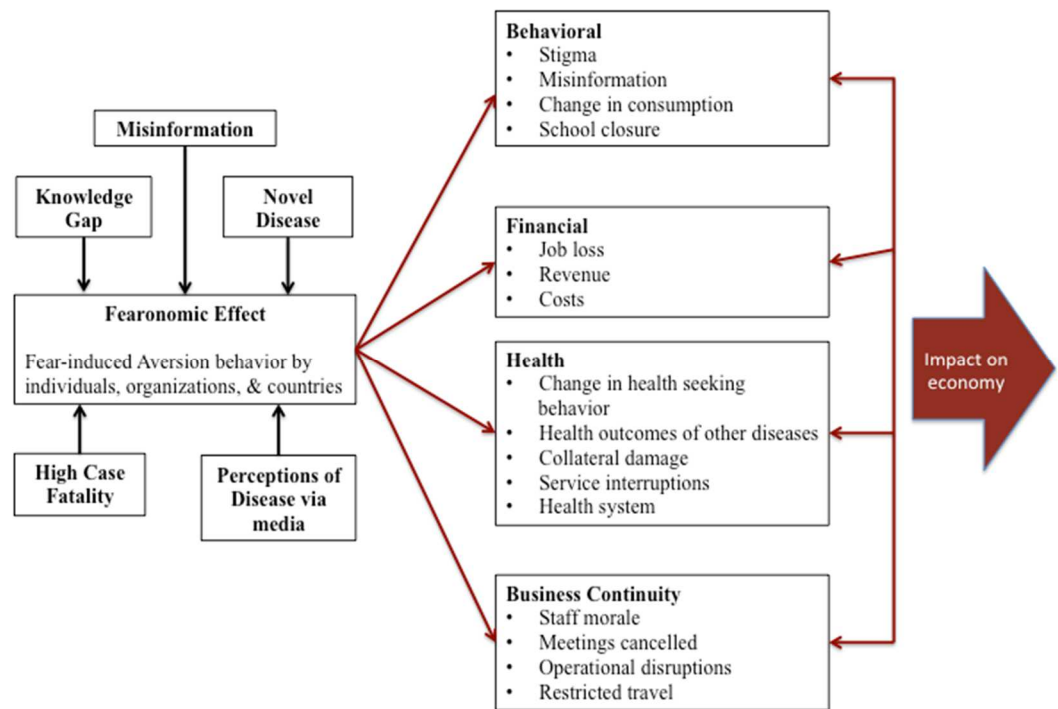


**Figure 18: How fearonomics of disease can lead to short-term financial insecurity**

The effects of fear-induced aversion behavior are multi-dimensional, and include its socio-behavioral impact, its financial impact, its impact on business continuity, as well as its impact on health (*Figure 19*). These effects are inter-related and affect the larger economy – not only the formal sector, but the informal sector of the country as well. The fearonomic effects of a disease include both tangible and intangible costs that can weaken the economy, and even lead to financial insecurity for people beyond the ones directly infected by the disease.

Although none of the sectors studied for this thesis were immune to the fearonomic impact of Ebola, some sectors were affected more than the others. For example, the private health sector, the aviation sector, and hotels were the most affected by aversion behavior. This is not

surprising – during the SARS outbreak, a reduction in private consumption spending due to fear generated by SARS was also observed and effected the tourism, aviation, and hotel sectors the most (Fan 2003). Restaurants in Hong Kong experienced a sharp decline as well (Naylor, Chantler, and Griffiths 2004, Lee and McKibbin 2004). Just like SARS, Ebola exerted a disproportionate psychological impact on people and their understanding of the disease. Even sectors such as pharmaceuticals and FMCGs, which were expected to prosper during the outbreak, actually suffered due to changes in consumption patterns and demand shocks. However, the entity that suffered the most from fearonomic effects was probably the informal sector. Fear-induced aversion behavior meant that open markets were almost deserted during the outbreak.

