

THE DEMAND FOR COUNTERFEIT GOODS IN KENYA: *a case study of mobile phones*

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DECLARATION

This research project is my original work and has not been submitted for a degree in any other University. No part of this project may be reproduced without the permission of the author and/or the University of Nairobi.

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DEDICATION

I dedicate this project paper to my family at large for their support and encouragement. My wife Carol for support and encouragement during the entire period of my studies. For my children, Sandra and Natasha, that used to pray for me to accomplish my studies.

Finally to my Dad John and Mum Bernadette for encouraging to fight on.

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ABSTRACT

The production, distribution and consumption of counterfeit mobile phones in Kenya have been increasing at an alarming rate. The consumption of counterfeit mobile phones has negative impact on the health of the consumer, the environment and reduction in the Government revenue. The study relied on economic theory of consumer demand as a basis of the theoretical framework. Data was collected randomly from the 370 mobile phones owners and users who were at the time of data collection in Nairobi, Kenya. Logistic regression was used to estimate demand functions for counterfeit mobile phones. The results indicated that gender and education level significantly influence the consumer demand behavior for counterfeit mobile phones in Kenya.

ACRONYMS AND ABBREVIATIONS

| | |
|--------------|--|
| ACA | Kenya Anti-Counterfeiting Authority |
| CCK | Communications commission of Kenya |
| CIF | Cost, insurance and freight |
| GOK | Government of Kenya |
| IP | Intellectual Property |
| IMEI | International Mobile Equipment Identity |
| KEBS | Kenya Bureau of standards |
| KIPI | Kenya Industrial Property Institute |
| KRA | Kenya Revenue Authority |
| PVoC | Pre-shipment Verification of Conformity |
| TRIPS | Trade Related Aspects of Intellectual Property Rights |
| WHO | World Health Organization |

DEFINITION OF TERMS

Counterfeit Mobile Phones: Mobile phones without International Mobile Equipment Identity (IMEI) numbers or those whose IMEI numbers are otherwise not accessible over the network.

Counterfeiting. The manufacture, production, packaging, re-packaging, labeling or making, whether in Kenya or elsewhere, of any goods whereby those protected goods are imitated in such manner and to such a degree that those goods are identical or substantially similar copies of the protected goods.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

The spread of counterfeit products has become global menace in recent years. Similarly, the range of goods subject to counterfeiting has also increased significantly. The first cases of brand counterfeiting emerged about five decades ago (Ergin, 2010). Back then, a few manufacturers of specialized products were affected and it was assumed that this phenomenon would be of minor significance (Ergin, 2010). Unfortunately, counterfeiting has become widespread that has turned into a massive multifaceted problem of global significance. Counterfeiting is a serious and growing problem worldwide, occurring both in less and well developed countries (Matos et al, 2007). The most commonly counterfeited goods in the market are: handbags, clothes, watches, colognes, medicines, spare parts and all kinds of electronic devices (e.g. mobile phones), (Lee, 2009)

Product counterfeiting and the trade in counterfeit products, labels and packaging involve the imitation of legitimate or genuine products that are marketed under brand names of the genuine products. Services are also increasingly being offered by counterfeit providers who use other providers' brand or trade names (Sihanya, 2006). Counterfeits are usually intended to deceive or confuse consumers who think they are paying for a merchandise, service or technology of a brand, quality, durability or other characteristics the consumer has to rely on, but in return gets an inferior product. Similarly, increased demand for mobile phones in Kenya and subsequent increase in the supply of different types of mobile phones has caused an impetus for counterfeiting.

Mobile phone subscription in Kenya has witnessed fundamental growth. It was estimated that the number of mobile phone subscribers in 2012 stood at 29.2 Million (CCK, 2012). Due to increased usage of the mobile phones, the prestige derived from owning advanced and sophisticated ones has caused hedonic demand. Prestigious characteristics of highly priced sophisticated mobile phones coupled with low purchasing power has caused suppliers to supply much relatively cheaper mobile phones that ape or imitate the genuine mobile phones.

Where a consumer's expenditure on counterfeit goods accounts for a fixed proportion of the total budget, the demand for counterfeit goods is expected to increase in the short run as income increases. In the long run, the consumer is most likely to switch to demanding genuine goods whenever the income reaches a certain level (Yao, 2006).

Some counterfeit products are made here in Kenya while others are imported from other countries. Products in which counterfeit trade is rampant in Kenya include: computer software, designer label apparel, books, chart topping music and movies, watches, patented or branded medicines, automobile parts, foodstuff, seeds and chemicals

In Kenya, it has been estimated that in some of the worst affected sectors, counterfeit trade accounts for more than 70% of the trade, while the rest consists of trade in legitimate genuine products or services (Kenya Bureau of Standards, 2008). Counterfeit trade costs Kenya about Kshs 20 billion yearly in lost revenue and employment opportunities annually (KRA, 2009). The most counterfeited goods in Kenya are pharmaceutical products (about

Kshs 11 billion), textiles (about Kshs 0.55 billion), tyres and tubes (about Kshs 0.35 billion), soaps and detergents (about Kshs 0.02 billion), others about Kshs 8.08 billion, (KRA, 2009).

The Economic Pillar of Kenya's Vision 2030, identifies manufacturing as one of the key sectors that will help achieve the immediate objective of 10 per cent growth rate per annum by 2012 (from 6.2 per cent in 2008), create jobs, generate foreign exchange and attract investment. Kenya aims to transform itself into an industrialized middle income country by 2030. The Economic Recovery Strategy, launched in January 2010, outlines the direction for five years and the core objectives for meeting the industrialization goal of the Kenya Vision 2030. The Strategic Plan's key policy outputs include among others the development and implementation of the Anti-Counterfeit Goods Act.

Counterfeiting trademarks is treated as a misdemeanor punishable by incarceration for a term not exceeding two years and/or an unspecified fine. The penalty is not specifically stated in the material clauses and has been extrapolated from section 36, which embodies an omnibus penalty for misdemeanors.

In the information society it is difficult to detect counterfeiting, for instance in e-commerce. In normal trade counterfeit products are very similar to genuine ones. Moreover, technology has facilitated the production and distribution of counterfeit products which are identical to the genuine ones. Relief or sanctions such as forfeiture would therefore be very difficult to implement mainly because the physical address of counterfeiters may not be disclosed.

Counterfeiting has been a serious Problem in Kenya causing the country to lose billions of Kenya Shillings. Kenya is at risk of losing the war against imported counterfeit goods as experts warn that the global slowdown has provided opportunities for the illicit trade to thrive in Africa as the preferred sales destination for counterfeited products. A combination of weak purchasing power among consumers is projected to fuel demand for counterfeit goods. Kenya, like most African countries, is more exposed because of inadequately secured borders, weak or inexistent intellectual property laws and low consumer awareness (Patton and Onyango, 2009).

The Anti-counterfeit Act, 2008 was formulated to curb the growing business in counterfeit goods. The act allows, counterfeit goods to be held at a depot when seized, and upon orders from the court, the custodian of the depot can either destroy the goods or return them to the country of origin if imported at the expense of the local manufacturer or importer as the case may be.

Kenya Revenue Authority (KRA) was one of the first public sector organizations to recognize the threat of counterfeiting to human health and safety, the economy and revenue base. In the year 2001, KRA established an Anti-Counterfeits Secretariat to spearhead the initiatives with a number of government agencies (such as Kenya Police, Kenya Bureau of Standards (KEBS), Kenya Intellectual Property Institute (KIPI) and the office of the Attorney General) and private sector organizations (including interest groups like the Kenya Association of Manufacturers and individual companies) in tackling the impact of the menace in Kenya and the region.

On September 29, 2005, the government introduced a new Pre-shipment Verification of Conformity (PVoC) program. Under the new system, all goods entering the country require a Certificate of Conformity from the country of origin, demonstrating conformity to Kenya standards. Where consignments were shipped without inspections, importers were to apply for a destination inspection subject to acceptance by the Kenya Bureau of Standards' (KEBS). Accordingly, the importer would pay a 15 percent penalty charge and post 15 percent bond on the CIF (cost, insurance, freight) value in addition to paying the costs of the test.

Patent protections are enshrined in Kenya's Trademarks Act, which established the Kenya Industrial Property Institute (KIPI). KIPI considers applications for and grants industrial property rights and privileges that are valid for 10 years on a renewable basis. The Amendments to the Act, designed to bring Kenya into conformity with the Madrid Agreement and Protocol as well as the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) were passed and enforced in 2004. The act provides protection for registered trade and service marks and entitles foreign investors to national treatment and priority right recognition for their patents' and trademarks' filing dates.

