

PIRATE ECONOMICS:
THE ECONOMIC CAUSES AND CONSEQUENCES OF CONTEMPORARY MARITIME PIRACY
IN SUB-SAHARAN AFRICA

by

Jamie Charlebois

Submitted in partial fulfilment of the requirements
for the degree of Master of Development Economics

at

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DALHOUSIE UNIVERSITY

DEPARTMENT OF ECONOMICS

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DEDICATION PAGE

To my loving wife Sarah. This thesis was made possible because of your unconditional love and support. I am eternally grateful to have such a special soul enrich every day of my life.

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ABSTRACT

The past 20 years have witnessed a resurgence of maritime piracy, especially along the East and West coasts of Africa. Much scholarly research has been undertaken on this issue; however a consensus on the primary economic causes of piracy does not exist. This thesis seeks to identify the primary economic causes and consequences of maritime piracy in Somalia and Nigeria specifically, and coastal sub-Saharan Africa more generally. It investigates whether variables such as a lack of employment opportunities, particularly in the fisheries sector, are a causal factor of maritime piracy. These potential causal factors are explored using both case studies and regression analyses. Net exports of fish are found to be a statistically significant predictor of the frequency of piracy, suggesting that a decrease in national fish production and employment in the fisheries sector results in an increase in the occurrence of piracy.

LIST OF ABBREVIATIONS USED

AFRICOM	United States Africa Command
DMPP	Dalhousie Maritime Piracy Project
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
IMB	International Maritime Bureau
IMO	International Maritime Organization
IUU	Illegal, Unreported, and Unregulated Fishing
MEND	Movement for the Emancipation of the Niger Delta
MNOCs	Multinational Oil Companies
TFG	Transitional Federal Government (Somalia)
UN	United Nations
UNEP	United Nations Environment Programme

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CHAPTER 1 INTRODUCTION: An Old Threat Breathes New Life

Figure 1: 2011 Incidents of Maritime Piracy



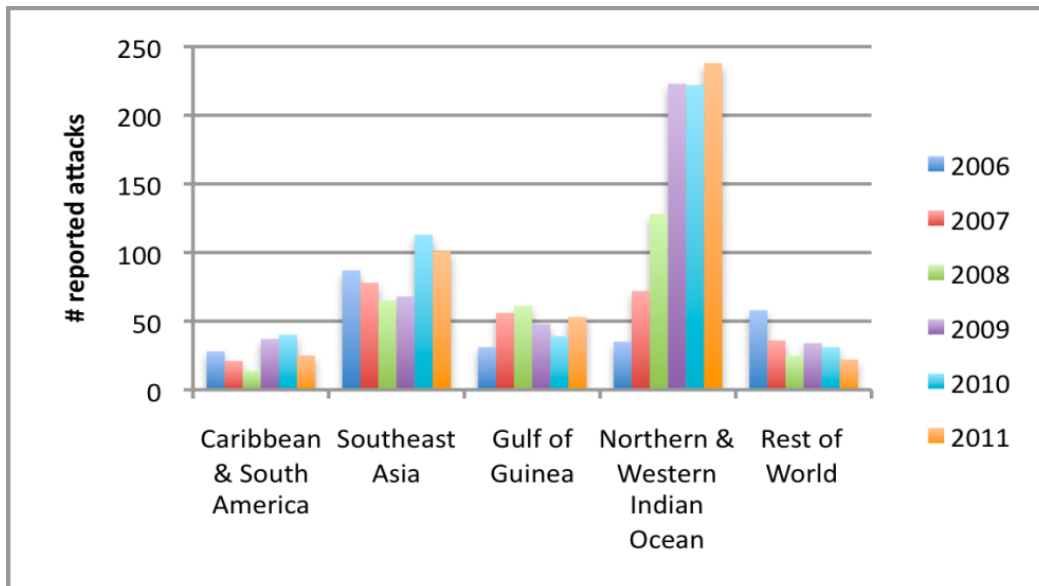
Source: Travelinsurance.org (2012)

Piracy has existed for as long as the oceans have been used in commerce. In fact, piracy appears in historical records since before the building of the Egyptian pyramids (Konstam, 2008). The presence and impacts of pirates have ebbed and flowed with the tides of history. At their peaks, pirates have left an indelible mark on the history books. Historians have blamed these sea raiders for the collapse of the Bronze Age cultures of the Mediterranean and for ushering in a 'Dark Age' in the ancient world (Konstam, 2008). Perhaps the most famous victim of piracy was none other than a young Julius Caesar who was captured by Cilician pirates in 75 BC (Plutarch in Konstam, 2008). At

their height, these same pirates threatened the very survival of the Roman Republic. More recently, in the 17th century, the Golden Age of Piracy in the Caribbean involved famous and colorful pirates such as Blackbeard and Captain Kidd who continue to fascinate many to this day.

Far from a relic of the past, piracy is an ongoing issue. In 2011, the International Maritime Bureau (IMB) Piracy Reporting Centre recorded 439 incidents of piracy and armed robbery (Figure 1): 45 vessels were hijacked, 176 boarded, 113 fired upon, and 105 vessels reported attempted attacks. A total of 802 crew members were taken hostage, ten kidnapped, and eight killed as a direct result of these incidents (IMB, 2012). The major hotspots of modern-day piracy are the Gulf of Aden (particularly off of Somalia), the South China Sea, the Caribbean, and the Gulf of Guinea (particularly off of the burgeoning hub of Nigeria); see Figure 2. The International Maritime Bureau defines piracy as “an act of boarding or attempting to board any ship with the intent to commit theft or any other crime and with the attempt to or capability to use force in the furtherance of that act” (IMB, 2012).

Figure 2: Piracy Incidents Worldwide 2006-2011 (IMB, 2012)



Previous research on the re-emergence of piracy has substantially increased our knowledge and understanding of this phenomenon. However, no consensus exists on the primary causes of maritime piracy. Some scholars cite the lack of governance as the main cause of piracy (Carafano et al., 2009) while others counter that state failure is not a statistically significant predictor of piracy (Coggins, 2010). Grievance over illegal fishing and the dumping of toxic waste are proposed as primary causes of piratical activity by some authors (Alpers, 2011). However, others suggest that piracy is a textbook case of a shift in the motives of an armed group from grievance to greed (Menkhaus K., 2009). Surprisingly, this economic crime has received very little attention from economists.¹ As such, there is no systematic evidence on the primary economic causes of piracy.

Yet, without such evidence, it appears unlikely that there will be a long-term solution to piracy. A poor understanding of the problem has also led to expensive and largely futile responses, such as sending navy ships from developed countries to the shores of Somalia in search of (elusive) pirates. A better understanding of economic causes of piracy may also shed light on the broader issue of how poverty leads to desperation and crime.

Maritime piracy poses a threat to economic development in sub-Saharan Africa. Much of the region is dependent on resource exports through a limited number of ports. The security risk posed by piracy to these ports and the surrounding waters could severely curtail development goals and leave millions living in poverty (Murphy M., 2011). In addition, more than 90 percent of world trade travels by sea, which is the quickest and least expensive method of transporting large cargo. Increased security and insurance costs that result from maritime piracy are passed on from shipping companies

¹ A few notable exceptions are: de Groot et al., 2011, Percy & Shortland, 2011, and Meijia, et al., 2009.

to consumers all around the world. This increases the cost of almost all commodities including essentials like food.

In poor countries such as Somalia and Nigeria, the lack of economic opportunities causes individuals to resort to criminal activity such as piracy out of desperation. If the basic premise of economics, that all individuals maximize their material well-being is correct, then, it is plausible that in the absence of legal options of employment, individuals may turn to illegal ones out of necessity and the human desire to survive. Poor countries offer limited job opportunities. However, not every poor country experiences piracy. So why does piracy occur in some countries but not others? This thesis argues that one key variable is the lack of legal employment opportunities coupled with the life-altering financial rewards from piracy, when several geographic and political conditions are present.

The recent resurgence of marine piracy off the coasts of poor countries like Somalia is but one manifestation of global poverty and inequality. Poverty can certainly make a person outraged and desperate, and a sense of injustice can be a good ground for rebellion – even bloody rebellion (Sen, 2011). Simply put, poverty breeds desperation and inequality breeds discontent.

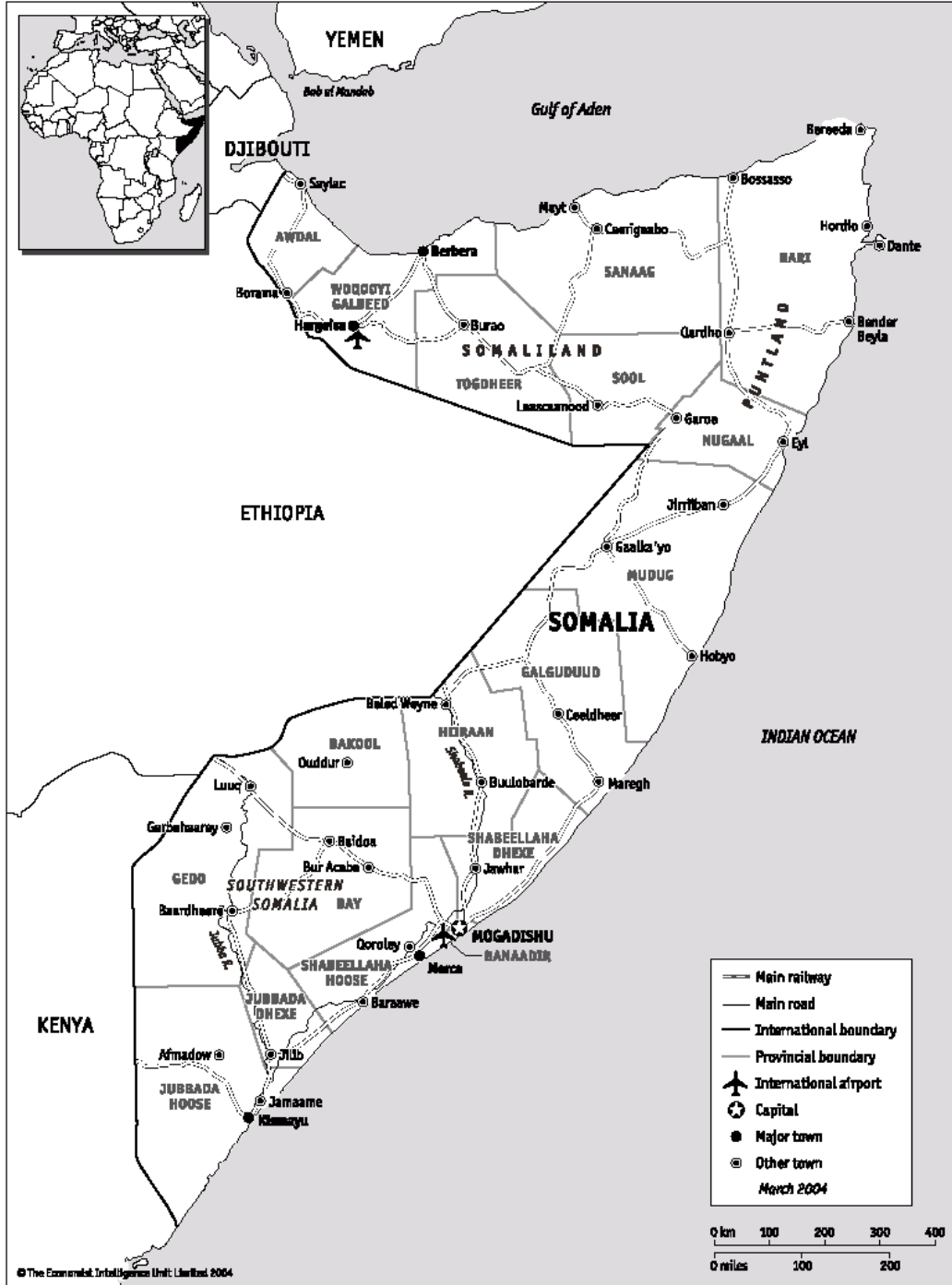
“When the future becomes hopeless and you have nothing to lose, why not take up arms? When resources are scarce, do the gains from fighting for control over these resources outweigh the risks of slow starvation? If economic trade-offs lie behind these problems, perhaps economics can help us find some answers” (Fisman & Miguel, 2009, p.116).