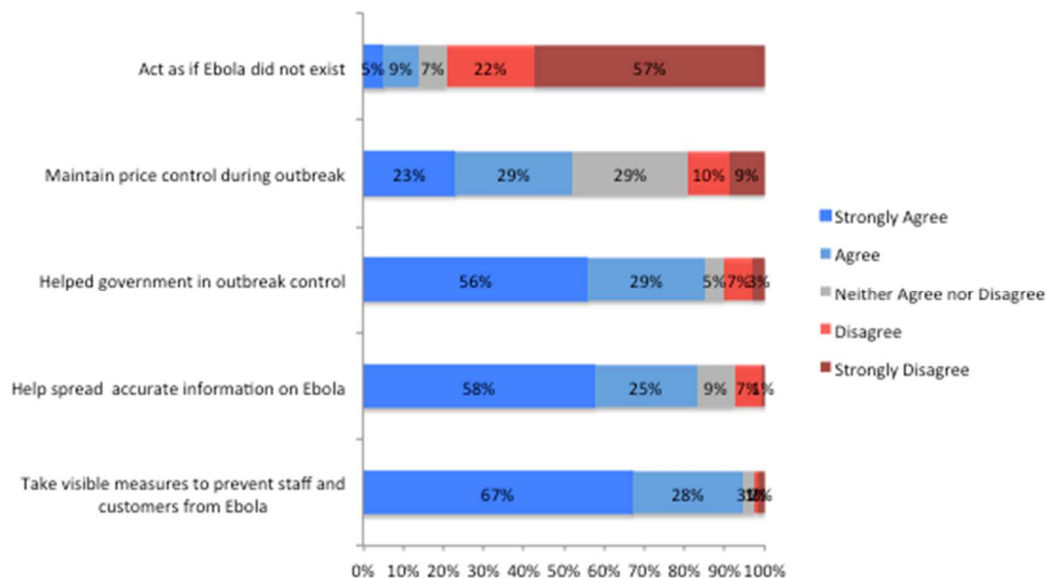


**Figure 19: Framework describing how fearonomic effect can impact organizations and economy**

The fearonomic effect of a disease is fuelled by media hype, misinformation, and rumors. However, perceptions of a disease are fundamentally influenced by the fatality of the disease, uncertainty about its transmission, and the lack of vaccines or drugs (Fischhoff, Bostrom, and Quadrel 1993). Altering or correcting the disease’s perception can go a long way in reducing fearonomic effects. For example, sensational accounts of the disease can result in incorrect perceptions that a disease is ‘highly contagious’, even when it is not. Awareness efforts that deploy rigorous information and can help educate the masses and mitigate damaging aversion behavior.



This thesis revealed that an outbreak could impact an economy through a combination of behavioral effects, financial effects, health effects, and business continuity effects. Looking at the response of the private sector, measures such as strong gatekeeping temperature checks, changes of gloves, and effective communication activities can mitigate the fearonomic effect. This was seen in the banking sector especially when they noticed that more people were coming in to their facilities. The public felt reassured from visible protection measures, such as the use of sanitizers. This was reflected in the results of my survey = 95% of respondents reported that they would buy services from a place during the outbreak if the staff took visible measures to control the disease (*Figure 20*). Quelling rumors and reducing media sensationalization during the outbreak is also helpful in reducing the fearonomic impact.