Out of the total mobile phones available in Kenya, 3 Million are counterfeit (ACA, CCK, 2012). These are mobile phones that are without International Mobile Equipment Identity (IMEI) numbers or those whose IMEI numbers are otherwise not accessible over the network. Counterfeit mobile phones do not meet the minimum health standards set by the

World Health organization (WHO). The amount of radiation emitted from the handsets is way beyond the maximum level allowed by WHO.

1.2 Problem statement

The demand for counterfeit mobile phones in Kenya has been on the rise since the introduction of mobile phones. The causal analysis of demand for counterfeit mobile phones has not been adequately addressed. Many consumers of counterfeit mobile phones are being exploited hence there is need for the government of Kenya to protect them against dangers of counterfeit mobile phones. Most Governments combat the trade mostly from the supply side ignoring the demand for these goods yet supply and demand are inseparable factors without which there can be no exchange of goods and services.

Research conducted in Kenya on mobile phone counterfeits concentrates on statistics on production of counterfeits and how to combat it (Wanjala, 2006). Inadequate information on factors affecting the demand of counterfeit mobile phones explains why there are rising cases of counterfeit mobile phones in Kenya.

The number of mobile subscribers in the country stands at 29.2 million between January and March 2012 (CCK, 2012). According to the third quarter sector statistics for the financial year 2011/2012 released by CCK, 89.10 per cent of the population has access to mobile telephony. According to industry statistics, close to 3 million mobile phones in the Kenyan market are counterfeit, translating to about 10% of all the active mobile devices in the country (CCK, 2012). This has not only infringed on the manufacturer's intellectual property rights, but also denied the Government revenue in form of tax. CCK defines "counterfeit" handsets as those without International Mobile Equipment Identity (IMEI) numbers or those whose IMEI numbers are otherwise not accessible over the network.

The Kenya Anti-Counterfeiting Authority (ACA) estimates that the Kenya government loses up to 3.2 billion Kenyan shillings (US\$31m) in uncollected tax revenues as a result of “counterfeit” handsets. In March 2011, the ACA seized “counterfeit” mobile phone batteries in Nairobi worth 2.4 million Kenyan shillings (US\$23,500) and has so far filed 38 intellectual property right cases. Additionally, “counterfeit” handsets do not meet health, safety and electromagnetic compatibility requirements, thus harmful both to users and to the environment. Handsets with tampered IMEI numbers cannot be identified in case of a commission of crime or when stolen or lost. The phenomenal growth in counterfeit mobile phone has serious financial implications to the exchequer thereby threatening the country’s economic growth as well as posing a major health threat to the consumers.

The study therefore sought to identify factors influencing demand for counterfeit mobile phones in Kenya. Further the study aimed at formulating a demand function (hedonic) of the counterfeit mobile phones in Kenya.

1.3 Objectives of the Study

The general objective of the study was to determine the factors influencing demand for counterfeit mobile phones in Kenya.

Specifically the study sought:

1. To estimate a demand function for counterfeit mobile phones in Kenya.
2. To estimate the demand function using data collected from Nairobi Kenya, and
3. To make appropriate policy recommendations based on the findings in an attempt to counter the demand for counterfeit mobile phones in Kenya.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews past studies on counterfeit goods and focuses specifically on mobile phones. The objective of this is to link the current mobile phone counterfeits issues and the concept of demand for mobile phones.

2.2. Theoretical Literature review

Counterfeiting appears in two different forms, as deceptive and non-deceptive counterfeiting. The first is a victim, who unknowingly and unintentionally purchases counterfeit goods due to them being so closely similar to the genuine goods (Grossman and Shapiro, 1988; Bloch et al., 1993; Mitchell and Papavassiliou, 1997; Tom et al., 1998). However, the second is a willing participant or consumer of counterfeit products, wherein they sought out counterfeit products even when they knew that the products were illegal (Bloch et al., 1993; Cordell et al., 1996; Prendergast et al., 2002).

When looking at theoretical underpinnings to explain the demand for counterfeit products; first, counterfeits would not exist if it were not for brands and what they promise (Bloch, Bush, & Campbell, 1993; Cordell, Wongtada, & Kieschnick, 1996). Undoubtedly, the literature on brands and why people buy branded products provides insight in what makes counterfeits attractive

Consumers buy branded products basically for two reasons: physical product attributes and the - intangible - brand image associated with the product. They communicate meaning

about their self-image and enhance their self-esteem (e.g., Dornoff & Tatham, 1972; Onkvist & Shaw, 1987). This is especially true for luxury goods, which are bought much more for what they mean than for what they are (Dubois & Paternault, 1995; Nia & Zaichkowsky, 2000). There are some types of mobile phones that exhibit luxury goods qualities and thus their demand characteristics. While the counterfeit product might not fully comply with all the physical attributes the genuine product offers, the image dimension of the genuine branded product is preserved. The price differential, however, is much to the advantage of the counterfeit seller. The bottom line is that buying counterfeit products means getting the prestige of branded products without paying for it (Cordell et al., 1996; Grossman & Shapiro, 1988).

Second, available literature suggests that the intentional purchase of counterfeits is considered consumer misbehaviour, "which violates the generally accepted norms of conducts in exchange and is therefore held in disrepute by marketers and by most consumers." (Dodge, Edwards, & Fullerton, 1996; Fullerton & Punj, 1993, p. 570; 1997; Solomon, 1992; Vitell & Muncy, 1992). Often, misbehaviour is provoked by certain characteristics or situational factors such as price, penalty and situation-specific elements (Dodge et al., 1996). This holds particularly true for counterfeits which sell at much lower prices than the genuine (Bloch et al., 1993). What may prevent consumers from engaging in this misbehaviour is the fear of punishment. However big the temptation to misbehave, the decision to exhibit deviant behaviour is strongly intertwined with the consumer's ability to rationalize his/her behaviour (Strutton, Vitell, & Pelton, 1994).

Thirdly, given the fragmented knowledge base in the field, the theory of Planned Behaviour is used (TPB) (Ajzen, 1991) for guidance in systematizing existing findings and adding additional variables, such as psychographic and demographic determinants. In brief, TPB states that behaviour is determined by the intention to engage in such behaviour, which in turn, is determined by the attitude toward the behaviour and the subjective norm as well as the perceived behavioural control (Ajzen, 1991). When using attitudes towards behaviour rather than attitude towards objects (e.g. attitude towards a counterfeit item), the former are said to be better predictors of behaviour (Fishbein, 1967; Fishbein & Ajzen, 1975). Moreover, TPB incorporates the amount of control one has over the own behaviour and elucidates its influence on it. In the case of behaviours that are difficult to perform, TPB proved more applicable than the Theory of Reasoned Action (TRA). The purchase of counterfeits seems to be a difficult decision, as temptations to consume are strong given the often tremendous price advantages of counterfeit compared to genuine products.

Consumers frequently ease their conscience by concluding that their behaviour is not "really" illegal or immoral, and they tend to come up with pseudo-rational excuses, even deflect the blame on someone else (Gellerman, 1986). Past research has identified anti-big-business sentiments as important to excuse the consumers' misbehaviour. Supporting counterfeiters by buying their products is justified, as they calculate more reasonably with lower margins than the genuine manufacturer.

Prior research has linked the decision to knowingly purchase counterfeit products to numerous factors, which (Eisend and Schuchert-Guler, 2006) classify into four categories.

The first category, labeled person, includes demographic and psychographic variables as well as attitudes towards counterfeiting. For instance, prior studies have found that consumers who purchase counterfeit products are of lower social status (Bloch, Bush and Campbell 1993) and have more favorable attitudes towards counterfeiting (Penz and Stottinger 2005). Research linking consumers' beliefs about counterfeits to their purchase behavior (e.g., Gentry, Putrevu and Shultz 2006) also falls under this category.

The second category focuses on aspects of the product such as price, uniqueness and availability. Not surprisingly, consumers' likelihood of buying a counterfeit brand is inversely related to the price of the genuine brand (Albers-Miller 1999).

The third and fourth categories refer, together, to the social and cultural context in which the counterfeit purchase decision is made, ranging from cultural norms (Lai and Zaichkowsky 1999) to the shopping environment (Leisen and Nill 2001). For instance, consumers are likely to purchase a counterfeit brand when they react more favourably to the shopping environment. Of particular relevance to our investigation of the individual-level motives underlying counterfeit brand consumption is research that goes beyond price to link counterfeit consumption to social motives such as the desire to create identities, fit in, and/or impress others (Bloch, Bush and Campbell 1993; Ho, Hogg and Hart 2003; Penz and Stottinger 2005).