Years of illegal fishing have devastated Somalia's fish stocks. Impoverished former fishermen with little to no economic opportunities have watched as the global economy literally passes them by. It is no wonder that some have turned to piracy. Ali, a convicted pirate serving time in a cramped Somali jail summarizes this feeling of desperation: "We don't have a life. When you have a life, you taste the sweetness of life. So when you lose that life it makes you desperate to do anything you can – because life means nothing to you" (Zhivov, 2011).

This thesis seeks to identify the economic causes and consequences of modern day piracy in sub-Saharan Africa. It examines case studies of two of the most prominent hotspots for piracy in the world: Somalia in the Gulf of Aden and Nigeria in the Gulf of Guinea (Chapters 2 and 3, respectively). These case studies illuminate the economic determinants and impacts of piracy in addition to other interconnected issues. Chapter 4 analyzes the quantitative data on maritime piracy and some of its possible economic causes for the coastal countries of sub-Saharan Africa. Chapter 5 concludes by providing a summary of findings, and identifying new pathways for research.

CHAPTER 2 CASE STUDY 1: SOMALIA

Figure 3: Map of Somalia



Source: Bruyas (2006)

2.1 A BRIEF HISTORY OF SOMALI PIRACY

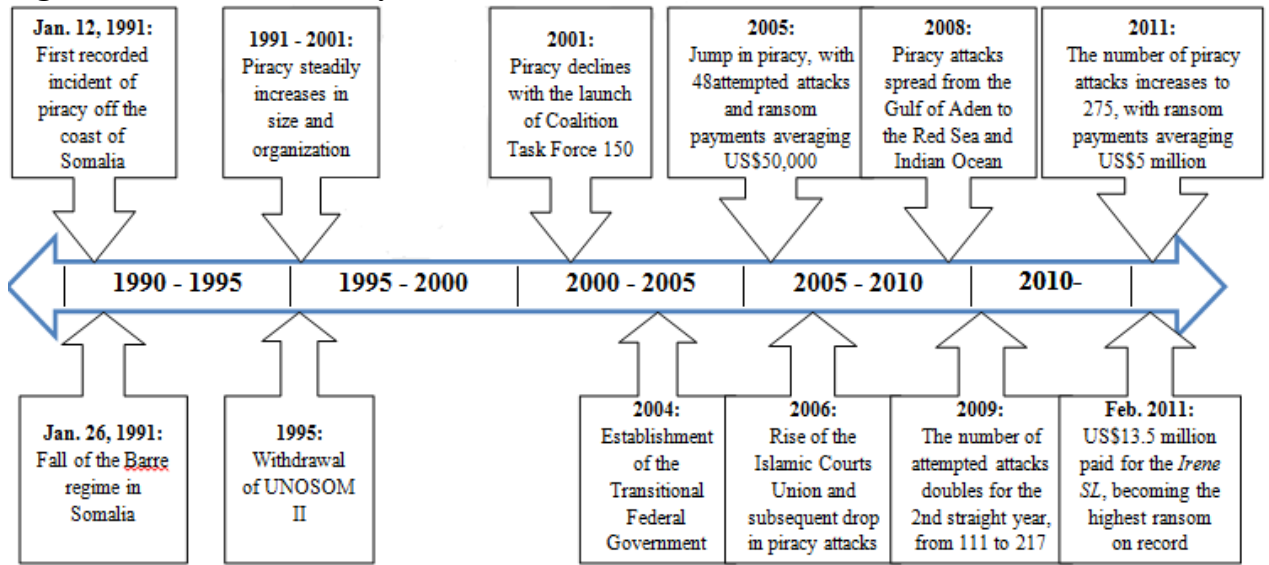
In January 1991 Somalia's dictator Mohamed Siad Barre was overthrown by rival domestic groups, resulting in the collapse of the Somali government and state. Since then, Somalia has experienced almost constant warfare as rival warlords have vied for power and control of the country (Weber, 2008). The separate opposition movements that destroyed the Barre regime were sectarian themselves and had no reconstruction programme (Sabala et al., 2008). The country (see Figure 3) now comprises the breakaway Republic of Somaliland to the north, the semi-autonomous Puntland to the northeast, and a rump state made up of regions in the centre and south (Sone, 2010). Both regional and international efforts have been made to help reconstitute the Somali state by working towards the institution of a functioning government in the capital city of Mogadishu. The Djibouti process that began in 2008 is the fifteenth attempt by the international community to re-establish the Somali state, but the resultant Transitional Federal Government (TFG) produced by the process has shown no signs that it can stop the violence and reunify Somalia's various clans under one rule (Cooke & Downie, 2010). For the past twenty years, Somalia has been the definition of a failed state.

The United Nations Office for the Coordination of Humanitarian Affairs estimates that approximately 3.5 million Somalis are in need of permanent aid and more than 1.2 million are internally displaced (Hesse, 2011). Twenty years of instability and conflict have forced many Somalis to flee their homeland. Those left behind are caught up in an unending cycle of violence, instability, and starvation (Nincic, 2009). Severe droughts over the years have forced many pastoralists living inland to migrate to coastal areas and

make the difficult transition from farming to fishing. Altogether, the situation makes for one of the worst humanitarian disasters on the planet. Assistance from the international community has been substantial over the years, but chaos within Somalia has greatly hampered relief efforts (Sone, 2010). United States and United Nations troops abandoned peacekeeping efforts in 1995 following the famous Black Hawk Down incident in which the bodies of 18 American soldiers were dragged through the streets and maimed (Little, 2003).

No other manifestation of the disorder resulting from the collapse of the Somali state has received as much attention as the continued proliferation of acts of maritime piracy off the coasts of the country, as well as the increased geographical reach and enhanced operational capabilities that the pirates have shown (Pham P. J., 2011). The incidences of Somali piracy remained relatively low and small scale until 2005. Despite a strong and increasing international naval presence, piracy off the Horn of Africa has been rising at the impressive annual rate of about 100 percent since 2006 (Sone, 2010). In 2011, the number of attacks and attempted hijackings attributed to Somali pirates was 237 (Oceans Beyond Piracy, 2012). That figure represents more than half of the 439 attacks and attempted hijackings that were reported in the entire world that year.

Figure 4: Timeline of Piracy in Somalia



Source: Whitman et al., (2012)

2.2 CAUSES

While maritime piracy is not an exclusively Somali phenomenon, Somali piracy in the Gulf of Aden accounts for the majority of pirate attacks worldwide. Therefore, Somalia presents an important case study to discuss and identify the causes of piracy worldwide. Piracy off the coast of Somalia began in the early 1990s, and is often thought to be correlated with the collapse of the Barre regime (Figure 4). In fact, the first recorded act of modern day piracy off of Somalia's coast occurred on January 12 1991 – two weeks before the fall of the old dictatorial regime (Pham P. J., 2011). Somali piracy is closely linked to Somali politics – or rather, the failure thereof. The collapse of the state acted as a trigger, creating an enabling environment for piracy. The primary economic causes of piracy off of Somalia are local fishermen's grievances against illegal fishing and the dumping of toxic waste by foreign vessels in the area, ideal geography, and the

economic incentives provided by this crime of opportunity in a region where very few exist.

Illegal Fishing and Toxic Waste

The collapse of the Somali state led to lawlessness not only on land, but also in its territorial waters. Whatever limited capability Somalia had in terms of a coast guard to monitor and protect their seas before 1991 was lost when the Barre regime fell. State collapse led to an exponential increase in the number of foreign poachers within Somali waters. Since the early 1990s, foreign fishing trawlers – including vessels from nearby Kenya, Saudi Arabia, and Yemen as well as those with far-off origins like France, Japan, North and South Korea, Spain, and Taiwan – aggressively moved into Somalia’s unguarded seas (Pham P. J., 2011). Thought to have started small and then rapidly increased, the number of illegal, unreported, and unregulated (IUU) vessels off the Somali coast was estimated to be 700 in 2005, with their total catch valued at around \$94 million per year² (Marine Resources Assessment Group, 2005). In addition to this huge loss of potential revenue (Figure 5), Somalia also suffered from IUU fishing through the depletion of its fish stocks and the degradation of its marine environment (UNEP, 2005).

Among both fishing and non-fishing communities, the level of frustration reached by watching helplessly as foreigners claimed Somalia’s national riches was extremely high (Sone, 2010). In the early 1990s, disgruntled Somali fishermen mobilized to defend their livelihoods against illegal fishing by foreign and unlicensed vessels. Some of the artisanal fishermen acquired weapons – readily available in lawless post-1991 Somalia – in order to deter illegal fishing vessels (Mwangura, 2010). The fishermen’s boat handling

² All monetary figures are measured in US Dollars, unless otherwise specified.

skills and knowledge of the sea were important assets to help intercept commercial vessels.³ Although these militia groups initially levied fines against the ships they managed to board, this practice quickly evolved into hijackings and piracy (Whitman et al., 2012). Since the emergence of these first self-defence groups, the pirate gangs off the coast of Somalia have grown in both the size and frequency of their patrols. Some scholars have attributed the increase in piracy to a change in motives from genuine grievance against IUU fishing vessels to greed-based organized crime targeting commercial shipping (Menkhaus, 2009; Pham, 2011). The transition is also a case of industry specialization from low-scale, low-reward attempts to highly organized and coordinated attacks.

Unauthorized fishing is not the only illegal activity taking place off of Somalia's shores that has served to outrage Somalis. Foreign companies are believed to be dumping toxic waste in Somali waters. The proper handling of toxic waste is very expensive and time consuming. Somalia is currently unable to monitor and protect its sea against the dumping of toxic waste. Though allegations of toxic waste dumping date back to the early 1990s (Johnson, 2009), after the 2004 tsunami the phenomenon gained international recognition and drew widespread condemnation, including from the UN (Abdullahi, 2008). People living on the coast complained of containers washed ashore by the tsunami waves whose contents caused previously unknown skin and lung infections (Sone, 2010; Eden, n.d). The UN Environment Program highlighted the increased danger that Somalis were exposed to from toxic industrial waste in the immediate aftermath of the tsunami

³ The names of these groups, including the Central Somalia Coast Guard, the National Volunteer Coast Guard, and the Somali Marines, reflect both their perceived identity and the political grievances from which they were formed (Gilpin, 2009). Many of these groups are still operational, including the National Volunteer Coast Guard and the Somali Marines, and are considered to be among the principal piracy networks operating in the area (Gilpin, 2009).

(Abdullahi, 2008). It is believed that the barrels of toxic waste had been buried just beneath the seabed and were jarred loose as a result of the tsunami.⁴ This has clearly contributed to the grievance motive among Somalis.

Ideal Geography

Geography is an essential condition required for the emergence of piracy. Naval analysts note that “piracy is sustainable in places that offer a combination of rewarding hunting grounds, acceptable levels of risk and proximate safe havens” (Murphy, 2009, 30). In this regard, Somalia is ideally situated as a country bordering one of the world’s busiest maritime trade routes. Somalia possesses the longest coastline of any African country (3025 kilometers) sitting next to 2.5 million square miles of water with heavy maritime traffic (US National Security Council, 2008). In addition, the narrow geography of the Gulf of Aden effectively funnels vessels towards Somalia. The waters off Somalia in the Gulf of Aden are thus very appealing to potential pirates:

The Gulf of Aden is the main trade route between Europe, the Middle East, and Asia, with approximately 16,000 ships navigating this area each year. The maritime industry off the Somali coast has grown over the years, and today, the Gulf of Aden serves as host to 12% of global maritime trade and 30% of the world’s crude oil shipments. Shippers have few alternatives to avoid this route, as the added cost of navigating around the Cape of Good Hope [South Africa] is quite substantial (Ross & Ben-David 2009, 58).