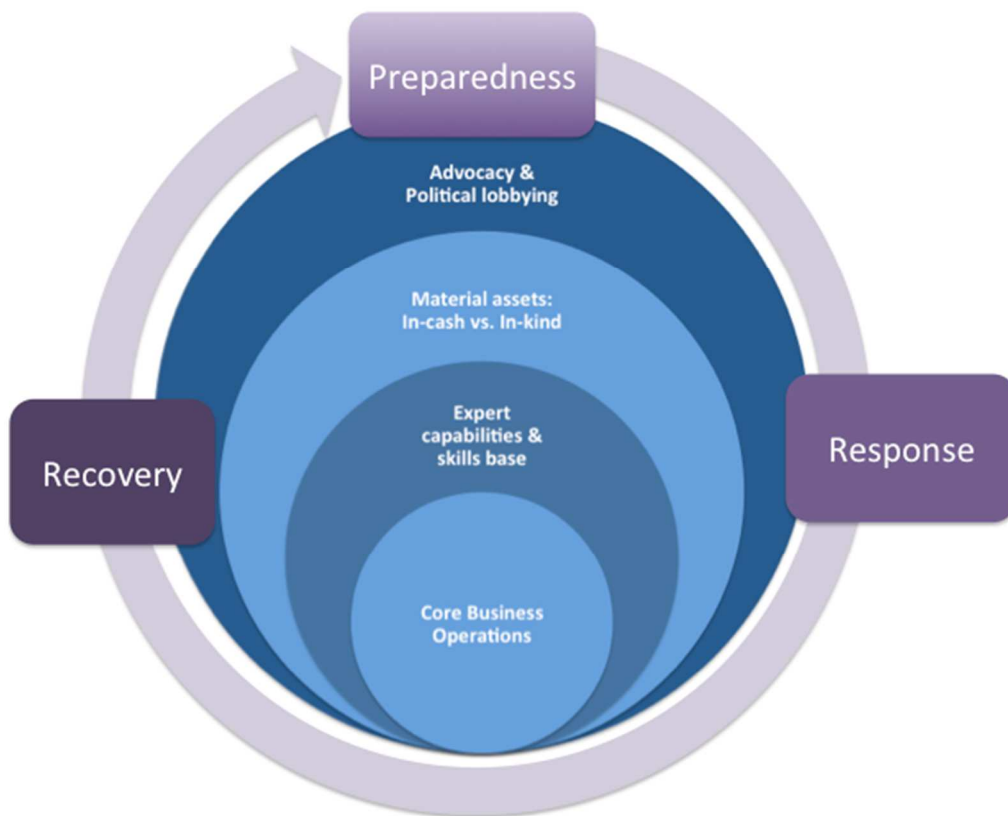


**Figure 20: Visible measures to protect staff and customer can mitigate fearonomic effect for a customer facing business (N =112)**

#### 5.2.4. Engaging the private sector

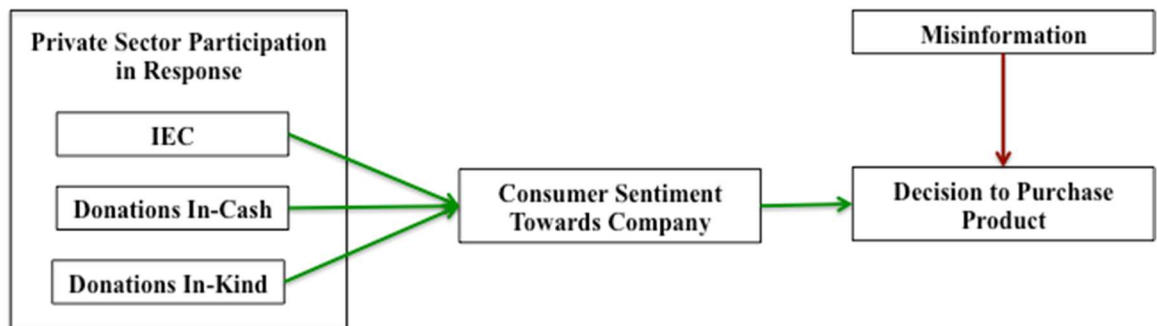
Given the impact of Ebola on business, an outbreak presents an opportunity for the private sector to respond. The private sector’s response to Ebola in Nigeria was diverse, ranging from early donations, to resource mobilization, to safeguarding core business activities by protecting its workforce (*Figure 21*). The private sector’s response in Nigeria was not only limited to in-cash and in-kind donations but also involved sharing expert capabilities such as in the mobilization of resources, information technology, data monitoring, contact tracing, infrastructural support, and in disseminating accurate information. By continuing their operations during times of crisis (despite financial losses), businesses helped goods reach the consumer and ensured that livelihoods were not disrupted, to some extent. Based on the interview data, every business was involved in the outbreak response in one way or another. All stakeholders played a part in protecting core business operations (which included both workforce protection and

protecting business continuity), by introducing temperature checking at gates, dissemination of IEC, and making sanitizers available. Most companies preferred helping out in-kind or by sharing their expert capabilities. The private sector in Nigeria also played a key role as an influencer and in advocacy by resisting diplomatic pressure to release the body of the index patient in the case of the hospital or by facilitating a change in manual checking policy at the airports.



**Figure 21: Private sector can help in various ways**

Engaging with private sector helps build more confidence, speed, and efficiency in outbreak response. The rapid setup of the EEOC would have been virtually impossible without private sector engagement. The private sector, by virtue of its procurement and supply chain capabilities, brought in significant efficiency and value for money in Nigeria’s outbreak response. For the private sector, the advantage of getting involved in outbreak response goes beyond self-prevention and a humanitarian cause. Being involved in Ebola response can influence consumer purchasing behavior through influences on consumer attitude (*Figure 22*) (Dawkins 2004, Dawkins and Lewis 2003). CSR efforts can influence consumer behavior immensely and in a scenario such as epidemics when fearonomic impact of the disease can skew consumption patterns, businesses by being proactively engaging in epidemic response can potentially positively influence customers. Research has shown that CSR activities influences consumer behavior in not only traditional manner of positive consumer perceptions but also influences consumer loyalty (Marin, Ruiz, and Rubio 2009) . Higher level of CSR is associated with stronger loyalty behavior as consumer identifies with the company (Marin, Ruiz, and Rubio 2009).