A theoretical account is developed of the role of such social motives in driving counterfeit consumption. Recently, some scholars have examined the problem of counterfeiting from

the consumer's perspective. (Bloch et al., 1993) reported on the consumer's role in the growth of trademark piracy. (Wee et al., 1995) studied variables, other than price, such as age, income and product attributes, that influence the purchase of counterfeits. Both (Cordell et al., 1996) and (Wee et al., 1995) have researched the attitudes of the consumer. In all purchases, consumers balance monetary outlays against perceived benefits (O'Shaughnessy, 1987). (Dodge et al., 1996) reported that direct economic consequences influence the tolerance of questionable behavior by consumers (Wee et al., 1995) suggested that price is the main motive for the purchase of counterfeit goods. (Bloch et al., 1993) indicated that a consumer will select a counterfeit good over a genuine product offering if there is a price advantage. Counterfeits represent a prestigious (Grossman and Shapiro, 1988), albeit inferior product (Fährlich, 1986), at a good price.

Types of consumers

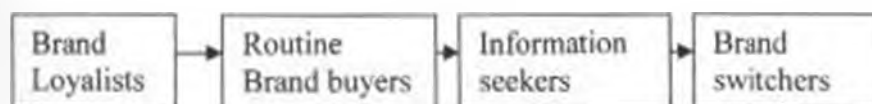


Fig1: Categories of consumers according to involvement in the purchases

The *Brand Loyalist* group has strong emotional links to a favorite brand (Buckley, 1997) points out; this group tends to link the brand's product category to ones' own personal relevant consequences. In addition, these consumers are the ones that seek the best brand for their needs, and feels that the product itself is an important part of their life and lifestyle.

Brand switchers are consumers that have no emotional attachment either to the product category or any brand within it. They typically respond to price.

Information seekers are consumers who are involved more with product category but may not have preferred brand. They are likely to seek information in order to decide on which brand to buy.

Routine brand buyers are consumers who are not highly involved with the product category but may be involved with the particular brand within that category. They have low emotional attachment with the product category and tied mainly with their brand.

Product involvement (type of consumer) also influences the extent of the decision making process. The level of product involvement affects the process of a consumer's decision making (Miquel and Caplliure 2002). Higher levels of involvement should lead to better comprehension of information presented regarding a product and motivate consumers to produce more elaborate meanings about product information (Celsi and Olson 1988, Hitchon and Thorson 1995). Consumers with high involvement will be more likely than those with low involvement to attend to and comprehend product information (Baker et al 2002). In this study we will focus on the last two categories of consumer's i.e. information seekers and brand switchers. These two are most likely to be influenced by availability of counterfeit mobile phones.

2.3 Empirical literature Review.

There are empirical studies on the demand for counterfeit mobile phones. Many authors have analyzed the demand for mobile phones from a qualitative point of view but only a few have undertaken quantitative analysis.

In the face of an escalating global growth in counterfeiting, it has become clear that the focus on the supply side of the equation is not enough and must be complemented by an equally aggressive attempt to control the demand side of this nebulous market.

Studies on what drives a consumer to choose a counterfeit product is a complex undertaking. Motives vary widely, from price and easy access to social acceptability and a perception that a counterfeit purchase is a game which falls outside the law and to which there are no consequences. The Kenya Anti-Counterfeiting Agency has no powers to proactively act on the counterfeit mobile phones. Even if the agency had power, her staff will require training from the mobile phone manufacturers to be able to identify the counterfeits. Consumers who appreciate the full repercussions of their counterfeit purchase can be expected to stop the practice. The governments that fully understand the factors that drive the public towards illegal activity, they institute programmes to educate and protect consumers – and society – from the dangers of counterfeiting

Consumers who knowingly buy counterfeit goods are willing to trade quality and performance for the brand image of the genuine good at a presumed price saving (Bloch et

al., 1993; Tom et al., 1998; Miller, 1999; Phau et al., 2001; Grossman and Shapiro, 1988; Wee et al., 1995).

The satisfaction consumers derive (consumer utility) from a product is based on the quality of the products and/or its performance, taking the price paid for the product into account. When the quality and/or performance of a counterfeit or pirated product is inferior to a genuine product, consumer utility is decidedly lower for those individuals who pay full price, believing the product that they have purchased is genuine. A consumer who unknowingly pays full price for a low quality counterfeit product that does not satisfy him/her gains far lower value than someone who purchases a genuine product satisfying him/her to expectations.

The situation is more nuanced with respect to parties that knowingly purchase counterfeit or pirated products at low prices. Where the quality of such products is high, consumer utility could be higher than would be the case for higher-priced genuine articles. However, where the quality and/or performance of the infringing product is lower, which is generally the case with counterfeit products, consumer utility could be lower. A low quality counterfeit watch that does not keep accurate time, and that wears out quickly may bring consumers less utility than an original, even though the counterfeit was purchased at a fraction of the price of the original. It should be noted that while consumers who knowingly purchase counterfeit or pirated products know the price at which the counterfeit or pirated product is being sold, their ability to assess the quality of most counterfeit or pirated products is seriously limited; this explains why it is not possible to assess utility at the time of purchase.

In the event consumers have misjudged, they have little recourse as warranties and money-back guarantees are not generally offered for counterfeit or pirated products. In addition to these short term effects, counterfeit and pirated products can have longer-term implications. Prices may be lower, for example, if rights owners reduce prices to compete more effectively with counterfeiters and pirates. Furthermore, less innovation by rights holders due to counterfeiting and piracy could translate into slower product development, thereby slowing growth in consumer utility. Finally, some rights holders could abandon markets altogether because of counterfeiting and piracy.

According to a study done on 324 Korean female students in the year 2004, it was recognized that economic benefits and hedonic benefits of counterfeits were the two major reasons that make consumers develop positive attitudes toward buying counterfeits (Signhapakdi et al 2004). First, because counterfeits' prices are a mere fraction of genuine items' prices, consumers enjoy economic benefits and satisfaction (Albers-Miller 1999). A counterfeit is a lower-quality, lower-price choice whereas a genuine item is a higher-quality, higher-price choice (Gentry et al 2006; Prendergast et al. 2002). However, counterfeit consumers do not mind low quality and poor materials because they do not see counterfeits as inferior choices, when they experience budget constraints and appreciate economic benefits of counterfeits (Dodge et al. 1996; Nia and Zaichkowsky 2000). They perceive purchase of counterfeits for utility maximization and enhance the welfare of the society (Ang et al. 2001; Van Kempen 2003). On the other hand, as consumers are likely to buy

genuine goods when they can afford, economic benefits of counterfeits would not necessarily affect their intention to buy genuine goods (Yoo and Lee, 2009).

The African continent is the main destination for counterfeit goods. This could be due to the fact that other continents have strict rules and regulations put in place to guard against counterfeit trade. Kenya in particular is a country characterized by porous borders, existence of weak enforcement systems of intellectual property laws and low consumer awareness of both the dangers and consequences of consuming counterfeit goods.

One of the basic assumptions of demand theory is that market participants including consumers and producers are rational decision-makers. In other words, their sole objective is to maximize their utility subject to the current resource or information constraints. There are two distinct kinds of consumers in the counterfeit market. The first type has the perfect information on the product and is willing to purchase the counterfeits to meet their needs at a desirable price range. The decision is made after consumers balance their tastes, income and price. The other type has imperfect information on the merchandise and is mostly a victim of ignorance.

An attempt to separate the consumption of counterfeit goods from that of genuine goods poses a lot of difficulties. To many consumers, the use of counterfeit goods is part of a strategy through which they manage their whole range of consumption. Goods such as music, computer software, and fashion items, consumers purchasing counterfeits is a means of allowing them to increase the number of items they could afford. Purchase of counterfeits

is here being used as a way in which to increase consumption of leisure goods rather than undermine their market (Marshall, 2004).