⁴ Documentary footage from Somalia graphically depicts rusting toxic waste containers and unsellable fish parts cast off from foreign fishing boats washed up on Somali beaches (Zhivov, 2011).

Crime of Opportunity

All of the geographical, social, and political factors favoring piracy would still not produce the large number of attacks if those involved did not find the activity highly rewarding. Given the lack of economic prospects resulting from the dire state of affairs in Somalia – including continued conflict, the lack of any functional government, and continued drought conditions that have wreaked havoc among pastoralists and sedentary farmers alike – it is easy to see how piracy would come to be an increasingly enticing economic option (Pham P. J., 2011).

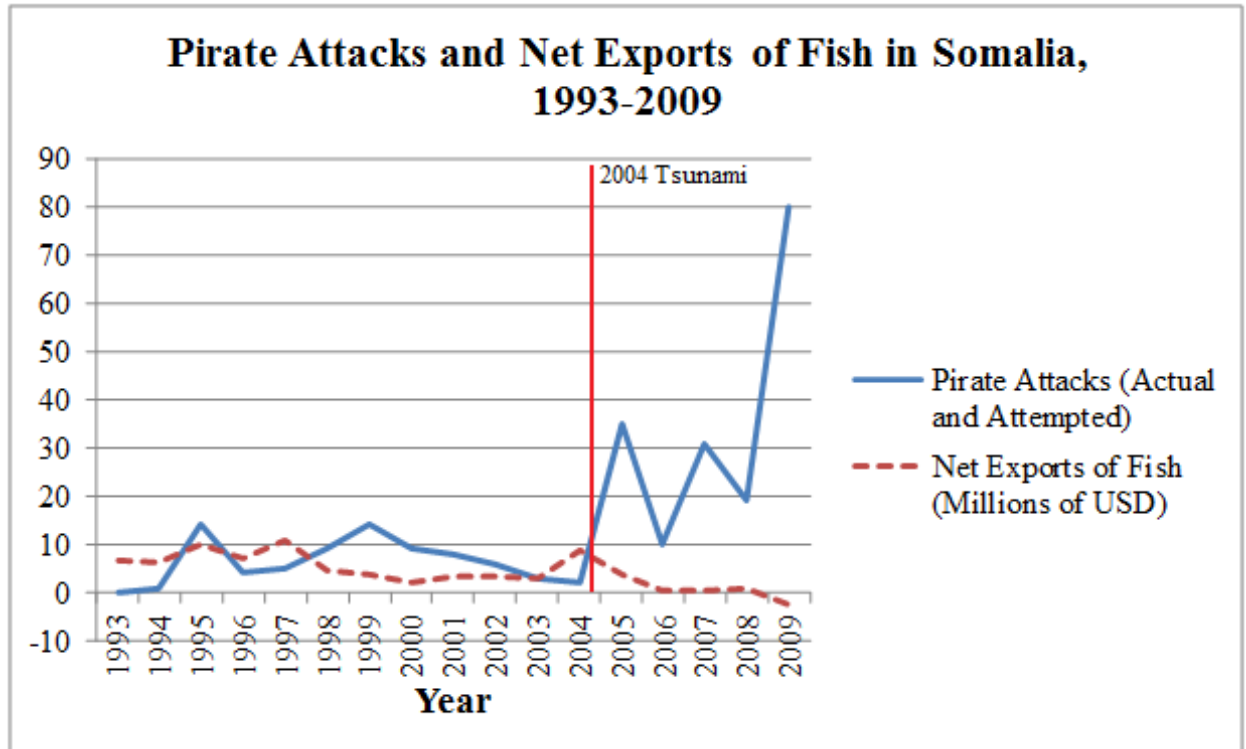
Thus piracy, and its promise of income at minimal risk of being caught or prosecuted, has become a popular choice for many Somalis. Just one successful hijacking with a \$1 million ransom payment could earn a pirate about \$10,000 – a sum that he is unlikely to earn from any other source (Geopolicy, 2011). In fact, in Somalia the opportunity cost of piracy is extremely low; a potential pirate can expect to earn 100 times more as a pirate than pursuing his next best option.⁵ This is especially the case for unemployed fishermen and ex-militia members (Whitman et al., 2012). As one analyst succinctly puts it: “If Somalia provides the perfect environment for piracy, it is the payment of massive ransoms that provides the motivation” (Middleton 2008, 5).

The relatively high income offered through piracy is especially attractive to Somali youth. With unemployment rates among this age group estimated at roughly two-thirds of the population, youth often look up to pirates as heroes (Lendon, 2011) and will gather in piracy towns in the hopes of being recruited (Maouche, 2011). These youth are

⁵ A report by Geopolicy estimates the total income of a Somali man over his working lifetime to be \$14,500, based on an average GDP per capita of \$500 per year. In contrast, the report estimates that the average pirate engaged in this activity for three to five years could earn between \$168,630 and \$394,000 during this period, or approximately \$33,726 to \$78,840 per year, depending on the value of the ransom paid (Whitman, et al., 2012).

always in plentiful supply; as one pirate from Somaliland commented, ““whenever 20 die, there are always 20 more to replace them”” (Knapw, 2011). Somali piracy is a crime of opportunity and there seems to be an unlimited supply of labour. It is an economically motivated activity pursued by rational actors (Geopolicy, 2011).

Figure 5



Source: IMB (2012) & FAO (2010)

2004 Indian Ocean Tsunami – A Perfect Storm

Ample motives and opportunities for piracy off the Somali coast have existed since the collapse of the state in 1991. The rapid increase in pirate attacks since 2005 can be explained by the confluence of causes mentioned above being catalyzed by the Indian Ocean tsunami that occurred in December 2004. Most of the damage caused by the tsunami affected Indonesia and neighboring countries, but its effects also afflicted far-off Somalia. Striking the eastern coast of Somalia, the tsunami caused devastation in

waterside towns such as Eyl (Sone, 2010). In addition to destroying fishing infrastructure, the tsunami caused dozens of submerged toxic waste canisters washed ashore, revealing the extent of illegal dumping in Somali waters (Bahadur, 2011).

The tsunami served as a catalyst for skyrocketing levels of piracy, providing an extra motive for and skilled labor to a process that was already underway (Figure 5). First, the tsunami waves that washed rusted containers ashore brought to the fore allegations of toxic waste dumping and increased Somalis' frustration with the international community (Sone, 2010). Second, by destroying fishing equipment and putting many fishermen out of work, the tsunami made skilled labor available for pre-existing pirate gangs (Sone, 2010). As years of violence and successive droughts eliminated most economic alternatives, fishing had increasingly become the most important part of many coastal families' coping strategies (Forced Migration Review, 2005). The devastating effects of the tsunami on Somali fishermen took away this last option. Some fisherman had already turned to piracy before the tsunami, but after the tsunami there were many more who were considering giving up their trade to embrace it (Hassan, 2009). Most of today's pirates tend to have a background in fisheries (Ross & Ben-David, 2009; Sone, 2010).

The fact that the fisheries sector never grew back to its pre-tsunami level reveals that there was little or no incentive for former fishermen to return to their trade.⁶ Mohammed Yusuf Ali is representative of those who switched from fishing to piracy and

⁶ Sone (2010, 70) points out that "in comparison, the Asian financial crisis in 1997 put many coastal inhabitants in Southeast Asia out of work, and young men with a background in the maritime trade industry or in fisheries soon found piracy to be a rational choice in the absence of alternative sources of revenue (Rosenberg, 2009). Piracy in the region skyrocketed, and until 2005 the waters within the Strait of Malacca were considered the most dangerous in the world. As Indonesia and other Southeast Asian countries recovered from the financial crisis there was a notable decrease in piracy in the region."

had little incentive to go back. Like many of his colleagues, this 33-year-old from Eyl lost his boat and fishing gear during the tsunami. To support his family, he sought recruitment in a pirate ring. Three years later, he was driving a brand new SUV and living in a mansion by the ocean (Dieterich, 2009).

Not only did the tsunami increase the labor supply of potential pirates and the number of attacks, it also coincided with an expansion of their range of operation. Before the tsunami, attacks by Somali pirates were confined to a 180 km radius from land. But after the tsunami, the range of attempted attacks quickly increased from 300 km in 2005 to 2,000 km in March 2010 (BBC, 2010). Ships have been attacked as far south as the Seychelles, as far east as the Maldives, and as far north as the coast of Oman, in the Arabian Sea (BBC, 2010). This expanded reach speaks to an increase in capacity and sophistication achieved by the pirates as a result of specialization.

2.3 CONSEQUENCES

Ransom Amounts – Economic Benefits to Pirates

The economic benefits to individuals involved in piracy are significant. Somalia lacks the onshore infrastructure needed to seize the cargo of captured vessels in order to offload and sell it on land (Percy & Shortland, 2011). As a result, Somali piracy predominantly involves hijacking for the purpose of ransoming the vessel and crew (Whitman, et al., 2012). Ransom amounts have increased steadily over time; from an average of \$1.1 million in 2008 to \$5 million in 2011 (Oceans Beyond Piracy, 2012). Somali Piracy has evolved into a systematic business model, comprising stake holders

from all facets of society. Pirate ransoms now represent the second largest source of revenue in the country, estimated around \$200 million per year, second only to remittances from the Somali diaspora (Middleton, 2011).

There are several different players invested in the success of the pirate attacks, from the financiers, sponsors, organized crime elements and corrupt Somali officials, to the small scale recruits who actually carry out the attacks (Whitman, et al., 2012). Each group involved receives a different percentage of the ransom. Attalah (2011) estimates the average breakdown of pirate ransoms as follows: 50% to funders and financiers, 30% to pirates, crews, and attack squads, and 10% each to security squads and village elders.

The various players involved all have an interest in the continuation of these attacks. The small-scale recruits have come to depend on the economic opportunities provided by piracy. The financiers and those higher up the chain are reluctant to give up this lucrative business. Several state officials, including Puntland President Faroole and Minister of the Interior, General Ilka Jir, have been implicated in abetting piracy networks in exchange for a share of the proceeds (McKenzie, 2008; Maouche, 2011). The Office of the Secretary-General of the UN has denounced the complicity of the Puntland administration in the continuation of piracy in the region (Maouche, 2011). Nevertheless, the inelasticity of demand for the proceeds gained from piracy coupled with limited economic alternatives ensures the continuation of the practice.

Economic Benefits to Local Communities

It is estimated that piracy in Somalia employs about 5,000 men and provides indirect benefits to many more (Kraska & Wilson, 2009). The communities that play host

to pirate groups benefit as the influx of cash transforms previously destitute communities into boomtowns. In places like Haradhere, Hobyo, and Eyl, piracy is the only employment in town; it is reported that the pirates construct and live in modern houses, drive new cars, and, thanks to generators, bring electricity to areas that have been in the dark for more than 20 years (Sone, 2010). Related businesses have also sprung up within these communities to meet the demand generated by the piratical activity; from food for their hostages to the narcotic, *khat*, that the pirates consume in great quantities, especially during their long deployments at sea (Associated Press, 2008).

However, the economic benefits of piracy to broader communities are in dispute. Some reports suggest that the increased spending power of those engaged in piracy has led to inflation in the prices of basic goods, harming those not involved in the activity.