**Figure 22: Taking part in outbreak response can lead to benefits for consumer product companies (Source: MORI)**

First movers in the Nigerian private sector response were the oil and gas sector, a major foundation, hospitals, and telecommunications companies. Companies that were most likely to get involved were companies with a growing international presence, or with risk-sensitive operations. This has also been seen in literature prior to this (Frynas 2009). It should also be noted that the responses of companies depend on their size and financial capacity. Larger companies and richer companies took more action, while it was difficult for smaller businesses like malls to be involved beyond IEC. Cross-cutting crisis management teams were particularly helpful and companies with them responded well during the outbreak. The Private Sector Health Alliance of Nigeria (PHN) represents a good example for how private sector efforts can be organized efficiently in a crisis. PHN is an alliance of private sector companies on one institutional platform that leverage their resources to address health challenges. PHN synchronizes the responses of the private sector, harnessing pooled resources, and leveraging unique capabilities during an outbreak. PHN as an alliance can leverage collective advocacy, funds, and in-kind resources for rapid private sector mobilization efforts in future epidemics or outbreaks. Although epidemics affect both bigger and smaller businesses, the shocks of epidemics pose a greater risk for smaller firms, which are also more likely to be underprepared as was shown in the case of SARS (Day et al. 2004). This was also applicable in the case of Ebola outbreak in Nigeria and was especially evident from the Aviation sector interviews. Lack of resources also means they are not as involved in epidemic response beyond protecting their core activities. An appropriate response by the private sector would involve engagement with the public sector during the preparedness phase, response phase, and recovery phase of an epidemic (*Figure 23*). A collaboration and knowledge sharing between larger businesses, smaller businesses, and alliance groups would allow a streamlined response to an outbreak and enable a collective protection for smaller businesses during an epidemic. This could be via means such as

sharing of pandemic preparedness plans or collaborating with other sectors such as health sectors to ensure employee safety during an outbreak (*Figure 24*).



**Figure 23: Private sector can engage with public sector to respond in all three phases of an outbreak**



**Figure 24: Collaboration between larger businesses, smaller businesses, and alliances is essential for a synchronized and holistic private sector response to an epidemic.**

Incentivization of the private sector can greatly enhance the sector's response to epidemics. During an outbreak, when there is an urgent need for vaccines or drugs development, the governments can incentivize the private sector to fast track vaccine development by protecting the private sector from legal claims. This was done in the United States by the implementation of the Public Readiness and Emergency Preparedness (PREP) Act, a 2005 law that was developed to facilitate development of drugs or vaccines during epidemics or acts of terror. PREP Act played a crucial role in development of Ebola vaccines but is not an act applicable outside United States (McCarthy 2014). Implementation of such an act by other nations would incentivize the private pharmaceutical sector to devote resources in drug or vaccine development during an emergency without fears of liability. Push incentives such as tax credits, research funding by governments and multi-lateral organizations as well as and pull incentives such as advanced purchase commitments and patent buyouts can further enable the private sector to invest further in R&D for a sustainable epidemic response (Barnes-Weise 2016). Businesses prefer an environment that is corruption free (Hameed 2014). Data from the interviews also shows that corruption is a major reason why corporates are wary of donating cash. Governments can further incentivize private sector engagement during an outbreak by removing barriers to the private sector collaboration such as corruption and lack of transparency that impede the trust of the private sector.

### ***5.3. Limitations of the study***

As a retrospective qualitative study, this study could potentially be impacted by recall bias of the interviewees. Interviewees are likely to remember certain details more or exaggerate or minimize certain risks, roles, or issues. This thesis tried to minimize the impact of the recall bias by interviewing different stakeholders and looking for common themes between interviews



as well as by triangulation of information shared via documents review and survey. This study has no conflict of interest.

## **Appendix A- Interview instrument**

These questions are to understand your perceptions of the outbreak, how it impacted your company, and how your organization dealt with it. I am speaking to various major private sector companies to understand their role in controlling the outbreak and your organization is one of the organizations selected based on our snowball sampling approach.

### IMPACT OF THE OUTBREAK

1. Non-specific beginner's questions
2. About company
3. What was it like on the ground in the last year. What kind of primary challenges did your group of companies face due to the outbreak?
4. How did the outbreak impact your operations?
5. How did the outbreak impact your sales?
6. Did the demand of any product change significantly during the outbreak?
7. Did any of your products experience supply shortage during the outbreak?
8. How did the Ebola outbreak cost the company overall?
9. What kind of impact did you see on your company's investments due to the outbreak?
10. How did you manage logistics with your suppliers and partners? Did anything need to adapt?
11. Were partnerships with other companies (both in West Africa and foreign) affected/strained during the outbreak?
12. How did the outbreak impact your company's stocks?