Even though consumers know counterfeiting is a criminal act, they are willing to accept counterfeit goods (Bloch et al., 1993; Cordell et al., 1996; Tom et al., 1998). Purchase of a counterfeit is not a criminal act, but it does support the sale which is criminal. Second, consumers view that the brand name, the label, and identifying design characteristics such as logo, color, pattern, and accessories are themselves valuable. Such hedonic benefits value a product for its own sake (Babin, Darden, and Griffin 1994). When consumers pursue hedonic rather than functional needs, they will easily accept counterfeits. Furthermore, they are not much concerned about low quality. Even in case others notice they consume counterfeits, consumers who do so for a pure hedonic reason will not feel embarrassed. They do not consider a consumer image built on counterfeit products an issue of fragility. Therefore, hedonic benefits of counterfeits are expected to be linked positively to purchase intention of counterfeits and negatively to purchase intention of originals.

Where the expenditure on counterfeit goods accounts for a fixed proportion of a consumer's total budget, the demand for counterfeit goods will increase in the short run as income rises. However, in the long run, he or she will most likely switch to demand genuine goods once the income reaches a certain level. Therefore the price elasticity of demand for counterfeits decreases as income improves. Given the income, the demand for counterfeit goods increases as the price goes down (Yao, 2006).

2.4 Overview of the literature review

Although past research has examined the supply side of counterfeiting (Ang et al., 2001; Bush et al., 1989; Albers- Miller, 1999; Alcock et al., 2003), there has also been an increasing number of studies conducted on the consumer behavioral aspect of counterfeiting such as Bamossy and Scammon, 1985; Bloch et al., 1993; Wee et al., 1995; Cordell et al., 1996; Wilke and Zaichkowsky, 1999; Nta and Zaichkowsky, 2000; Gentry et al., 2001). Other studies have focused on price determinants (Bloch et al., 1993; Albers-Miller, 1999; Harvey and Walls, 2003), non-price determinants such as attitudes (Wee et al., 1995; Tom et al., 1998; Ang et al., 2001; Wang et al., 2005; Cordell et al., 1996; Prendergast et al., 2002; Furnham and Valgeirsson, 2007), ownership of counterfeit luxury products (Cheung and Prendergast, 2006), and across a number of cultural contexts (Tom et al., 1998; Ang et al., 2001; Penz and Sto" ttinger, 2005; Yoo and Lee, 2005; Eisend and Schuchert- Gu" ller, 2006).

This study strives to respond to the call for research to derive the demand function for the counterfeit mobile phones in Kenya. Findings would allow practitioners and policy makers to formulate more effective strategies to diminish the counterfeiting problem in Kenya. It strives to explore the factors that determine the demand for counterfeits mobile phones in Kenya other than the price. The aim of this study is therefore to examine the relationship between non price determinants and the demand for counterfeit mobile phones in Kenya. The non price determinants the study focused on are the income of the consumers, gender, and educational level of the consumers and the age of the consumers.

The review identifies two distinct kinds of consumers in the counterfeit market as shown by Gentry et al (2002). The first type has the perfect information on the product and is willing to purchase the counterfeits to meet their needs at a desirable price range. The decision is made after consumers balance their tastes, income and price. The other type has imperfect information on the merchandise and is mostly a victim of commercial scam.

The review falls short of identifying factors responsible for the upward trend in consumption of counterfeit mobile phone. The writers lay emphasis on why goods are counterfeited rather than the underpinning factors that have pushed consumers so as to prefer these goods.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter will discuss the methods, research procedures and empirical analysis used to conduct this study.

3.2 Empirical Model and Analysis

Consumer demand theory provided the theoretical framework for this study. From this perspective, consumers maximize their utility subject to their budget constraint from which demand functions for various goods and services are derived (Varian, 1999). A rational consumer maximizes utility by matching consumption with the income.

A consumer's utility function is defined as:

$$U = \mu (CM, AOG) \dots (1)$$

Where CM = Counterfeit mobile phone and AOG = all other goods.

A consumer maximizes utility subject to its budget constraint:

$$I = P_1 CM + P_2 AOG \quad (2)$$

Where I = Income,

P_1 = Price of Counterfeit mobile phone,

and P_2 = price of all other goods

Maximization of the utility function subject to the income constraint yields the demand function for counterfeit mobile phone:

$$Q_1 = f (P_1; P_2; X_1; X_2; X_3; X_4) + \mu \dots (3)$$

Where Q_1 = quantity demanded of Counterfeit mobile phone

P_1 = Price of the Counterfeit Mobile phones

P_2 = Prices of other goods

X_1 = Income

X_2 = Gender

X_3 = Educational Level of the Consumer

X_4 = Age of the Consumer

μ = Error term

The quantity demanded of a good is function of income, price of the counterfeit mobile phone, Prices of other goods, Income, Gender, Educational level and Age of the consumer.

While using cross-sectional data, as the case in this study, prices of counterfeit mobile phones and other goods were assumed to be constant across consumers over the time period of the analysis. Therefore, prices were suppressed in the empirical equation. The empirical equation included measures for income, and other factors mentioned above.

Demand for counterfeit was also premised on the Demand theory. The overall effect of counterfeit goods to consumers included; consumers pay too much for the product, purchase inferior product and exploitation of customers. It was interesting to note that despite the ongoing Government initiatives on fights against counterfeit goods, little had been done on the demand for counterfeit goods.

3.3 Definition of variables

3.3.1 Dependent Variable

Counterfeit Mobile phone demand

This variable was assigned one to a consumer who demand a counterfeit mobile phone and otherwise a zero. In the study this variable, was the dependent variable used to derive the logistic regression function.

3.3.2 Independent variables

a. Income:

Economic factors, and in particular income, greatly influence purchasing behaviour. To capture this effect, income was included in the empirical equation to determine its effect on the demand for counterfeit mobile phones in Kenya.

In the conventional demand theory as income increases, the demand for normal goods increases. However, since counterfeit mobile phones are viewed as inferior goods, then as income increases, the demand for (inferior) Counterfeit mobile phones decreases. There is no prior research on the relationship between income and the demand for counterfeit mobile phones that provides insight regarding the direction of this effect. Counterfeit goods are generally considered to be of inferior quality to the original good being copied, and therefore, one would expect a negative effect. However, prior research indicates that some consumers perceive the quality of counterfeit goods to be as good as legitimate goods (Tom et al., 1998), and from that perspective, a positive effect would be hypothesized. In addition, if the trademark is the primary motivation for the purchase, and it is viewed in the consumer's eye to be similar to the original (and not inferior), then the income effect would be positive.

b. Gender

A dummy variable for gender was created with males equal to a one, and females equal to a zero. Although there were some mixed results in the prior literature for example (Singhapakdi and Vitell, 1990; Hegarty and Sims, 1978), males appeared more likely to engage in, or approve of, unethical behaviour than females (Chen and Tang, 2006, Singhapakdi, 2004). Thus, it is hypothesized that males will be more likely to purchase counterfeit mobile phones relative to females.

c. Price of counterfeit mobile phones

The price variable was measured according to the actual price of the handsets. Accordingly, the study established four price bands within which the price of the mobile phone was purchased/estimated.

d. Education level

Education level was measured based on the years of schooling completed. Three dummy variables were created. A dummy variable was assigned a value of one for each of the following years in school: Primary, Secondary and Post school levels/tertiary.

e. Age

Age was measured in years. The respondents were grouped into four age groups. These variables were included to control for possible exposure to the counterfeit issue throughout the life experience.

3.4 Estimation of the Demand Function

For this study, both t-tests of significance and logistic regression were used for the analyses. To achieve the first objective, t-tests were used to determine whether differences exist between demand for counterfeit goods with respect to consumer's income, gender, education level and age.

Since the study was on whether a consumer demand the counterfeit mobile phone or not, then dependent variable was assigned the value of 1 for and 0 against demand for the counterfeit mobile phone. The most commonly approaches to estimating such model is either use of Linear Probability Model (LPM), the Logit Model or the Probit Model.

The logistic regression function was used to estimate the model since linear probability model (LPM) is Non-normality of the disturbances, heteroscedastic variances of the disturbances, possibility of the probabilities lying outside the 0-1 range and generally lower R^2 values. LPM assumes that $P_i = E(Y = 1 | X)$ increases linearly with X , that is, the marginal or incremental effect of X remains constant throughout. Logistic distribution was preferred to probit distribution since the conditional probability P_i approaches zero or one at a slower rate and comparative mathematical simplicity (Damodar et al., 2003). The differences between logit and probit is that logistic has slightly flatter tails i.e. the normal or probit curve approaches the axes more quickly than the logistic curve. However, qualitatively, logit and probit models give similar results; the estimates of parameters of the two models are not directly comparable (Vasisht, 2005).

$$\text{Prob}(Y=1 | X) = F(\beta'x) = \frac{1}{1 + e^{-\beta'x}} = \frac{e^{\beta'x}}{1 + e^{\beta'x}} \dots (4)$$

The quantity demanded of a good is function of income, prices, and tastes and preferences (Varian, 1999). When using cross-sectional data, as in this study, prices were assumed to be constant across consumers over the time period of the analysis. Therefore, prices can be suppressed in the empirical equation. The empirical equation (4) include measures for income, and factors to control for tastes and preferences such as level of consumer education, gender and age.