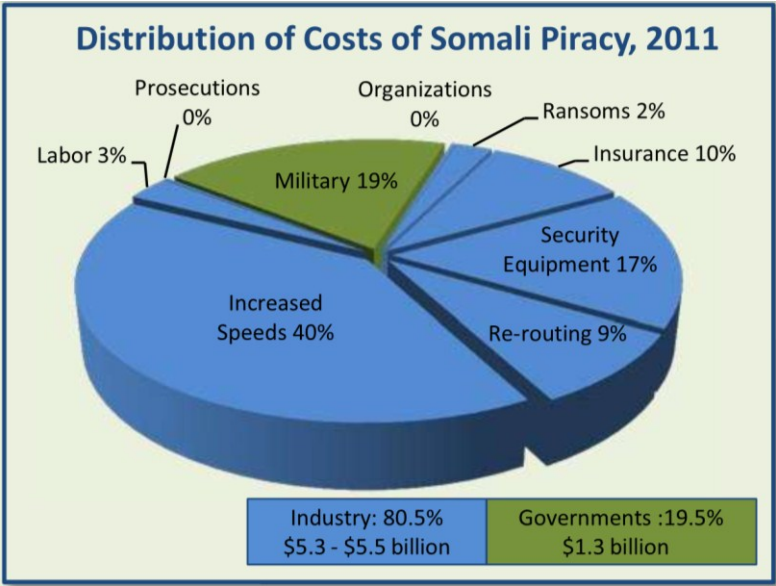
“A report by Oceans Beyond Piracy suggests that the rise of local pirate economies has also been accompanied by considerable inflation in the prices of basic goods, petrol, and housing; although they acknowledge that it is difficult to disaggregate the specific impact of piracy from Somalia’s other afflictions (Oceans Beyond Piracy, 2012). In contrast, a study by Chatham House shows that the rice prices in regional markets in Somalia have, if anything, fallen as a result of piracy (Shortland 2012, 7). This report instead suggests that the benefits of piracy have been mostly felt in provincial capitals and other urban centres, where the sponsors of these attacks are believed to be located, as opposed to the coastal communities complicit in these activities (Shortland, 2012, p. 13-15). Using satellite imagery to track the developmental growth of different communities, it

suggests that piracy-related investment in urban centres “is on a completely different scale from that in the coastal areas” (Shortland in Whitman, et al., 2012)”.

Global Economic Impact

The annual global impact of Somali piracy is estimated to anywhere between \$500 million (Mikhail, 2011) and \$7 billion (Oceans Beyond Piracy, 2012). These estimates are based on ransom payments, insurance, deterrence, re-routing, and prosecutions and imprisonment. Approximately 80 percent of these costs have been borne by the shipping industry, 20 percent by foreign governments, and less than 1 percent by civil society (Figure 6).

Figure 6



Source: Oceans Beyond Piracy (2012)

A lucrative insurance industry has sprung up as a result of Somali piracy. The industry has played into the pirate’s business model by offering increasingly higher ransom payouts in exchange for captured vessels and crew (Whitman et al., 2012). Given

the low risk of attack compared to the potential gains from insurance premiums, some analysts argue that for these brokers it is “not in their interest for piracy to stop altogether” (Percy & Shortland, 2011, 27). In fact, insurance companies are actually making more money off of piracy in Somalia than the pirates themselves, around 5 times more.

While this thesis is primarily concerned with the economic causes and consequences of piracy, the most tragic impact of piracy is the human cost. 2011 saw an increase in seafarer deaths, as well as new developments where pirate gangs were accused of kidnapping tourists and humanitarian workers on land in Somalia and Kenya (Oceans Beyond Piracy, 2012). Even those that do survive terrifying hostage experiences experience lasting physical and mental health issues such as post-traumatic stress disorder. On top of this are the negative human impacts on Somali communities resulting from the increased availability of guns and increased levels of crime.

Responses to Piracy

The responses to the increasing problem of piracy off of Somalia by the international community have been mainly military, i.e. naval, and a push for stability within Somalia through a strong central government (Menkhaus K., 2009). The large amounts of financial, material, and diplomatic resources being thrown at the problem are indicative of the attention piracy in the Horn of Africa is receiving from the international community (Sone, 2010). There have been five UN Security Council Resolutions on piracy; there are more than 6,000 foreign troops in Mogadishu with an international mandate to support the TFG; and at any given time, there are at least 15 warships

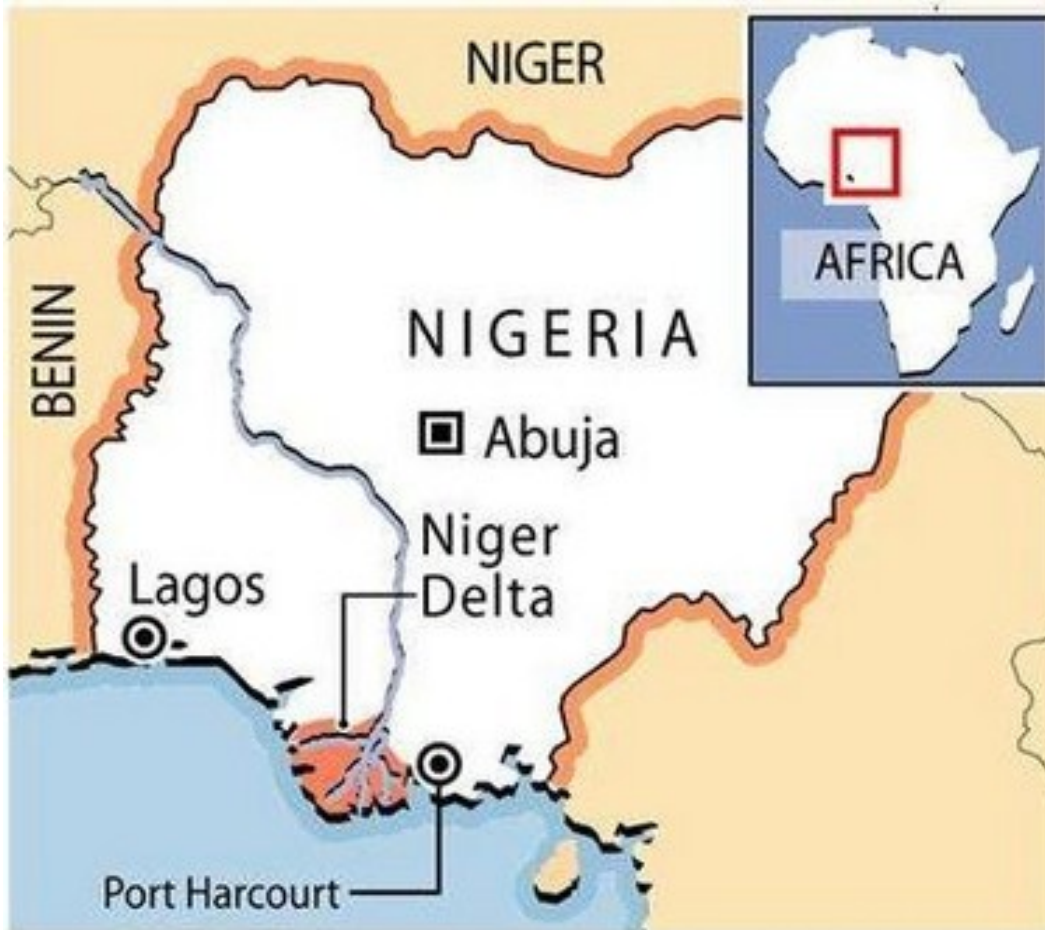
patrolling off the Somali coast (Ross & Ben-David, 2009). The pirates have galvanized the international community into an unprecedented collaborative effort among various countries including Russia, China, India, the U.S. and members of the European Union (Ross & Ben-David, 2009).

The Joint War Committee has declared an area covering the Indian Ocean, the Gulf of Aden, the Red Sea, and the Gulf of Oman a war risk zone, such that vessels transiting this region are now required to pay war risk premiums (Oceans Beyond Piracy, 2012). The international navies concentrate their efforts in this area but have achieved only limited success. It is difficult to predict how long the international community will be able or willing to sustain a strong naval presence in the area at the current collective cost of about \$3 million a day (Sone, 2010).

Much to the dismay of those involved in naval counter piracy operations, the pirates have shown a great capacity to adapt to their changing environment. In response to the increased naval presence in the war risk zone, pirates have expanded their reach eastward towards India, and northeast towards the Gulf of Oman and Strait of Hormuz (Ploch et al., 2009). The risks are still too low, and the profit too high for the pirates to opt out unilaterally (Hansen S. J., 2009). Though it is currently primarily an enterprise for profit, Somali piracy has the potential to fuel local wars, increase regional instability, and be exploited by international terrorist groups in order to inflict a bigger blow to the global economy (Middleton, 2008).

CHAPTER 3 CASE STUDY 2: NIGERIA

Figure 7: Map of Nigeria



Source: (Oyibos Online, 2012)

3.1 A BRIEF HISTORY OF NIGERIAN PIRACY

Nigeria, the most populous country in Africa, has experienced a tumultuous history since gaining independence from Britain in 1960. The past 50 years have seen the country oscillate between military and democratic rule as various factions have vied

for the control of government. Also, there has been frequent conflict between the predominantly Islamic north and Christian south. Nigeria's colonizers established a state structure that benefited the rulers at the expense of the rest of the population. This system, by and large, remains in place today as corruption in all its various forms (bribery, theft, extortion, nepotism, and patronage) is still a major characteristic of contemporary Nigeria (Prinsloo, 2012). Most observers classify Nigeria as a weak state (Rotberg, 2002; Ikelegbe, 2005). However, the level of corruption and the willingness of the ruling People's Democratic Party to rig elections in its favor has continued to feed instability and resentment to the point where some suggest it might become a failed state (Murphy, 2011; Eberlein, 2006).

The Niger Delta, in particular, is a region rich in resentment. The Niger Delta is located in the south-eastern part of Nigeria, bordering the Gulf of Guinea in the Atlantic Ocean, and constitutes nine of the 36 states in Nigeria (Figure 7). It is home to approximately 30 million people. The vast riches of petroleum resources in the Niger Delta lie in stark contrast to the extremely high levels of poverty of those living in the area. The extraction of petroleum resources constitutes roughly 80% of federal government revenues, yet barely a fraction of this is reinvested in the area while extensive environmental damage from the oil industry threatens the lifestyles of the Niger Delta inhabitants (Ikelegbe, 2005). Corruption, theft, pollution, unemployment, and bad governance have created levels of frustration that have increasingly resulted in attacks on shipping and offshore petroleum activities (Nodland, 2010). Most people living in the Niger Delta have been stranded and left behind by decades of oil bonanza. Some of them

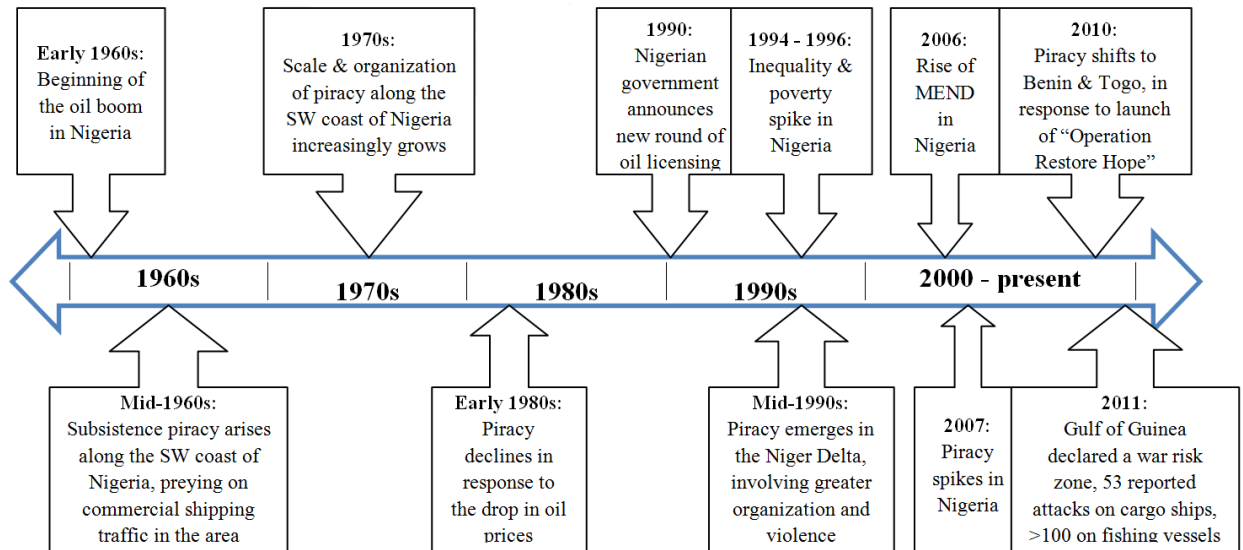
have turned to illegal activities such as piracy in the Gulf of Guinea to acquire a share of the spoils that they perceive to be rightfully theirs.