13. How did the Ebola outbreak impact the company's staffing?

14. How did the outbreak affect staff absences or sick leaves?

Probe: Employees, Expats, Hiring, Salaries, Absences, Why? Fear?

*Probe:* Do you have any interesting anecdotes or stories you can share?

#### ROLE IN EBOLA CONTROL

15. Could you describe to me the measures your company took to prevent Ebola spread in your work force?

16. Did the company have any pandemic preparedness plan in place before (and after) the outbreak?

- Who created it?

17. What policy directives did you have in the company during the outbreak?

Pictures or copies of any posters, protocols, directives

18. How was the company involved in control of the Ebola outbreak in Nigeria?

Probe: Services, Local Capacity, Advocacy, Policy, Pecuniary/financial, Ambulances

19. Were there any free calls / texting to spread awareness?

Probe: Amount, any documents

20. How was the company involved in control of the Ebola outbreak in Nigeria?

- How much in-kind donation was made?

- How much money was donated? I would be grateful for a quantified number.

- Do you know how the money you donated was used?

- How did you track the money donated?

21. Were any of the company staff involved as volunteers? Describe

22. What were the measures your company took to control the spread of the disease outside Nigeria?

23. How is your company involved in recovery efforts in West Africa?

#### REASONS FOR CSR

24. How does your company decide on what CSR projects to get involved with in a country/Nigeria?

25. How does your company decide on which partners to work with?

26. What were the main reasons for the company in being involved in the Ebola response?

- Did you have pressure from the stakeholders, western corporations, or shareholders to respond to the outbreak in any way?
- Did you know any one among family, friends, clients, customers, suppliers who were affected by the Ebola Outbreak? Probe: Stories or anecdotes. How much was that a factor in your response?

27. How much of a role did risk risk mitigation play in your response?

Elaborate

28. How do you think did your role in response to Ebola impact your company?

29. How did your company's participation in Ebola response impact your company's brand perception/reputation?

30. How did the company's involvement impact your company's consumer retention?

31. Did you notice an increased recruitment or retention or hiring after the outbreak?

32. How did your involvement and Nigeria being Ebola free impact your stocks?

33. Do you think because of your involvement in Ebola response, the community would look at you more favorably?

#### GOVT COLLABORATION

34. Who did the company deal with in the government during the response?
35. What was your experience?
36. How did your involvement impact your relations with the government? *Value addition*
37. What are the benefits for the private sector in getting involved in outbreak response?
38. What were the challenges you faced in coordinating with the government?
39. Recommendations on how governments can engage more effectively with private sector in event of similar outbreaks?

#### ENDING QUESTIONS

40. What lessons did the company learn from the Outbreak?
41. Are any lessons learned from the West African crisis being transmitted to other foreign offices around the world (and across Africa), and are they being implemented? In other words, are the lessons from the Ebola outbreak being absorbed company-wide.
42. What according to you were the main factors why Nigeria was able to control the Ebola outbreak promptly?
43. What are the challenges they would still face in the event of a future outbreak?
44. Do you have any recommendations on how Governments can control an outbreak even more effectively?
45. Is there anything that I forgot to ask you about that I should have asked about this topic?
46. How can private sector participate in recovery efforts?
47. Do you have any questions for me?

# Appendix B- Survey instrument

## Consumer Survey: Perceptions of Ebola response

DUKE UNIVERSITY, USA

Thank you for filling this survey. To win a free GIFT VOUCHER worth 2000 Naira (redeemable at any store in Palms Mall in Lagos), please enter your name and email address below.

The winners shall be notified by email/phone on 20th August 2015.

Name

Email address or contact detail

Q1 What is your gender?

- Male
- Female

Q2 What is your age?

- 18-24 year old
- 25- 39 year old
- 40-60 year old
- Over 60 year old

Q3 What is the highest level of education you have completed?

- No schooling
- Primary School
- Secondary School
- Diploma/Trade/Vocational training
- Undergraduate Degree
- Master's Degree
- Doctoral degree or Ph.D.

Q6 If your preferred hospital had an Ebola patient, would you go there to seek care AFTER the hospital has been decontaminated and declared Ebola free?