The equation estimated in this study was the logistic distribution function:

$$\text{Prob}(y=1 | X_i) = \frac{1}{1 + e^{-\beta'x}} = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4}} \dots (5)$$

Where:

X_1 = Income

X_2 = Gender; Male = 1, Female = 0

X_3 = Level of education of the consumer

X_4 = Age of consumer.

β_i = the coefficient of the predictor variables

β_0 = the constant of the equation

e = mathematical constant, approximately equal to 2.71828, that is the base of the natural logarithms

Equation (5) can be rewritten as shown below;

$$P_i = \frac{1}{1 + e^{-x_i}} = \frac{e^{x_i}}{1 + e^{x_i}} \dots (6)$$

Where $Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$

e = mathematical constant, approximately equal to 2.71828, that is the base of the natural logarithms

Where:

X_1 = Income

X_2 = Gender; Male = 1, Female = 0

X_3 = Level of education of the consumer

X_4 = Age of consumer.

β = the coefficient of the predictor variables

β_0 = the constant of the equation

And $P_i = \text{Prob}(y=1 | X_i)$

As Z_i ranges from $-\infty$ to $+\infty$, P_i ranges between 0 and 1

P_i is nonlinearly related to Z_i (i.e. X_i).

As $Z_i \rightarrow +\infty$, i.e. e^{-Z_i} tends to Zero and as $Z_i \rightarrow -\infty$, e^{Z_i} increases indefinitely, but $e=2.71828$.

P_i is nonlinear in X and β 's as seen in equation (5). Since equation (5) is an exponential expression with a natural logarithm e .

Thus OLS (Ordinary Least Square) procedure would be inappropriate to estimate the parameters. This calls for making equation (5) a linear function as follows;

If P_i is the probability of demanding a counterfeit mobile phone, then $(1-P_i)$ is the probability of not demanding a counterfeit mobile phone as stated below;

$$(1-P_i) = \frac{1}{1+e^{Z_i}} \quad \dots (7)$$

Therefore,

$$\frac{P_i}{1-P_i} = \frac{1+e^Z}{1+e^{-Z}} = e^{Z_i} \dots (8)$$

$$\text{Where } Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

e = mathematical constant, approximately equal to 2.71828, that is the base of the natural logarithms

X_1 = Income

X_2 = Gender; Male = 1, Female = 0

X_3 = Level of education of the consumer

X_4 = Age of consumer.

β = the coefficient of the predictor variables

β_0 = the constant of the equation

e = mathematical constant, approximately equal to 2.71828, that is the base of the natural logarithms and

P_i is the probability of demanding a counterfeit mobile phone, then $(1-P_i)$ is the probability of not demanding a counterfeit mobile phone, and P_i varies from 0 -1

$\frac{P_i}{1-P_i}$ is the odds ratio in favour of demanding a counterfeit mobile phone. The odds ratio is

the ratio of the probabilities of a Consumer demanding a counterfeit mobile phone to a Consumer not demanding a counterfeit mobile phone.

The natural log of the equation (8) is obtained as follows;

$$L_i = \ln \left(\frac{P_i}{1-P_i} \right) = Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \dots (9)$$

From the results of Table 5 in Chapter 5 and substituting the values in equation 9 above, the above equation can be re-written as;

$$L_i = \ln \left(\frac{P_i}{1-P_i} \right) = Z_i = 0.88 - 0.189X_1 - 0.031X_2 + 0.357X_3 + 0.030X_4$$

Thus the log of the odds ratio is not only linear in X , but also linear in parameters.

3.5 Estimation of the Model

Since data collected was from individuals (i.e. at a micro level), the maximum likelihood (ML) method was used to estimate the parameters. From the equation (6) P_i was not observed, the outcome $Y=1$, where a consumer demands a counterfeit mobile phone, and $Y=0$, where an individual did not demand a counterfeit mobile phone. Since each Y_i is a Bernoulli random variable, a Bernoulli random variable could only take on the values 0 or 1; no other values are possible, then;

$$\text{Prob}(Y_i = 1) = P_i \dots (10)$$

$$\text{Prob}(Y_i = 0) = (1-P_i) \dots (11)$$

The characteristics of Bernoulli random variable are, for n identical trials, each Bernoulli trial results in one of two mutually exclusive outcomes of 1 or 0 on each trial and this remain a constant. The trials were independent events.

For a random sample of n observations and letting $f_i(Y_i)$ denote the probability that $Y_i = 1$ or 0, the joint probability of observing the n Y values, i.e., $f(Y_1, Y_2, \dots, Y_n)$ is given as the following likelihood function;

$$f(Y_1, Y_2, \dots, Y_n) = \prod_{i=1}^n f_i(Y_i) = \prod_{i=1}^n P_i^{Y_i} (1-P_i)^{1-Y_i} \dots (12)$$

where;

$f_i(Y_i)$ = Observed Value for case i .

P_i = The expected (predicted or fitted) probability (Between 0 and 1)

Where, \prod is the product operator. The joint probability function (12) could be written as a product of individual density functions, since each Y_i is drawn independently and each Y_i has the same probability density function. Taking the natural logarithm of equation (12), a log likelihood function is obtained as follows;

$$f(Y_1, Y_2, \dots, Y_n) = \sum_i \left[Y_i \ln \left(\frac{P_i}{1-P_i} \right) \right] + \sum_i \ln(1-P_i) \dots (13)$$

Using equation (7) and (9) and substituting in equation (13) then to following;

$$f(Y_1, Y_2, \dots, Y_n) = \sum_i \left[Y_i \ln(\beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4) \right] + \sum_i \ln(1 + e^{\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4}}) \dots (14)$$

Substituting the values from table 6 in chapter 5;

$$f(Y_1, Y_2, \dots, Y_n) = \sum_i \left[Y_i \ln(0.888 - 0.189 - 0.031 + 0.357 + 0.030) \right] + \sum_i \ln(1 + e^{(0.888 - 0.189X_{i1} - 0.031X_{i2} + 0.357X_{i3} + 0.030X_{i4})}$$

$$f(Y_1, Y_2, \dots, Y_n) = \sum_i Y_i 0.023 + \sum_i \ln(1 + e^{(0.888 - 0.189X_{i1} - 0.031X_{i2} + 0.357X_{i3} + 0.030X_{i4})}$$

The above log likelihood function was a function of the parameters β_i , since X_i (i.e. income, gender, level of education and age) are known. In ML, the objective was to maximize the log likelihood function (LLF), that is, to obtain the values of unknown parameters in such a manner that the probability of observing the given Y 's was as high as possible (maximum). To obtain this the equation (14) was partially differentiated in respect to β_i 's.

CHAPTER FOUR

4.0 DATA, TYPES AND SOURCES

4.1 Data Type

The primary data was used in this study to collect information on consumers demand for counterfeit mobile phones Kenya.

4.2 Source of Data

Data was obtained from a population of 3.0 Million mobile phone owners and users in Nairobi, (CCK, 2012).

4.3 Method of Data Collection

A self administered questionnaire was used to collect data for this study. It was stressed that the respondents participate voluntarily, free of obligation and anonymous. Demographic details were obtained from the previous national censuses that took place in Kenya in the year 2009 and were used purely for statistics. This information was provided by the Kenya Bureau of Statistics. The respondents were given adequate time to go through the questionnaire before giving a response to the questions asked therein.

4.4 Sampling Technique

According to (Mugenda & Mugenda, 2003) sampling is the process of selecting a number of individuals for a study in such a way that the individual selected represents the large group from which they are selected. Sampling procedure may be defined as a systematic process of individuals for a study to represent the larger group from which they are selected. The

process of constructing or designing a sample is called sampling, which begins by defining the sampling frame. Sampling frame is a complete or partial listing of items comprising the population

A probability basis technique was adopted. Probability sampling was based on the concept of random selection- a controlled procedure that assures that each population element was given a known non-zero chance of selection.

The current study used a non-probabilistic sampling design that was arbitrary and subjective because each element had a non- zero chance of being included in study. Probability method of sampling was appropriate due to its relative cheapness and usefulness when population is so widely dispersed that cluster sampling would not be efficient.