Nigeria had a serious piracy problem before piracy off Somalia erupted in the early 1990s (Chapter 2). As recently as 2003, there were more recorded cases of piracy in Nigerian waters than there were off Somalia (Murphy M., 2011). There have been two distinct phases of piracy in the Gulf of Guinea, and both originating off the coast of Nigeria (Figure 8). The first coincided with the oil boom in Nigeria in the 1960s, when small groups based out of Lagos, the country's biggest city and port, began to prey on the commercial shipping traffic carrying construction supplies to the region (Mbekeani & Ncube, 2011). Facilitated by poor monitoring and security, these attacks typically ranged from minor harassment and financial shakedowns to the theft of cargo and equipment (Mbekeani & Ncube, 2011; Nincic, 2009). Although the scale and organization of these attacks increased over time, their numbers declined through the 1980s in response to the drop in oil prices and the subsequent lack of targets (Whitman et al., 2012).

Piracy increased again in the mid-1990s following the government's latest round of oil licensing in 1990 (Vaughan, 2011). Originating from the oil rich but poverty stricken Niger Delta region, this second phase has been comprised of a higher level of organization and violence than seen in the first (Murphy M., 2011). Attacks have moved beyond small-scale robbery and now target the container ships and oil tankers in the region for the purposes of cargo theft and oil-bunkering (stealing oil from one ship and siphoning it to another) (Smith, 2011). The rate of these attacks has also steadily increased over time, with spikes in 1996, 2003 and 2007 (IMO, 2010). In addition, the

waters off Nigeria remain the deadliest in the world (Raidt & Smith, 2010), involving a level of violence not seen in the other regions where piracy is prevalent.⁷

Figure 8: Timeline of Piracy in Nigeria



Note: MEND stands for the Movement for the Emancipation of the Niger Delta.

Source: Whitman et al., (2012)

3.2 CAUSES

Piracy and maritime crime was generally dormant in Nigerian waters from the early 1980s until the mid-1990s (Figure 8). When it did return, four major differences from the first phase were apparent: the level of violence was worse, the locus had shifted from Lagos to the Niger Delta, an increasing percentage of the attacks escalated to either kidnap and ransom or sabotage, and criminal purposes had become interwoven with political motives (Murphy M., 2011). Links to corruption, organized crime, and political groups have provided the opportunity and market availability for organized piracy, such

⁷ In 2008, for example, according to oil industry sources, attacks off the coast of West Africa killed more than 70 crewmembers, compared to the 18 seafarers killed in Somalia that year (Edwards & Lee, 2011).

that this business model has been able to expand (Whitman et al., 2012). National deterrence efforts have been largely unsuccessful or have served simply to displace piracy to neighboring countries (Whitman et al., 2012). Piracy in Nigeria thus now poses a growing threat to regional stability in West Africa.

Piracy in Nigeria should be understood in the context of the broader conflict in the Niger Delta. Previous governments largely ignored the Niger Delta, partly because its geography made it relatively inaccessible, and partly because of a pattern of bad governance and corruption in Nigeria after years of military rule (Bekoe, 2005). A number of the Niger Delta's minority ethnic groups who feel they are being exploited by foreign oil corporations and the national government have formed militias. Due to the interconnectedness of piracy and the militias, it is inevitable that some factors that lead to the conflict in the Niger Delta also lead to maritime piracy in the region (Prinsloo, 2012). Piracy is often an instrument used by militias to further their political or personal agendas (Prinsloo, 2012). A relatively weak state and the Niger Delta conflict have created an enabling environment for piracy off of Nigeria's coast. The primary causes of piracy in Nigeria are the spillover effects from the conflict in the Niger Delta, grievances over both the environmental destruction caused by oil drilling in the area and illegal fishing, ideal geography, and the allure of lucrative ransom payments in a backdrop of extreme poverty.

Conflict in the Niger Delta

The colonial legacy of political dominance by the major ethnic groups endured in the post-independence era. While the southern states have become economically

prosperous in terms of providing government revenue, it is the northern states that have enjoyed the greatest political power, and attendant financial benefits, since independence (Prinsloo, 2012). Those who have held office are mainly from a few major ethnic groups and they have distributed government funds according to their respective ethnic ties⁸ (Prinsloo, 2012). This has meant that more than 140 minority groups which inhabit the Niger Delta have had very little control over the revenues that are generated in their territory (Asuni, 2009). Obi (2009) argues that an estimated 80% of the wealth generated by the petroleum industry in the Niger Delta only benefits 1% of the population. Moreover, it is estimated that more than \$380 billion dollars has either been stolen or wasted by Nigerian governments since 1960 (Courson, 2009). The legacy of corruption, coupled with the great riches brought by the oil industry has led to an apparent lack of political will by the People's Democratic Party to address the grievances of the populace, especially in the oil-rich Niger Delta. The people of the Niger Delta perceive this to be a great injustice and a source of grievance.

Most people across Nigeria have regarded successive national governments as corrupt⁹, but in the Delta, which has been effectively paying for this corruption, militant groups have emerged to forcibly take what they perceive to be rightfully theirs (Murphy M., 2011). A number of insurgent groups operating in the area have employed piracy as one means to achieve their political goals - namely fighting for a fairer distribution of

⁸ An example of where the northern states used their political power to their advantage is regarding the allocation of federal resources, often by withholding resources to Niger Delta communities. During the era that agriculture formed the most important sector of the economy, fiscal transfers favoured the northern states in which agriculture was prominent. However, since petroleum resources are considered a federal asset in Nigeria, the Niger Delta does not receive such fiscal transfers (Akpan & Ering, 2010).

⁹ Nigeria's score on The Corruption Perceptions Index is 2.4. A country's score indicates the perceived level of public sector corruption on a scale of 0 - 10, where 0 means that a country is perceived as highly corrupt and 10 means that a country is perceived as very clean (Transparency International, 2011).

Nigeria's vast oil wealth, and as a protest against the environmental damage caused by oil production in the Delta.¹⁰ The Movement for the Emancipation of the Niger Delta (MEND), in particular, is a key player in maritime piracy; its rise in 2006 coincided with a spike in piracy the following year¹¹ (Hansen & Steffen, 2011). Given their dissatisfaction with Nigeria's oil regime, these groups have engaged in kidnapping oil workers, attacking oil installations, and illegal bunkering to allow the group to make a political statement and to fund their ongoing insurgency (Hansen & Steffen, 2011). In one of their more daring attacks in 2008, MEND attacked Shell's primary offshore facility, the Bonga floating production and storage platform, successfully cutting Nigerian production by 220,000 barrels per day during the period it was shut down (Murphy M., 2011). Of course, not all those involved in piracy are politically motivated: there are political militias, criminals, and community activists (Nodland, 2010).

In addition to creating the resentment that is a key driver of piracy, government corruption has also aided and facilitated piratical activity in the Niger Delta. The rise of piracy in the region is largely attributed to corrupt government officials and their involvement with illegal oil bunkering starting in the early 1990s (Prinsloo, 2012). Bunkering is an expensive exercise that requires sophisticated equipment and the involvement of complicit port officials and oil company employees (United Nations Security Council, 2012). Large scale oil bunkering requires forged documents that list and acknowledge the transport and receipt of goods (bills of lading), thus requiring the

¹⁰ MEND seeks to resolve local grievances in the Niger Delta, demanding: the release of jailed militants, the demilitarization of the Delta, the payment of \$1.5 billion to compensate for the environmental degradation caused by the oil industry, and the transfer of control over local resources (Nodland, 2010).

¹¹ While MEND has emerged as the most effective militant group, it is not the only one. Others included the Niger Delta People's Volunteer Force (NDPVF), the Niger Delta Vigilantes (NDV), and various cult-based groups (Murphy M., 2011).

participation of officials who grant oil-lifting contracts (Raidt & Smith, 2010). This practice has also served to aid the militias in acquiring the experience necessary to operate in the maritime domain. Furthermore, government corruption has also enabled pirate groups to access markets for their illegal gains and offered a degree of political protection making it difficult to tackle this already complex problem (Whitman, et al., 2012). Certain leaders and high ranking officials have incentives to maintain the status quo given their significant personal financial stakes in continued oil theft (Raidt & Smith, 2010).

Environmental Degradation and Illegal Fishing

Due to the underdeveloped nature of the Niger Delta, the majority of its inhabitants are either fisherman or agriculturalists (Prinsloo, 2012). They benefit from the region's delicate ecosystem by harvesting medicinal herbs and bark, fish and shrimp, crabs and clams and collecting wood for energy and shelter (Afinotan & Ojakorotu, 2009). The oil extraction industry degrades the environment in various ways. Explosive mechanisms and chemicals which are harmful to the environment are used during the exploration of oil. The transportation of extracted oil often leads to oil spills due to old or sabotaged infrastructure (Prinsloo, 2012). The World Wildlife Fund has reported that up to 1.5 million tons of oil has been spilled in the Delta over the past fifty years - the equivalent of one Exxon Valdez spill per year (Nodland, 2010).¹² In addition, extensive networks of oil pipelines occupy great areas, denying locals access to agricultural land (Courson, 2009). Further damage is done by gas flaring that often leads to the occurrence

¹² The Exxon Valdez oil spill occurred in Alaska on March 24, 1989 when an oil tanker spilled approximately 500,000 barrels (80,000 m³) of crude oil into Prince William Sound (Bluemink, 2010).

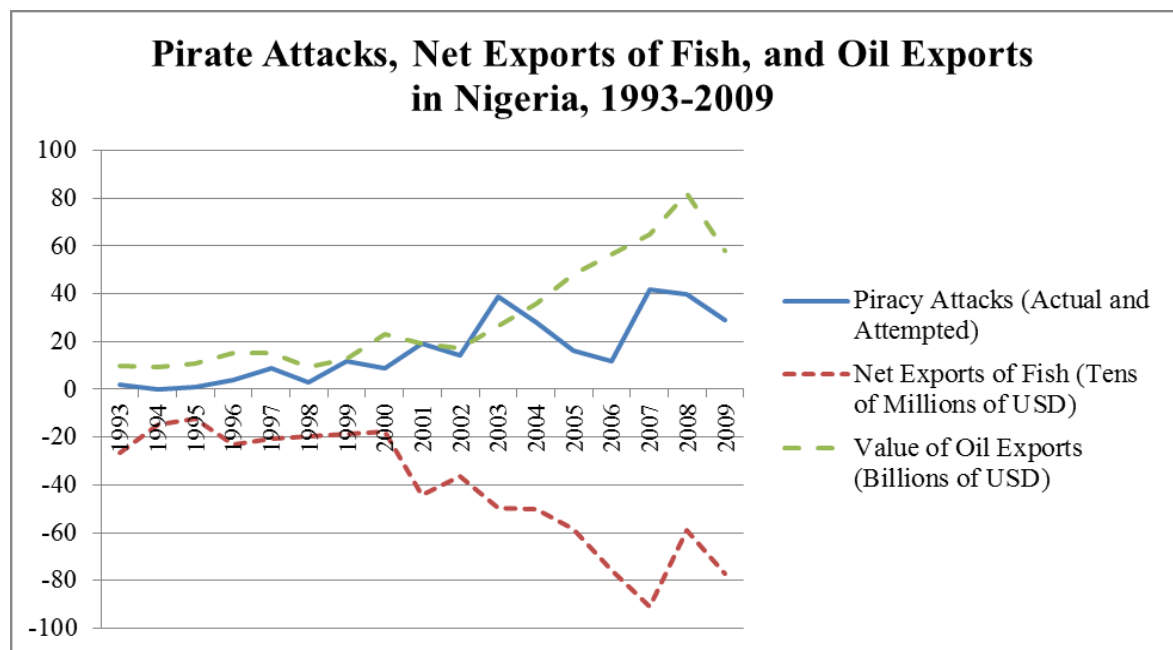
of acid rain, which damages the soil, as well as respiratory problems, especially among children (Courson, 2009; Nincic, 2009). Not only do militias use piracy as tools to further their ideology, but fishermen and farmers increasingly turn to piracy as a financial source due to the destruction of their lifestyles caused by these environmental disasters (Prinsloo, 2012).