- Yes
- Maybe
- No

Q9 Would you fly with an airline to another country in West Africa if that airline also flew to Sierra Leone, Guinea, and Liberia?

- Yes
- No

Q10 According to you, companies from the following sectors played an important role in Nigeria's Ebola response (please grade the sectors listed below):

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Phone companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Banks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oil Companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hospitals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pharmaceutical companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sanitizer manufacturing companies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Airlines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social Media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hotels & Malls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4 During the outbreak, did you buy the following products more or less than usual?

	More	The Same	Less
Sanitizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soaps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kola nuts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restaurant food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beverages (Eg. soft drinks or beer)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bakery products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Antibiotics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cleaning agents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile airtime or Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuel or Petrol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Malaria medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medicines for fever	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 Please write down the name of any other products that you bought more than usual during or after the Ebola outbreak, that is not there in the list above

\_\_\_\_\_

Q6 Please write down the names of any other things or products that you stopped buying or bought less than usual during or after Ebola outbreak, that is not there in the list above

\_\_\_\_\_

Q7 If your preferred hospital had an Ebola patient, would you go there to seek care?

- Yes
- No

Q11 How did Ebola outbreak impact your day to day activities? Did you go to the following places more or less than usual?

	Much More	More	The Same	Less	Much Less
Hospitals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supermarkets or Malls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cinema	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Travel outside Lagos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restaurants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Banks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Church or Mosque	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 How did you get your information on Ebola (Tick all that apply):

- Government sources
- NGOs
- Phone company texts
- From friends
- Radio hosts
- Social media
- Television

**Q13 I will buy services from a hotel/restaurant/hospital/bank/airline if they:**

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Take visible measures to prevent staff and customers from Ebola (Eg, gloves, temperature checks)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Controlled costs to maintain price control during outbreak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help spread and share accurate information on Ebola	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helped government in outbreak control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Act as if Ebola did not exist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q14 How do you think companies can help control an outbreak like Ebola:**

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Offer medical help to employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Donate money to the government to help in outbreak control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Donate equipment, products, and protective equipment to the government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Raise awareness about the disease by spreading accurate information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sponsor outbreak control with proceeds from consumer purchase	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q15 How do you think a company's response in outbreak control (for a disease like Ebola) will have an affect on you:**

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I will buy products from a company if I know that a part of my money is going to fight Ebola in times of an outbreak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more comfortable going to a store if I know they sanitize their hands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will buy products that come with information on disease and how to prevent it (during an outbreak like Ebola)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q16 My purchase behavior is influenced by**

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Variety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Company's reputation as a responsible company that cares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand name	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix C- List of interview participants

S.No.	SECTOR	SEX	
1	Public	M	Federal Ministry Advisor
2	Public	M	Lagos State
3	Public	F	Multi-lateral
4	Public	M	EEOC
5	OnG	M	Head Corporate Communications
6	OnG	M	Federal focal point for Oil & Gas
7	OnG	F	GM, External Affairs & Communication
8	OnG	M	CSR Team Lead
9	OnG	M	Head, Corporate Communications
10	OnG	M	Focal Point for Oil & Gas
11	OnG	M	Sr Executive
12	OnG	M	Public & Government Affairs
13	OnG	M	Group Medical Director
14	OnG	M	Health Advisor SSA
15	OnG	M	Corporate Medical Services- Medical Officer
16	OnG	M	Corporate Affairs
17	OnG	M	Occupational Physician
18	Pharma/FMCG	M	Business Development Executive
19	Pharma/FMCG	M	National Sales Manager
20	Pharma	M	Sales Manager
21	Pharma	F	Business Coordinator
22	FMCG	M	Public Affairs & Communication
23	FMCG	F	Employee
24	FMCG	F	Project Manager & Assets
25	FMCG	M	Head, Compensations & Benefits
26	Pharma	M	MD
27	Hospital	M	Medical Director
28	Hospital	F	Head, Quality & Risk Management
29	Hospital	M	GM & Business Dvpt Director
30	Hospital	F	Head Matron
31	Hospital	F	Asst. Medical Director
32	Hospital	F	Lab Tech Head
33	Hospital	F	Pharmacist
34	Hospital	F	Head Matron
35	Hospital	F	Medical Officer
36	Hospital	F	Medical Officer
37	Hospital	F	Head Matron
38	Hospital	M	Medical Director