4.5 Sample Size

The sample was drawn from a population of 3.0 Million mobile phone owners in Nairobi (CCK Statistics 2012). The sample size for the study was estimated using the Research Advisers (2006) table, see attached appendix 2. This according to the table was estimated to three hundred and eighty four (384) at 95% confidence level or 5% margin of error. However, the study chose a convenient figure of three hundred and seventy (370) respondents after analysis of cost of collecting and analyzing data.

CHAPTER FIVE

5.0 DATA ANALYSIS AND DISCUSSION OF RESULTS

5.1 Introduction

This chapter outlines the results of the study. The data was collected from a sample of three hundred and seventy (370) mobile phone owners in Nairobi using the criteria set in 4.5 above. The variables used in the study are defined as follows;

| NAME | MEAN | STANDARD DEVIATION | MIN. | MAX. | DESCRIPTION |
|------------------|------|--------------------|------|------|--|
| Counterfeit(Y) | 1.28 | 0.448 | 0 | 1 | Dependent variable was 1 if the mobile phone used/demanded was counterfeit, else 0. |
| Income (X_1) | 2.17 | 1.096 | 1 | 4 | Income level of the mobile user/respondent which was in four (4) categories, i.e. Kshs. 0-10,000, 10,001-20,000, 20,001-40,000 and above Kshs. 40,000 which were assigned values of 1,2,3, and 4 respectively. |
| Gender (X_2) | 1.42 | 0.494 | 0 | 1 | Was 1 if the respondent/mobile phone user was a male, else 0 |
| Price (X_3) | 1.90 | 0.958 | 1 | 4 | Price of the mobile phone in use by the respondent and was categorized into four brackets |

| | | | | | |
|---------------------|------|-------|---|---|---|
| | | | | | i.e. below Kshs. 5,000, 5,001-10,000, 10,001 – 20,000 and above kshs. 20,000 and assigned values of 1,2,3, and 4 respectively |
| Age (X_4) | 2.23 | 0.760 | 1 | 4 | Age of the respondent which was categorized into four brackets i.e. 21-30 years, 31-40 years, 41-50 years and above 50 years and assigned values 1,2,3, and 4 respectively |
| Education (X_5) | 2.07 | 0.753 | 1 | 3 | Education of the respondent which was in three categories i.e. 1-8 years (basic education), 9-12 years (secondary education and above 12 years Tertiary and University education and assigned values 1,2, and 3 respectively. |

5.2 Data Analysis

The data was analyzed using Statistical Package for Social Sciences (SPSS). The results of the analysis are as shown in the table 1 below;

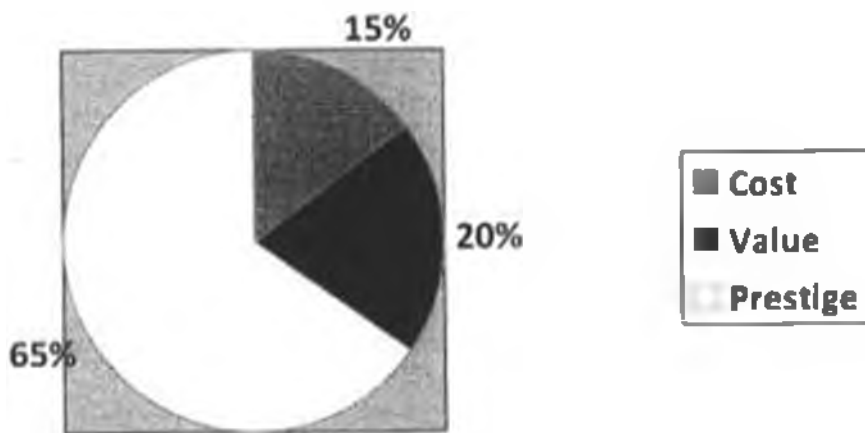
Table 1: Respondents Summary

| | | N | Marginal Percentage |
|-------------|----------------|-----|---------------------|
| Counterfeit | Yes | 267 | 72.2% |
| | No | 103 | 27.8% |
| Income | Ksh 0-10000 | 136 | 36.5% |
| | 10001-20000 | 98 | 26.9% |
| | 20001-40000 | 79 | 21.4% |
| | Above 40000 | 60 | 16.2% |
| Gender | Female | 215 | 58.1% |
| | Male | 155 | 41.9% |
| Price | below Ksh 5000 | 159 | 43.0% |
| | 5001-10000 | 118 | 31.9% |
| | 10001-20000 | 63 | 17.0% |
| | above 20000 | 30 | 8.1% |
| Age | 21-30 | 59 | 15.9% |
| | 31-40 | 191 | 51.8% |
| | 41-50 | 95 | 25.7% |
| | above 50 | 25 | 6.8% |
| Education | 1-8 | 93 | 25.1% |
| | 9-12 | 159 | 43.0% |
| | above 12 | 118 | 31.9% |
| Valid | | 370 | 100.0% |
| Missing | | 0 | |
| Total | | 370 | |

From table 1 above 72.2% of the respondents considered that the mobile phone they own was a counterfeit and 27.8% considered otherwise. 58.1% of the respondents were female and 41.9% male. 6.8% of the respondent were age 50years and above while 93.2% were below age 50 years. 8.1% of the respondents earned an income of Kshs. 20,000 and above.

One hundred and thirty four (134) respondents representing 36.2% earned an income of less than Ksh. 10,000. This level of income was likely to affect the demand for counterfeit phones. 43% of the respondents had spent between nine and twelve years in school i.e secondary education.32% of the respondents had spent over thirteen (13) years in school i.e. post secondary, while 25% were below eight years of schooling.

Chart 1: Major factor for purchasing mobile phone



The study considered three motivating factors that consumers considered in making a choice of purchasing a mobile phone. These factors include: price of the mobile phone, value attachment and prestige derived. From the analysis, 65% were motivated by the prestige of owning a mobile phone, 20% value attachment , while 15% were motivated by the price of the phone.

Table 2: Gender of respondent and Demand for counterfeit mobile phone

| Gender | Counterfeit Mobile Phone | A | B | Genuine Mobile phone | C | D |
|---------------|---------------------------------|------------|-----------|-----------------------------|-----------|-----------|
| Female | 156 | 93 | 63 | 59 | 47 | 12 |
| Male | 111 | 85 | 26 | 44 | 24 | 20 |
| Total | 267 | 178 | 89 | 103 | 71 | 32 |

From Table: 2 above;

Column A = Represents the number of respondents who consider that they own a counterfeit mobile phone and will buy a similar phone if given a chance.

Column B = Represents the number of respondents who consider that they own a counterfeit mobile phone and will not buy a similar phone if given a chance.

Column C = Represents the number of respondents who consider that they own a genuine mobile phone and will buy a similar phone if given a chance.

Column D = Represents the number of respondents who consider that they own a genuine mobile phone and will not buy a similar phone if given a chance

The conditional probability of females who consider their mobile phones to be counterfeit is $156/215 = 0.726$ (72.6%). The conditional probability that these female will still buy a counterfeit mobile phone is $93/156 = 0.596$ (59.6%). While, that of male was $111/155 = 0.716$ (71.6%). The conditional probability that these male will still buy a counterfeit mobile

phone is $85/111=0.766$ (76.6%). The odds of a female considering that their mobile phones are counterfeit are $156/59=2.644$ and male is $111/44=2.523$.

Table 3: Relationship between Income and purchase of counterfeit Mobile phones

| Mobile Phones | | Gross monthly income | | | | | | | | |
|--------------------|-----|----------------------|-----|---------------|----|---------------|----|--------------|----|------|
| | | 0-10,000 | | 10,000-20,000 | | 20,000-40,000 | | Above 40,000 | | |
| Genuine | 267 | 72% | 76 | 57% | 76 | 79% | 50 | 62% | 52 | 87% |
| Counterfeit | 103 | 28% | 58 | 43% | 20 | 21% | 30 | 38% | 8 | 13% |
| Total | 370 | 100% | 134 | 100% | 96 | 100% | 80 | 100% | 60 | 100% |

Table: 3 above show that there exists a relationship between income earned and the type of mobile phone owned by the respondents.