In addition to the environmental degradation that endangers the livelihood of fishermen in the Niger Delta, illegal, unreported, and unregulated (IUU) fishing also poses a risk. Although this seems to be a less prominent source of grievance among local militias and pirates, illegal fishing is still a regular occurrence in the Niger Delta (Prinsloo, 2012). Vessels from Japan, Korea, Italy, Greece, Cameroon, and Togo have been reported fishing in Nigerian waters undeterred (Eyiwunmi, 2008). The estimated value of catches exploited by IUU fishing is enormous, up to \$30 million per year (Eyiwunmi, 2008). These illegal activities continue unchallenged due to the lack of adequate monitoring and enforcement capacity in Nigeria. The small-scale (artisanal) fishing sector remains the backbone of domestic fish production in Nigeria, contributing over 70% of total national fish production (Eyiwunmi, 2008). Over 600,000 families are currently engaged in the artisanal fishing sector. As illegal fishing continues to reduce their fish supply, the incentive among fishermen to turn to piracy increases.

Pirates often target Nigerian flagged, but foreign owned fishing vessels (Risk Intelligence, 2010) but not all groups are equally discriminating. According to Nigeria's director of fisheries, Mr. Akinshola Amile, piracy attacks on Nigerian owned fishing vessels have steadily increased from four reported attacks in 2003 to more than 108 in 2007; fifty attacks were recorded in January 2008 alone, resulting in the death of 10

sailors (Nodland, 2010). Pirates have succeeded in “ravaging Nigeria’s fisheries sector”, in the words of the Nigerian Trawler Owners Association and in response most of their boats remained in port during 2008 in protest of the government’s lack of response (Murphy M., 2011). Annual demand for fish in Nigeria is approximately 1.5 million tons. Partly as a result of the factors mentioned above, local production is no more than 0.4 million tons, a deficit of 1.1 million tons. To fill that gap, Nigeria imports fish (Figure 9). Nigeria is the largest importer of frozen fish in the world (Eyiwunmi, 2008).

Figure 9



Source: IMB (2010), FAO (2010), and IMF (2012)

Ideal Geography

Commercial and petroleum industry related shipping traffic are the primary targets of piracy in the region. Due to the rentier nature of the Nigerian economy, little has been done by the government to develop local industries. The result is that Nigeria has to import the majority of its commodities (Prinsloo, 2012). This leads to a high level

of maritime trade and numerous vessels passing through Nigerian waters, providing ample opportunities for pirates. An increased interest in Nigerian oil reserves has also lead to the increase in maritime traffic. The United States, in particular, has shown an increasing interest in Nigerian petroleum reserves in order to diversify their oil supplies (Nodland, 2010). Since the majority of proven petroleum reserves are in located in the Niger Delta, there has been an increase in maritime traffic to this region. The majority of attacks take place at night, often targeting stationary oil and chemical vessels, and involve ship-to-ship transfers to steal oil cargo and other high-value assets (United Nations Security Council, 2012). According to the UN assessment mission on piracy in the region, these attacks are “not seen as isolated or opportunistic, but rather as systematic and organized” (United Nations Security Council, 2012).

The natural geography of the Niger Delta is also highly conducive to piracy. The region is a maze of rivers, creeks, swamplands, and forests that enable pirates to easily hide from potential targets as well as easily disappear after the attacks (Prinsloo, 2012). Furthermore, the Niger Delta has numerous sections where vessels must navigate through constrained areas, strong currents, and shifting mudflats causing them to reduce their speed. Due to the slow speeds at which these vessels travel, they are easy targets for pirates (Dunn, 2009). Pirate attacks typically occur along the rivers of the Niger Delta and close to shore (Pham P., 2011). Recently however, pirates have begun to launch attacks further out to sea, demonstrating increased capacity and organization.

Economic Opportunity

While the national government and multinational oil companies (MNOCs) continue to make hundreds of billions of dollars exploiting the Niger Delta's oil reserves, "local constituents have had to make do with mud huts and Stone Age squalor in Ogbainbiri, Fishtown, and other villages in Nigeria's southeastern corner" (Nodland, 2010). Although the delta generates 80 percent of federal revenue, its people live without electricity or clean running water. Roads have fallen in disrepair and access to education and medical services are sporadic at best (Nodland, 2010). As a result of these stark injustices, the resentment that local people feel towards both the government and MNOCs is palpable. Even those young people who do get education opportunities, typically by going to other regions to receive it, find they have very few employment opportunities upon their return to the Delta (Prinsloo, 2012). With little to no alternatives, these youth often find the financial incentives posed by militia groups and their various activities such as piracy very attractive (Afinotan & Ojkorotu, 2009).

Hopes were once high that the oil industry would benefit the communities of the Niger Delta. But despite the size of the petroleum industry and the numerous companies involved, they pose few employment opportunities for locals. Rather than training a local workforce, MNOCs have found it cost-effective to bring in foreign and highly educated people (Nodland, 2010). With the influx of foreign workers has come modern air-conditioned facilities, tennis courts, and swimming pools, all surrounded by razor wire and armed guards (Nodland, 2010). Pirates predominantly kidnap foreigners to hold for ransom. The resentment towards these individuals as well as the high value place on them

by the MNOCs makes them attractive targets (Nodland, 2010). Thus the resulting contrast between vast wealth and staggering poverty has been disastrous.

Not all pirate attacks in Nigeria are motivated by politics or grievance. Massive unemployment and the lack of meaningful economic opportunities, especially in the Delta region, have drawn young people into all sorts of maritime criminal activities (Nincic, 2009). Crime and opportunity provide ample incentive and many armed groups in the Delta region view maritime crime as a purely money-making endeavour (Nincic, 2009). In a country where the majority of the population live on less than a dollar a day, piracy and kidnapping for ransom have become lucrative businesses. Pirates are often young unemployed men without job opportunities who declare that they are enticed into pirate gangs “by promised riches, fancy cars, luxury consumer goods and weapons” (Whitman et al., 2012).

3.3 CONSEQUENCES

Ransom Amounts – Economic Benefits to Pirates

The dire economic situation in the Niger Delta provides very few legitimate job opportunities for its inhabitants. As such, the lucrative financial rewards gained from piracy provide ample incentives for local people to engage in this illicit activity. In addition to the theft of cargo, ransom demands are also often involved in piratical activities in Nigeria. While it is common for pirates in failed states such as Somalia to capture vessels and hold them for ransom, the presence of a central government in Nigeria (albeit a weak one) ensures that pirates cannot hold vessels for long periods of

time (Prinsloo, 2012). Instead, they tend to kidnap members of the vessel's crew and hold them for ransom. As ransom demands are increasingly met, more potential pirates view this practice as their best financial opportunity and the number of pirate attacks increases (Prinsloo, 2012). Recent trends indicate that kidnappings for ransom are on the increase, more than doubling between 2009 and 2010 (Risk Intelligence, 2010).

Initially, foreign workers associated with the MNOCs were the most prominent targets when pirates kidnapped victims and the political motives were clear. Over time, kidnapping victims have expanded to include expats unrelated to the MNOCs, Nigerian politicians and Nigerian elites (Prinsloo, 2012). Even though the kidnapping of politicians can further political goals, it is often not in line with the Niger Delta struggle. The distinction between motivations for these actions, whether they are based on greed or grievance factors, becomes murky when people unrelated to MNOCs are abducted. While these recent developments point to various motives among pirates, they also indicate a trend towards industry specialization and a refinement in tactics to get the most economic return for their actions. Income earned from piracy is used for both personal expenditures and as a means to maintain the armed threat (Ehwarieme, 2009).

Economic Benefits to Local Communities

Given the widespread resentment among the public regarding the oil industry and the national government, pirate attacks are seen as rectifying some of the inequality caused by the corruption and exploitation of the Niger Delta's natural resources (Whitman et al., 2012). According to Ibaba and Ikelegbe (2010) "the nature and character of the state and corporate governance have been so inequitable and unfair that violent

appropriation of resources has become the norm.” Since elections are almost always flawed and the state fails to fulfil its three basic functions (to maintain law and order, to facilitate development, and to promote social welfare) to the people of the Niger Delta, they are looking at alternative actors as legitimate sources of power (Ibaba & Ikelegbe, 2010). Numerous militias involved in piracy have taken over functions usually associated with governments in their communities. These include paying medical staff and teachers, obtaining drugs for hospitals, providing energy by way of generators, paying school fees and awarding scholarships, providing potable water to citizens, and providing financial assistance to entrepreneurs (Ibaba & Ikelegbe, 2010).

Despite the fact that locals might not approve of the high levels of violence and the methods in which these pirate gangs operate, they tolerate and in many cases even support them (Prinsloo, 2012). These militias provide a much needed inflow of capital into the communities of the Niger Delta. This inflow of capital provides for the stimulation of local industries, creating employment opportunities for the locals. Therefore it is often the case that locals would protect and provide militias with a safe haven, away from military forces (Asuni, 2009). While piracy hurts the Nigerian economy as a whole (as will be discussed below), this may be inconsequential to the people living in the Niger Delta if the size of the national economic pie is irrelevant.

Economic Impact on Nigeria

The costs of maritime piracy to the Nigerian economy has been significant, not only to the oil industry, but to local fisheries as well. As a result of pirate attacks, oil production in Nigeria has decreased by 20 percent since 2006 and piracy has cost the

Nigerian economy approximately \$200 million between 2005 and 2008 (Akinsanmi, 2008). A report commissioned by Royal Dutch Shell estimates that about 100 000 barrels of oil is stolen every day in Nigeria (Nincic, 2009). Maritime piracy also imposes significant costs on the country's important local fishing industry, the second highest non- hydrocarbon export industry in the country (after cocoa) (Pham P., 2011). Pirate attacks on fishing trawlers have reached the point that many fishing boat captains refuse to go out to sea. Nigeria stands to lose up to \$600 million in potential export earnings due to piracy threats to its fisheries (Gabriel et al., 2008). In addition, seafood prices have skyrocketed due to the scarcity of fish resulting from the inactivity of hundreds of fishing vessels. Prices have more than doubled and even quadrupled in some areas, placing this important source of protein out of the reach of many ordinary Nigerians (Nincic, 2009). Acts of piracy not only cost Nigeria in terms of direct loss of revenues from diminished hydrocarbon exports and fisheries, but also indirectly through increased transportation and infrastructure costs, and by discouraging tourism and foreign direct investment (Pham P., 2011).

Global Economic Impact

The economic effects of piracy extend beyond Nigeria to nearby countries in the Gulf of Guinea. As warnings to mariners in and around Nigerian waters become more common, shipping costs for Nigerian and other Gulf of Guinea destinations increase as vessels factor higher insurance premiums into their pricing (Nincic, 2009). As these increased shipping costs are passed on to consumers, they affect the prices of vital goods and services throughout the region. Nearby landlocked countries are also affected since

they depend on Nigerian ports for their imports and exports. According to the United Nations assessment mission on piracy in the Gulf of Guinea, the annual loss to the economy of the West African sub-region as a result of piracy is estimated \$2 billion (United Nations Security Council, 2012).