S.No.	SECTOR	SEX	
39	Hospital	M	Security Guard
40	Hotel	F	Front Officer Manager
41	Hotel	F	Sales/ PR Manager
42	Hotel	M	Front Office Manager
43	Retailer	M	Senior Executive
44	Retailer	M	Operations Manager
45	Retailer	M	Manager
46	Hotel	M	MD
47	Bank	M	Corporate Communication
48	Bank	M	GM
49	Bank	F	Assistant Manager
50	Bank	F	CSR
51	Bank	F	Manager, PBB Operational Risk
52	Bank	M	Chief Executive
53	Bank	F	Head Risk, Nigeria & W. Africa
54	Bank	F	Business Manager
55	Bank	M	Directorate Head, Lagos & West Bank
56	Telecom	M	GM Corporate Affairs
57	Telecom	M	Corporate Services Executive of MTN Nigeria
58	Telecom	M	GM, HR Division
59	Telecom	F	CSR Manager
60	Telecom	M	VP, Regulatory & Corporate Affairs
61	Telecom	F	Head: Talent Management
62	Telecom	M	Business Executive
63	Telecom	M	Director
64	Aviation	M	GM Nigeria
65	Aviation	F	Ground Staff Manager
66	Aviation	F	Country Manager
67	Aviation	M	Airport Supervisor
68	Aviation	M	GM West Africa
69	Foundation	F	CEO, Dangote Foundation
70	Foundation	M	Chief Strategy Officer
71	Foundation	F	Associate Director, Policy & Advocacy
72	Foundation	F	MD
73	Foundation	M	Founder
74	Foundation	F	Deputy Chairman
75	Foundation	F	Corporate Communications Head
76	Foundation	F	CSR
77	Telecom/Social Media	M	CEO
78	Foundation	M	CEO

## **Appendix D - Codebook**

Dedoose Codes Export for Project: FINAL MEMOS

### **Misinformation**

Lethal

Highly contagious

Salt

Holywater

Spreads by touch

Spreads by air

Lack of understanding of science

### **Socio-behavioral impact**

Stigma

HCWs

Survivors

City/Nigeria

Hospital with Ebola patient

Panic

Institutional mistrust

Purchased less

Suya

Pork

Baked goods

Medical devices

Prescription drugs

Purchased more

Water

Antibiotics

Sanitizers

Soaps/Sanitizer alternatives

Disinfectants

High risk behavior

Fear

Fear of patients

Fear of HCWs and hospitals

Anyone could be infected

Reducing physical contact

Ebola handshake

School closure

Avoiding crowded areas

Malls

Restaurants

Public transport

Increased hygiene

Mistrust of people

Fearonomic Effect

High demand

Increase in price

### **Financial Impact**

Loss of revenue

Bank run

credit failure

Loss of sales

Increase in sales

Business growth affected

Investments affected

Job loss

Costs of disruptions

cancelled meetings/conferences

wages in quarantine

lost expertise

Loss of market share

Cost of trauma

High price commodities

Fraud increase

Informal economy affected

Lending affected banks

### **Business Continuity Impact**

Staff morale

Absenteeism

Abandoned jobs

Pay reduction

Discouraged

Motivated

Logistics

Operational

Delays

Cancelled meetings

Restricted movement

Lost expertise

Lending affected businesses

### **Health Impact**

Self medication

Low health seeking behavior

Health system

Capacity

Reduced use of services

Collateral damage

High referral to isolation facility

Patients scared to go to hospital

Staff scared of febrile patients

Other disease outcomes affected

Knowledge gap

Novel disease

Experience with Ebola

Office in other Ebola countries

Company size

Large

medium

Small

Conglomerate

Rationale

Incentives

Brand equity

Risk mitigation

Good will equity

Host community relations

Good corporate citizen

Already had CSR budget

Patriotism

Customer acquisition

Opportunity to grow

Concerns

Weak as weakest link

Impact on Bottom-line

Human capital safety

Security

Ebola didn't discriminate

No drugs/vaccine

Investor confidence

Business/Operational continuity

Impact on other markets

PPP Peer & Political Pressure

Policy change advocacy

## **Role**

### **Preparation**

Infrastructural development

R & D

Capacity building

Contingency plan



Risk planning

Advocacy coalition/alliance

## **Response**

Law implementation (FCMC)