The conditional probability of respondents earning income of less than Kshs. 10,000 per month owning a counterfeit mobile phones is $58/134=0.433$ (43.3%). While those respondents earning income between Kshs. 10,000 to 20,000 per month and owning a counterfeit mobile phones is $20/96=0.208$ (20.8%), the conditional probability of respondents earning income between Kshs. 20,000 to 40,000 per month and own a counterfeit mobile phones is $30/80=0.375$ (37.5%) and finally the conditional probability of respondents earning income above Kshs. 40,000 per month and consider that they own a counterfeit mobile phones is $8/60=0.133$ (13.3%). The odds ratios in favour of consumers (respondents) considering that they own a counterfeit mobile phones and who earn below Kshs 10,000, between Kshs. 10,000-20,000, between Kshs. 20,000-40,000 and above Kshs. 40,000 per month are $58/76=0.763$, $20/76=0.263$, $30/50=0.400$ and $8/52=0.154$ respectively.

There is an inverse relationship between the demand for counterfeit mobile phones with income. The respondents' income increase results to a reduction in the odds ratio in favour of the consumer considering that the mobile phone owned is a counterfeit.

Table 4: Relationship between Age and purchase of counterfeit Mobile phones

| Age (in Years) | Counterfeit Mobile Phones | Genuine Mobile Phones | Total |
|----------------|---------------------------|-----------------------|------------|
| 21-30 | 46 | 13 | 59 |
| 31-40 | 150 | 41 | 191 |
| 41-50 | 69 | 26 | 95 |
| Above 50 | 2 | 23 | 25 |
| Total | 267 | 103 | 370 |

From table 4 above, the conditional probability of respondents of age bracket between 21-30 years old who consider that they own a counterfeit mobile phones is $46/59=0.780$ (78.0%). While those respondents of age bracket between 31-40 years old own a counterfeit mobile phones is $150/191=0.785$ (78.5%), in the age bracket between 41-50 years old who own a counterfeit mobile phones is $69/95=0.726$ (72.6%) and finally the conditional probability of respondents of age above 50 years old and own a counterfeit mobile phones is $2/25=0.080$ (8.0%). The odds ratios in favour of consumers (respondents) considering that they own a counterfeit mobile phones and who were of age between 21-30 years, 31-40years, 41-50years and above 50years are $46/13=3.538$, $150/41=3.659$, $69/26=2.654$ and $2/23=0.087$ respectively. There is an inverse relationship between the demand for counterfeit mobile

phones with the respondents age. The respondents' age increase results to a reduction in the odds ratio in favour of the consumer considering that the mobile phone owned is a counterfeit.

Table 5: Relationship between Education and purchase of counterfeit Mobile phones

| Education Level (in Years) | Counterfeit Mobile Phones | Genuine Mobile Phones | Total |
|----------------------------|---------------------------|-----------------------|------------|
| 1-8 | 77 | 16 | 93 |
| 9-12 | 111 | 48 | 159 |
| Above 12 | 79 | 39 | 118 |
| Total | 267 | 103 | 370 |

From table 5 above, the conditional probability of respondents of educational level of between 1-8 years in school/educational Institution and consider that they own a counterfeit mobile phones is $77/93 = 0.828$ (82.8%). While respondents of educational level between 9-12 years in school/educational Institution and own a counterfeit mobile phones is $111/159 = 0.698$ (69.8%) and finally the conditional probability of respondents of educational level of above 12 years in school/educational Institution and own a counterfeit mobile phones is $79/118 = 0.669$ (66.9%). The odds ratios in favour of consumers (respondents) considering that they own a counterfeit mobile phones and who had between 1-8 years in school/educational Institution, between 9-12 years in school/educational Institution and above 12 years in school/educational Institution is $77/16 = 4.813$, $111/48 = 2.313$, and

79/39=2.026 respectively. There is an inverse relationship between the demand for counterfeit mobile phones with the respondents number of years spent in school or educational Institutions (Education Level). The respondents' education level increases as the odds ratio in favour of the consumer considering that the mobile phone owned is a counterfeit decreases.

5.3 Regression Results

Table 6: Coefficients of the Model

Dependent Variable: Demand for counterfeit mobile phones

| Model | Coefficients | | T | Sig. |
|------------|--------------|------------|---------|------|
| | B | Std. Error | | |
| (Constant) | .888 | .075 | 11.800 | .000 |
| Income | -.189 | .011 | -16.764 | .000 |
| Gender | -.031 | .023 | -.1386 | .187 |
| Price | .021 | .018 | 1.182 | .238 |
| Age | .030 | .019 | 1.582 | .115 |
| Education | .357 | .018 | 18.893 | .000 |

From Table 6, it gives the coefficients of the variables and the constant value of the logistic regression equation. It also gives the standard error of the coefficients of the variables. At 95% confidence interval income and education level significantly affect the demand for counterfeit mobile phones, since the p-value is less than 0.05 (i.e. 0.000).

Table 7: Descriptive Statistics

| | Mean | Std. Deviation | N |
|-------------|------|----------------|-----|
| Counterfeit | 1.28 | .449 | 370 |
| Income | 2.17 | 1.098 | 370 |
| Gender | 1.42 | .494 | 370 |
| Price | 1.90 | .968 | 370 |
| Age | 2.23 | .798 | 370 |
| Education | 2.07 | .763 | 370 |

From table 7, shows the means and standard deviations of the coefficients of the predictor variables.

Table 8: Model Summary

Model Summary^a

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|
| | | | | | R Square Change | F Change | df1 |
| 1 | .881 ^a | .777 | .774 | .213 | .777 | 253.628 | 5 |

a Predictors (Constant), Education, Gender, Age, Income, Price

b Dependent Variable: Counterfeit

From table 8 above, the estimated standard deviation of the error term (standard error of the regression) is 0.213. The standard errors of the regression coefficients, R^2 is 0.777, means that 77.7% of that variation of independent variables is explained by the regressors (dependent variables).

Table 9: Coefficients lower and upper limit

| Model | 95.0% Confidence Interval for B | | Correlations | | |
|------------|---------------------------------|-------------|--------------|---------|-------|
| | Lower Bound | Upper Bound | Zero-order | Partial | Part |
| (Constant) | 740 | 1 038 | | | |
| Income | - 211 | - 187 | - 666 | - 690 | - 415 |
| Gender | -.076 | .013 | .010 | -.072 | -.034 |
| Prce | -.014 | .056 | .441 | .062 | .029 |
| Age | -.007 | .068 | -.182 | .083 | .039 |
| Education | .321 | .392 | .770 | .718 | .488 |

Table 9 above gives the lower and upper bound of the coefficients of the predictor variables.

Table 10: Residuals Statistics

| | Minimum | Maximum | Mean | Std. Deviation | N |
|----------------------|---------|---------|------|----------------|-----|
| Predicted Value | .89 | 1.88 | 1.28 | .398 | 370 |
| Residual | -.840 | .191 | .000 | .212 | 370 |
| Std. Predicted Value | -.991 | 1.526 | .000 | 1.000 | 370 |
| Std. Residual | -.3 937 | .895 | .000 | .993 | 370 |

From table 6 and using equation 5 in chapter three (3) the following demand function is estimated:

$$\text{Prob}(y=1 | X_i) = F(\beta'x) = \frac{1}{1 + e^{-\beta'x}} = \frac{e^{0.888 - 0.189X_1 - 0.071X_2 + 0.021X_3 + 0.030X_4 + 0.137X_5}}{1 + e^{0.888 - 0.189X_1 - 0.071X_2 + 0.021X_3 + 0.030X_4 + 0.137X_5}} \dots (14)$$

5.5 Interpretation of results

For additional income earned by the mobile phone users, the demand for counterfeit mobile phone decreases by a factor of $\left\{ \frac{e^{-0.668}}{1+e^{-0.668}} \right\} = -0.668$ holding other factors constant.

The demand for counterfeit mobile phone increases by a factor of $\left\{ \frac{e^{0.847}}{1+e^{0.847}} \right\} = 1.737$ if the buyer's gender is male and else increases with a factor of $\left\{ \frac{e^{0.488}}{1+e^{0.488}} \right\} =$

0.708 holding other factors constant. For consumers additional level of education the demand for counterfeit mobile phone increases at a factor of $\left\{ \frac{e^{0.776}}{1+e^{0.776}} \right\} = 0.776$.

Increase in the price of the phone the demand for counterfeit phones will increase at a factor of $\left\{ \frac{e^{0.713}}{1+e^{0.713}} \right\} = 0.713$ holding other factors constant. The older the consumer is the

demand for counterfeit mobile phone will increase with a factor of $\left\{ \frac{e^{0.715}}{1+e^{0.715}} \right\} = 0.715$ holding other factors constant.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter summarizes discussion outlined in chapter five above and gives conclusions arrived at and the recommendations.