In the past two decades, the Gulf of Guinea has increasingly become an important supplier of fossil fuels. In an effort to reduce dependence on Middle Eastern oil, major powers such as the United States have actively sought to diversify energy supplies. This increase in international demand has rapidly changed the region's geostrategic significance (Nodland, 2010). Many different actors are investing in the Gulf of Guinea and most of them rely on maritime shipping to carry their goods to and from Nigerian ports. As such, the sea lane through the Gulf of Guinea has achieved global importance. Piracy adversely affects all those countries that rely on the Gulf of Guinea for maritime transportation.

Responses to Piracy

Nigerian pirates have received much less international attention than their Somali counterparts. In contrast to Somalia, piracy in the Niger Delta only directly affects the Nigerian government, Nigerian citizens and the United States (Prinsloo, 2012). Consequently, anti-piracy efforts in the Niger Delta are largely driven by the Nigerian government and the United States. Two initiatives that the Nigerian government has often used in an effort to pacify the region are amnesty and development programs (Prinsloo, 2012). The latest attempt of an amnesty program was initiated in 2009 and included the disarmament, demobilization, rehabilitation, and the reintegration of militias. More than

17,000 militiamen accepted this offer (Ibaba & Ikelegbe, 2010). Unfortunately this amnesty program, as well as most previous development programs, failed. Critics point out that often these initiatives aim to pacify the region in order for the state and MNOCs to gain uninterrupted access to the oil reserves and they neglect the underlying factors of the conflict in the Niger Delta (Courson, 2009).¹³

An increased U.S. interest in oil exports from African countries led to the creation of the US Africa Command (AFRICOM) under the Bush administration in 2007 (Nodland, 2010). There was initially a high degree of resistance to the presence of AFRICOM in Nigeria because the government perceived it as a threat to its sovereignty. However, AFRICOM is increasingly involved in security operations in the Niger Delta, protecting oil facilities, inspecting incoming maritime traffic in the region and providing training to Nigerian naval forces (Akpan & Ering, 2010).

The biggest anti-piracy operation came in 2009 with the launch of Nigeria's "Operation Restore Hope", a Joint Military Task Force designed to take strong action against piracy and maritime security threats through intensified naval patrols. Although it successfully reduced the number of attacks in Nigerian waters, it subsequently displaced the locus of piracy to neighbouring countries (Crippa, 2011). Benin, in particular, saw a significant increase in attacks in 2011; as 21 attacks were reported off its coast compared to none in the previous year (United Nations Security Council, 2012). The hot spot of these attacks appears to have shifted down the coast to neighbouring Benin and Togo, while attacks have also been reported in Cameroon, Guinea, and Cote D'Ivoire, among

¹³ The allocation of funds in Nigeria's 2008 budget illustrates the failure of the Nigerian government to adequately address the underlying conditions of the Niger Delta conflict. While ₦69 billion was allocated to the development of the region, ₦44 billion was allocated to security in the Niger Delta (Courson, 2009). Prinsloo (2012) argues that this points to an increasingly oppressive attitude favoured by government.

others (Whitman et al., 2012). Nigerians are reportedly responsible for the majority of attacks in these countries, suggesting that Nigeria's anti-piracy efforts have simply displaced this criminal activity to other areas rather than ending the practice entirely (McClanahan, 2011). In 2011, the entire Gulf of Guinea region was declared a war risk zone by the Joint War Committee.

CHAPTER 4 DATA ANALYSIS

The case studies presented in Chapters 3 and 4 indicate that one of the most significant determinants of maritime piracy in Somalia and Nigeria is the lack of political stability. Somalia is classified as a ‘failed’ state whereas Nigeria has a central government but it is consistently described as ‘weak’ due to endemic corruption and the lack of legitimacy, especially in the Niger Delta region. This distinction between ‘failed’ and ‘weak’ states is helpful in explaining why Somali pirates can hijack vessels and keep them for ransom for months on end, while Nigerian pirates often only loot vessels or kidnap the passengers (Prinsloo, 2012). In addition, these state failures have led to conflict and injustice. The degree to which the motivation for piratical attacks emanates primarily from perceived injustices (i.e. grievance factors) or for personal gain (i.e. greed factors) is impossible to disentangle. Suffice to say that both are relevant to the discussion on maritime piracy in both Somalia and Nigeria.

It has been identified that the environmental degradation caused by external actors poses a real threat of endangering the lifestyles not only of those engaged in piracy, but most citizens in Somalia and Nigeria. This threat to their lifestyle, combined with widespread poverty, unemployment, and overall low standards of living leaves these populations desperate. Taking this into account, it is not surprising that local communities often support pirates. The influx of capital generated by pirate attacks is welcomed by the local populations. This capital creates economic opportunities for local communities in the form of employment. In addition, the pirates also gain support from local communities by fulfilling roles that the state has been unable to provide or has neglected. Finally, favorable geography is essential for piracy in both countries, especially in early

stages. The high level of maritime traffic coupled with geography favorable to escape provides prospective pirates in Somalia and Nigeria with a wealth of targets.

From the two case studies, it is possible to identify some of the common causes of maritime piracy. The key to understanding piracy lies in acknowledging that it is a crime of the land that is manifested at sea. Only the most visible acts take place on the water. The rest - the organization, the finance, the recruitment, the technical support, the disposal of goods, the ransoming of people, and the political support - all take place on land (Murphy M., 2011). Not every stretch of coastline is conducive to piracy. So why does piracy occur in some countries but not others? From the case studies of Somalia and Nigeria and the broader qualitative literature on piracy, there appear to be five primary factors that encourage its development, facilitate its growth, and reduce the risk of being caught:

1. Failed or weak government
2. Conflict and disorder (resulting in grievances)
3. Favorable geography
4. Poverty (low income, high unemployment, and a large number of unemployed youth)
5. Financial reward

Returning to the main research question identified in the introduction, this chapter aims to identify the economic causes of piracy by analyzing data from a cross-section of countries in coastal sub-Saharan Africa. The economic determinants cited in the qualitative literature have been identified. A systematic analysis of the data on piracy and its potential economic determinants will provide a more complete understanding of the

causes of piracy. This allows for a broader study, involving a greater number of countries, and potentially enhancing the generalization of the results. The list of countries included in the empirical analysis is in Appendix B. Despite the limitations of the data, it is worth comparing the results of empirical analysis with those from the qualitative literature to determine the economic causes of piracy.

4.1 METHODOLOGY

Model and Specification

Some of the potential explanatory variables for the frequency of piracy that are tested here are common in the literature – such as GDP per capita – but other explanatory variables are unique to this research. First, this thesis considers the effect of the net exports of fish on the frequency of piracy. Net exports of fish are used as a proxy for economic opportunities. The rationale for this is as follows, if a country is a net exporter of fish, then those individuals most likely to engage in piracy will have the opportunity to work as fishermen instead, and levels of piracy would be low. If however a country is a net importer of fish, that is an indication that economic opportunities for those living in coastal regions are few, and the expected levels of piracy may be high. Second, the analysis includes the total fish capture for each country to see if this affects levels of piracy. Third, it controls for the effect of the level of domestic conflict on the frequency of piracy. Since no perfect measure of the level of governance exists, domestic conflict data are used as a way to measure the quality of the governance (the higher the incidence of conflict, the lower the level of governance).

As a preliminary step in the analysis, it is useful to evaluate the correlations between the occurrence of piracy and each of the potential explanatory variables. The descriptive statistics in Table 1 show a rather strong negative correlation between the net exports of fish and the frequency of piracy. That is, increases in net exports of fish (when a country exports more fish) are associated with lower levels of piracy. Youth employment is also negatively correlated with the frequency of piracy, albeit at a lower level. Finally, the level of domestic conflict is weakly positively correlated to the frequency of piracy, suggesting that high incidences of conflict (lower levels of governance) are associated with higher level of piracy.

Table 1: Descriptive Statistics of all Variables Used

Variable	N	Mean	Std. Dev.	Minimum	Maximum	Correlation with Pirate Attacks
Pirate Attacks	374	2.47	6.76	0	80	1
Net Exports of fish	374	6.04	151.5	-1031.3	360.69	-0.451
Youth Employment	374	48.3%	14.10	11.50%	73.20%	-0.162
Total Fish Capture	374	1.10	1.65	0.00475	9.099	0.079
Population Ages 0-14	374	43.3%	2.92	30.40%	48.00%	0.026
GDP per Capita	374	1633.3	2286.5	160.8	15492.7	-0.079
Domestic Conflict	374	870.9	1383.2	0	5875	0.190

Full variable definitions and units are described in Table 3 in Appendix A.

Of course, correlation does not imply causality, but these findings help us to identify which variables to focus on in a regression analysis. To examine the association between piracy and these variables, consider the following linear regression model:

$$\text{Piracy}_{jt} = \alpha + \beta_1 * \text{NetExports}_{jt} + \beta_2 * \text{YouthEmployment}_{jt} + \beta_3 * \text{Conflict}_{jt} + \beta_4 * \text{TotalFish}_{jt} + \beta_5 * \text{YouthPopulation}_{jt} + \beta_6 * \text{GDP}_{jt} + \epsilon_{jt}$$

where the outcome, Piracy_{jt} , is the number of piracy attacks in country j and year t . NetExports_{jt} is the annual net exports of fish. A negative β_1 implies that importing fish is resulting in piracy whereas exporting fish is leading to a reduction in piracy. The rest of the independent variables are the same as the ones shown in the descriptive statistics (Table 1), a full description of which is contained in Table 3 in Appendix A. ϵ_{jt} is the error term.

Count Data Model

Because the frequency of piracy takes on non-negative integers and demonstrates the properties of a count process, it is appropriate to use a count data model that can accommodate the non-negativity and non-normality of frequency data (Xu & de Munnik, 2007). Count data often follow a Poisson distribution, so a Poisson regression analysis might be appropriate. In a Poisson distribution, the mean and variance are the same (UCLA, 2012). In our case, the variance of pirate attacks is nearly 18 times larger than the mean ($\mu=2.473$, $\sigma^2=45.714$). The distribution of the piracy data is displaying signs of overdispersion, that is, greater variance than might be expected in a Poisson distribution. As a final check to rule out the Poisson distribution, running a Poisson regression on the data produces a large value for the chi-square in the goodness of fit (3586), another

indicator that the Poisson distribution is not a good choice. A significant ($p < 0.05$) test statistic from the goodness of fit indicates that the Poisson model is inappropriate.

Negative binomial regression is often more appropriate in cases of overdispersion. The negative binomial regression model – the most common alternative count data model – is more general than the Poisson regression model, and can accommodate cross-section heterogeneity (Xu & de Munnik, 2007). Therefore, this thesis uses a negative binomial regression model to estimate the economic determinants of piracy. We estimate the regression model (using STATA 12), controlling for country and year fixed effects. This accounts for the possibility that pirate attacks are higher or lower than average in a given country or year.

4.2 DATA

Piracy Data Set

Incidents of piracy are directly (and voluntarily) reported by the victims to the International Maritime Bureau (IMB). Succinct descriptions of each incident including the position, mode of attack, its success or failure and the extent of the damage caused are posted on a website and published in the IMB's annual report. This dataset therefore provides a unique opportunity to study the prevalence of a particular type of crime all across the world, regardless of the quality of each country's police and statistical services (de Groot et al., 2011). We use annual observations for 22 sub-Saharan African countries with a coastline observed for the years 1993-2009¹⁴. The sample size of 22 sub-Saharan

¹⁴ The IMB began collecting data on piracy in 1993. Fish capture and trade data are only available up to 2009.

African coastal countries was chosen because they share many of the same economic and geographic characteristics making it possible to perform a regional analysis.