In cash

In kind

PPE

Furniture/Office supplies

Airtime

Technology/IT tools

Operational support

Supply chain

Procurement

Communication

Internal response

Crossfunctional crisis management team

Governance structure

Screening/sentinal role

Coordinating as one/focal contact

Volunteer mobilization

Resource mobilization

Accountability

Enhanced due diligence

### **Recovery**

Business continuity

Detection & Surveillance

Surveillance

Data monitoring

Forecasting

Contact tracing

Knowledge transfer

knowledge curation & relay

between companies

pvt to public sector

Filling gap in service delivery

Pressure

Exerting klout/power

Resisting klout/pressure

Peer pressure for plans

### **Challenges**

Management of finances

Corruption

Unhealthy competition between govts

Misinformation

Lack of training

PPE procurement

Collaboration

Infrastructural

Aversion behavior

### **Recommendations**

Leadership

### **Reasons for Nigeria's success**

Social media

Communication

Contact tracing

Focal point of contact

EEOC

Will power

Coordination

## Appendix E- Informed Consent

### INFORMED CONSENT FOR PARTICIPATION IN DUKE UNIVERSITY RESEARCH

**Title of Research:** Evaluating the Role of Private Sector in The Control of Ebola Outbreak in Nigeria in 2014

**Investigator:** Dr. Sulzhan Bali, Duke University (USA) Student in Global Health

Before agreeing to participate in this research project, please read the following background information, which includes details of the purpose of the research and methods that will be followed. Note that you have the right to withdraw from the study at any time and that all engagement will be anonymised.

#### **Background and Procedure**

You are being asked to participate in a research project that aims to understand the role of Private Sector in controlling Ebola Outbreak in 2014. This project is being conducted under the mentorship of Dr. Muhammad Ali Pate- visiting faculty at Duke University and former Nigerian Minister of State for Health.

#### **Methodology**

You have been invited to an in-depth interview where you will be asked various questions to understand the impact of Ebola outbreak on your organization and understand how your organization coped with the challenges posed by the outbreak. During this interview, the researcher will facilitate a discussion about the Ebola outbreak and the measures put in place from your organization to control the outbreak. This interview would require approximately 30-45 minutes of your time.

#### **Risks and Discomforts**

The risk of physical or psychological risk is minimal. Measures will be taken by the researcher to ensure that the interviewee experiences no discomfort resulting from the research study methods.

#### **Benefits**

This research would help guide governments on how to effectively engage with private sector in a pandemic and guide policy decisions. Research from this project would also serve as a guide for the private sector on how to effectively support government in disease containment efforts, to improve global health security, and to mitigate economic impact of pandemics in the future. The findings from this project would also help the organizations interviewed in informing their strategy in times of emergency. Themes identified from the qualitative component will be confirmed with analytics and/or surveys. The report of the finding would be shared with all participant of the study.

#### **Confidentiality**

All information gathered from the study will be used solely for the purposes of this research project. Your identity will be kept anonymous. Any references to your identity that would compromise your anonymity will be removed or disguised prior to the preparation of any research reports.

**Withdrawal Without Prejudice**

Participation in this research study is voluntary; refusal to participate will involve no penalty. Each participant is free to withdraw consent and discontinue participation in this research study at any time without prejudice from this institution.

**Agreement**

This agreement states that you have read and agreed to this informed consent. Your signature below indicates that you agree to participate in this research study.

**Questions**

Please address any queries or questions to:

Sulzhan Bali, Ph.D.  
Master's Candidate for Global Health at Duke University  
Email: [Sulzhan.bali@duke.edu](mailto:Sulzhan.bali@duke.edu)  
Telephone: +234-909-175-0094 (NG), +1-919-904-5557 (US)

\_\_\_\_\_  
Signature of Participant

Date

\_\_\_\_\_  
Printed Name of Participant

*Sulzhan*  
\_\_\_\_\_  
Signature of Investigator

Date

Sulzhan Bali  
\_\_\_\_\_  
Printed Name of Investigator



**Figure 25: A worker looks wistfully at the Ebola quarantine tents that were erected in preparation of the Ebola epidemic. Infectious Disease Hospital (IDH) in Mainland Lagos was the HIV, MDR-TB & XDR-TB treatment facility that was converted into the Ebola quarantine center in Lagos. One of the doctors who got infected from Ebola in Nigeria had initially described the facility as “unfit for an Ebola quarantine unit”. Despite its run-down condition, Lagos State Government revamped the facility into a quarantine facility with cooperation from international agencies & private sector. These tents were never used as the Ebola outbreak waned after infecting 21 people. Nigeria became Ebola free in October 2014. No infection transmission of Ebola happened at the centre. Yet, one can see the running poultry & broken toilet on ground in in the vicinity of Ebola quarantine center serving a grim reminder of Nigeria’s close shave with a full-blown outbreak of Ebola.**

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