The IMB's data on piracy are not perfect. For instance, there may be under-reporting: not every incident is necessarily reported to the IMB and they tend not to record small boat attacks. Shipping companies sometimes prefer not to report a pirate attack because it is thought to reflect badly on them (Murphy, 2007). Additionally, reporting incidents of successful boarding can lead to lengthy forensic investigations confining ships to harbor (Chalk, 2009). Lastly, ship-owners may not want to alert insurance companies to an emerging piracy hotspot (which could justify a hike in insurance costs) and instead cover minor expenses arising from pirate attacks themselves (de Groot et al., 2011). However, in piracy hotspots there exists the possibility of the opposite problem: over-reporting. Attack figures can be exaggerated by captains reporting "suspicious vessels" which may be innocently fishing or trading (de Groot et al., 2011). This analysis assumes that piracy figures are both under-reported and over-reported uniformly across the countries in the sample and acknowledges that the piracy data are not perfect.

Fish Data

Statistics on the total production and trade of fish come from the Food and Agriculture Organization of the United Nations (FAO). This database contains statistics on the annual production, imports, and exports of fishery commodities of fishery commodities by country in terms of volume and value from 1976 (FAO, 2012). Fish production is measured in tons and fish trade is measured in constant 2000 US Dollars. A

country's net exports are simply its total exports of fish minus its total imports of fish. Both fish variables used in this study refer to fish caught in the ocean (and not those caught inland in lakes etc.). These data are estimated from available sources of information or calculated based on specific assumptions by the FAO where reliable sources do not exist.

Domestic Conflict Event Data

The domestic conflict event data come from the Cross-National Time-Series Data Archive. The data are derived from news articles published in *The New York Times*. The specific variable used in this analysis is a weighted conflict index, the specific weights being variable. The values are: Assassinations (25), Strikes (20), Guerrilla Warfare (100), Government Crises (20), Purges (20), Riots (25), Revolutions (150), and Anti-Government Demonstrations (10). It should be noted that because these data are based on newspaper reports, they are somewhat biased geographically and limited in comprehensiveness. Nevertheless, since no universally agreed upon database exists for domestic conflict event data (or the level of governance), this source is one of the best available.

Other Independent Variables

Country level GDP per capita data was obtained from Penn World Tables. The two remaining independent variables used in this analysis – youth employment to population ratio, and percentage of the population ages 0-14 were obtained from the World Bank's World Development Indicators database. Youth employment to population ratio was used

instead of unemployment rates because data for the latter were incomplete for the countries studied. See table 3 in the Appendix for a further description of the data.

4.3 RESULTS

To model the frequency of piracy, we must consider which explanatory variables should be included in our model. Guided by the preliminary statistical analysis and existing findings in the literature, we include the following independent variables: GDP per capita, net exports of fish, employment to population ratio for ages 15-24, population ages 0-14 (% of total), fish capture - quantity of fish caught, and domestic conflict events. The dependent variable is the annual frequency of country-level pirate attacks.

Table 2 reports the estimation results of the negative binomial regression model. To interpret the estimation results, the sign of the parameters can be interpreted in terms of the direction of the impacts of the independent variables. The estimation results show that net exports of fish and youth population are statistically significant in determining the frequency of piracy.

According to the model, if net exports of fish increase by 1 million dollars, the number of annual piracy attacks will decrease by 0.0013 times. Since this result is statistically significant our hypothesis that the lack of employment opportunities causes piracy is verified. Exporting fish is one indicator that employment opportunities are available; local people are producing and consuming enough fish that there is some left over to export. Countries that are net importers of fish are thus more susceptible to piracy

off of their shores. Large numbers of unemployed, potential fishermen result in higher numbers of pirate attacks.

Table 2: Count Data Regression Model: Estimation Results	
Variable	Coefficient Estimate
Net Exports of Fish	-0.0013** (0.0005)
Youth Employment	-0.0121 (0.0292)
Total Fish Capture	0.2637 (0.1682)
Population ages 0-14	-0.3471*** (0.0684)
GDP per Capita	0.0000 (0.0001)
Domestic Conflict	-9.39e-06 (0.0001)
Constant	11.8479 (3.0630)
Log-likelihood	-458.822
N	8228

Notes: Standard errors in parentheses. Sample includes 22 countries lying on the coast of sub-Saharan Africa (listed in Appendix B).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

One significance of this finding is that a potential solution to the reduction of piracy is to create legitimate employment opportunities for the unemployed in countries where piracy is prevalent or at the risk of becoming so. By addressing this root cause of piracy, national governments (perhaps aided by other countries that have a large stake in

maritime security in the region) could provide a viable solution for this age old phenomenon.

The other statistically significant variable identified by the model was not predicted and does not lend itself to easy interpretation. The model estimates that if the 0-14 year old age group increases by one percentage point, the number of annual piracy attacks will decrease by 0.3471 times. This could be because children under the age of 15 typically do not engage in piracy, therefore the higher the percentage of the population that falls into that age group, the lower the expected incidences of piracy. This result could also be a result of the fact that we were unable to obtain (and therefore unable to test) data on the percentage of the population that is considered youth for the entire sample. In any case, this specific result should be viewed with caution.

CHAPTER 5 CONCLUSION

From the case study analyses of Somalia and Nigeria, and the empirical analysis of the economic determinants of piracy along the coastal countries of sub-Saharan Africa, this thesis finds that employment (through the production and trade of fish) is a significant factor in determining the frequency of piracy. In these poverty stricken nations, the absence of legal economic opportunities, especially those in the fishing industry, leads individuals to engage in piracy. In a variety of open as well as illicit markets, human conduct is shaped by economic incentives that may be monetized (Kraska, 2010). This understanding reveals interesting findings such as these about the risks people are willing to take, the rewards they seek, and the rationale they use in negotiating choices.

We must recognize that pirates are rational economic actors and that piracy is an occupational choice (Leeson, 2009). An individual who is considering engaging in piracy would assess his or her economic gains as follows:

$$\text{Piracy profit} = (\text{chance of successful attack} \times \text{income from loot and/or ransom}) - (\text{costs of an attack} - \text{opportunity costs} - \text{risks})$$

Analyzing the above expected value equation reveals why certain individuals turn to piracy as a source of income. They all want to excel economically in very difficult circumstances. If they succeed at being pirates, even for a short time, they are paid a fortune in comparison to other local alternatives (to say nothing of the attendant glory and power) (Levitt & Dubner, 2005). To many of the children growing up in poverty stricken

Somalia or the Niger Delta, becoming a pirate may seem like a glamorous profession. For some, it may be the most profitable job they think they have access to. Pirates, like everyone else, respond to incentives and opportunities. So if the prize ('income from loot and/or ransom') is big enough, potential pirates will continue lining up for a chance at being recruited into this line of work.

Somali pirates are operating a business; their conduct may be understood by applying a neoclassical microeconomic model of rational utility-maximization (Kraska, 2010). In order to arrest the growth in piracy, the costs and risks of engaging in the crime have to go up and the anticipated benefits must go down. Since we know that pirates respond to costs and benefits, we need to think of solutions that alter those costs and benefits to shape the incentives for pirates and to deter them from going into a life of piracy. Both sides of the above equation must be addressed.

While the causal connection between poverty and crime is certainly not a new one (nor is it undisputed), the significance of this connection in the context of piracy in sub-Saharan Africa must be appreciated. Given Africa's dependence on resource exports through a limited number of ports and across waters that most states are unable to secure effectively, continuing failure to successfully address the issue of piracy could retard development goals, miring millions in continuing misery (Murphy M., 2011). Without safe and efficient ports, and secure access to these ports, almost all aspects of Africa's economic growth will be reduced (Gilpin, 2007). Furthermore, there is concern that the factors that stimulated piracy in these two countries appear elsewhere (especially in the Gulf of Guinea) to the detriment of sub-Saharan Africa's economic prospects.

With the understanding that a lack of legal job opportunities is a cause of piracy, one practical application would be to create jobs. Concerned national governments and international actors (foreign governments, multilateral agencies, and non-governmental organizations) would be well advised to use some of their resources to create job opportunities, especially for those segments of the population most at risk of engaging in piracy, i.e. fishermen. Providing the necessary infrastructure (fishing equipment, freezers, etc.) would give people an incentive to work as fishermen as opposed to pirates. Also, increasing the capacity of local governments to monitor their seas and enforce maritime laws would go a long way to protect the fish stocks vital to the livelihoods of local fishermen. Yet, so far the proposed solutions have been different. Common sense suggests that job creation is a more rational (not to mention cost effective) approach than sending the developed world's navies in search of elusive pirate vessels.

Ultimately, any effective response aimed at reducing piracy must clearly identify and address its root causes. Although the data analysis section improved our empirical understanding of one such root cause, lack of economic opportunity, it did not exhaust the list of possible causal factors. Future studies should focus on the relevance of other factors, such as environmental degradation and natural disasters, on the occurrence of piracy. In addition, a comprehensive cost-benefit analysis of various potential solutions to piracy would significantly aid in identifying the most effective responses. Finally, the creation of a model of the different 'levels of organization' of pirate organizations would be very useful in terms of identifying potential emerging high risk areas and attempting to deal with the problem before it flares up.¹⁵ The 'at risk' areas are most crucial,

¹⁵ Perhaps something along the lines of David Korten's 'Four Generation Framework for Strategies of Development-oriented NGOs' (Korten, 1990).

economically, because as with most issues related to development, an ounce of prevention is worth a pound of cure. A better understanding of the incentives behind piracy will result in more effective solutions to reducing it.

Poverty is a societal failure. It results in desperation and crime. While marine piracy in sub-Saharan Africa threatens the lives of both seafarers and some of the world's poorest people, piracy itself has its roots in these fragile economies. Maritime piracy cannot be adequately addressed and eradicated unless it is seen as both a cause and effect of social and economic hardship. The attempt to brand piracy as solely criminal and impose law-based solutions in the absence of a shared appreciation of what criminal means can lead to a sense of frustrations on both sides, the elaboration of expensive and time-consuming judicial structures, and possibly give birth to a new sense of injustice (Murphy M., 2011). Creating productive jobs for the affected regions' many unemployed young people can reverse the perverse incentives that lead to maritime piracy. This needs to be seen as a generational undertaking.

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APPENDIX A Data Definitions and Sources

Table 3: Data Definitions And Sources		
Variable	Source	Definition
Dependent Variable		
Pirate Attacks	International Maritime Bureau Annual Report	Number of actual and attempted attacks reported to the IMB
Independent Variables		
Net Exports of fish, 2005 constant I\$	Food and Agriculture Organization of the UN	Total exports of fish minus total imports of fish, measured in millions of 2005 International Dollars
Total fish capture in Marine areas	Food and Agriculture Organization of the UN	Total fish caught by the country in its territorial ocean waters, measured in 100 000's of tons
Domestic Conflict Event Data	Cross-National Time-Series Data Archive	Weighted conflict measure. The values are: Assassinations (25), Strikes (20), Guerrilla Warfare (100), Government Crises (20), Purges (20), Riots (25), Revolutions (150), and Anti-Government Demonstrations (10)
GDP Per Capita	Penn World Tables	PPP Converted GDP Per Capita (Laspeyres), at 2005 constant prices, 2005 International dollar per person
Employment to population ratio, ages 15-24, total (%)	World Development Indicators	Employment to population ratio is the proportion of a country's population that is employed. Ages 15-24 are generally considered the youth population.
Population ages 0-14 (% of total)	World Development Indicators	Population between the ages 0 to 14 as a percentage of the total population.

APPENDIX B Countries Included in Empirical Analysis

Table 4: Countries Included in the Empirical Analysis
Angola
Benin
Cameroon
Côte d'Ivoire
Democratic Republic of the Congo
Equatorial Guinea
Eritrea
Ghana
Guinea
Guinea-Bissau
Kenya
Liberia
Madagascar
Mozambique
Nigeria
Republic of the Congo
Senegal
Sierra Leone
Somalia
South Africa
Tanzania
Togo

APPENDIX C 2011 IMB Piracy Report Map

January to December 2011



Total number of attacks – 439

Source: IMB (2012)