6.2 Conclusions

This study was undertaken against the backdrop of rising demand for counterfeit mobile phones. It aimed at determining factors that contributed to this trend. The factors are gender, age, income, price of the mobile phone and education level. The study used Binary Choice Logistic Regression to estimate demand function and the maximum likelihood method to estimate the relationships between the various variables.

While income and level of education were the greatest determinants of the kind of phone likely to be purchased by consumers, there were other factors that determine demand for counterfeit mobile phones. These include age, gender and price of the mobile phone. It was also established that majority of high income earners go for genuine phones while the low income earners go for the counterfeits. This study observed that income and education level significantly affect demand for counterfeit mobile phones.

6.3 Recommendations

Government should lower taxes on genuine mobile phones to stimulate demand of low income earners. This will enable them to access better services at a cheaper price. The Government could also consider franchising with the renowned established producers of mobile phones to ensure that the same are produced locally so as to reduce production cost.

Consideration should also be made whenever a new version of the mobile phone is launched in the market outdated version are bought back in exchange of the new version. This would greatly reduce customers who are brand switchers.

The Government of Kenya to map out strategies to enhance consumer knowledge on mobile phones. This shall address the importance of using genuine phones and enhance Government revenue in terms of tax collected.

Finally, the Government should introduce stiffer penalties for those found buying counterfeit mobile phones.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behaviour: Human Decision Process*, 50, 179-211.
- Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behavior. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 173-221). Mahwah, NJ: Erlbaum.
- Ajzen, I., Fishbein, M. (1980), *Understanding Attitudes and Predicting Social Behaviour*, Prentice-Hall, Englewood Cliffs, NJ,
- Alfred Marshall, 1920, *Principles of Economics, An introductory Volume*, 8th edition, London: Macmillan
- Babin, Barry J, William R. Darden, and Mitch Griffin (1994). "Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value," *Journal of Consumer Research*, 20 (March), 644-656.
- Behaviour: Theory, Research and Social Issues, Lickona, T., ed., Rinehart, Holt, and Winston, New York, pp. 31-53.
- Belk, Russell W. (1985), "Materialism: Trait Aspects of Living in the Material World." *Journal of Consumer Research*, 12 (December), 265B280.
- Bounghee Yoo and Seung-Hee Lee, (2009), *Buy Genuine Luxury Fashion Products or Counterfeits?*
- Buckley, A., (1997), *The Essence of Consumer Behavior*, Prentice Hall, p. 142.
- Bush, Peter H, Bush, Ronald F. and Campbell, I.cland. (1993). "Consumer 'Accomplices' in Product Counterfeiting," *Journal of Consumer Marketing*, Vol. 10, No. 4, pp. 27- 36.
- Charles A Cofie (2009), *Illicit trade and counterfeit goods- The Impact on National Development*
- Communications commission of Kenya, Quarterly sector statistics report 2011/2012.*
- Cordell, V.V., Wongtada, N., Kieschnick, R.L. Jr (1996), "Counterfeit purchase intentions: role of lawfulness attitudes and product traits as determinants", *Journal of Business Research*, Vol. 35 pp.41-53.
- D., Johnson, B.T., & Zanna M.P. (Eds.), (2005), *The handbook of attitudes*, Mahwah, NJ: Erlbaum
- Damodar N Gujarati (2003), *Basic Econometrics, Fourth Edition*, McGraw-Hill Companies.

- Emler, N., Reicher, S. (1987), "Orientations to institutional authority in adolescence", *Journal of Moral Education*, Vol. 16 No.2, pp.108-16.
- Gene M Grossman and Carl Shapiro, (1988); Foreign Counterfeiting of Status Goods, *Quarterly Journal of Economics*, Vol. 103, No. 1, pp. 79-100.
- Gilligan, C. (1982), *In a Different Voice Psychological Theory and Women's Development*, Harvard University Press, Cambridge, MA,
- Global Market Research, June 2008, <http://www.just-style.com>
- Grossman, Gene M. and Shapiro, Carl. (1988). "Foreign Counterfeiting of Status Goods." *The Quarterly Journal of Economics*, February, pp. 79- 99
- Gupta, P.B., Gould, S.J., Pola, B. (2004). "To pirate or not to pirate: a comparative study of the ethical versus other influences on the consumer's software acquisition-mode decision", *Journal of Business Ethics*, Vol. 55 pp.255-74.
- ICC Counterfeiting Intelligence Bureau (1997), *Countering Counterfeiting. A Guide to Protecting and Enforcing Intellectual Property Rights*, United Kingdom
- J. Scott Long, 1997, *Regression Models for Categorical and Limited Dependent Variables*, International Educational and Professional Publishers, Thousand Oaks London New Delhi: SAGE Publications.
- Jason Rutter and Jo Bryce, (2008). *The Consumption of Counterfeit Goods Here be Pirates*
- Keith Wilcox, Hyeong Min Kim and Sankar Sen, (2008); Why Do Consumers Buy Counterfeit Luxury Brands? *Journal of Marketing Research*, Vol. ALV
- Kenya bureau of Standards, The Benchmark, The official magazine of the Kenya Bureau of standards, September, 2008.
- Kohlberg, L., (1976), *Moral Stages and Moralization The Cognitive Development Approach*, in *Moral Development*
- Kohlberg, L. (1976), "Moral stages and moralization: the cognitive development approach, in moral development and behavior: theory", in Lickona, T. (Eds), *Research and Social Issues*, Holt, Rinehart, and Winston, New York, NY, pp.31-53.
- Marshall, L. (2004) 'the Effects of Piracy upon the Music Industry: A Case Study of Bootlegging
- Martin Eisend & Pakize Schuchert-Guler (2006), Explaining Counterfeit Purchases-A

Review and Preview, *Academy of Marketing Science Review*, 06(12), 1-25.

- Miller, Nancy D. Albers. (1999). "Consumer Misbehaviour: Why People Buy Illicit Goods." *Journal of Consumer Marketing*, Vol. 16, No. 3, pp. 273- 287.
- M. S. Raju, Dominique Xardel (2004), *Consumer Behaviour, Concepts, applications and cases*, Vikas Publishing House PVT Ltd., New Delhi.
- Nil, A., Shultz, C.J. II (1996), "The scourge of global counterfeiting". *Business Horizons*, Vol. 39 No.6, pp.37-43.
- Penz, E., Stöttinger, B. (2005), "Forget the real thing-take the copy! An explanatory model for the volitional purchase of counterfeit products". *Advances in Consumer Research*, Vol. 32 pp.568-75.
- Peter H Bloch, Ronald F. Bush, Leland Campbell(1993), "Consumer "accomplices" in product counterfeiting: a demand side investigation", *Journal of Consumer Marketing*, Vol. 10 Iss: 4, pp.27 - 36.
- Phau, Ian., Prendergast, Gerard., and Chuen, Ieung Hing (2001). "Profiling brand-piracy-prone consumers: An exploratory study in Hong Kung's clothing industry." *Journal of Fashion Marketing and Management*, Vol. 5, No. 1, pp. 45- 55.
- Pullinger Zachary (2005), "Counterfeit Goods and Their potential Financing of International Terrorism", *The Michigan journal of Business*
- Richard S. Higgins and Paul H. Rubin, (1986); Counterfeit Goods. *Journal of Law and Economics*, Vol.29, No. 2, pp 211-230.
- Sheppard, B. H., Hartwick, J., & Warshaw, P.R (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research*, 15, 325-343.
- Singhapakdi, A. (2004), "Important factors underlying ethical intentions of students: implications for marketing education", *Journal of Marketing Education*, Vol. 26 No. 3, pp. 261-71.
- Sheppard, L., Hartwick, P., Warshaw, R. (1988), "The Fishbein extended model and consumer behaviour", *Journal of Consumer Research*, Vol. 2 No.3, pp.118-236.
- Staake, Thorsten, Frederic Thiesse, and Elgar Fleisch (2009), The emergence of Counterfeit trade: A literature review, *European Journal of Marketing*, 43, pp.320-349.
- Tacq, J. (1997), *Multivariate Analysis Techniques in Social Science Research*, Sage Publications, Thousand Oaks, CA. w York, NY.

The East African, losing billions in spirits' re-export' scam,
<http://www.theeastafrican.co.ke/news/-/2558/640198/-/r0mxh5z/-/index.html>
accessed on 18th May 2011

Iom, Gail., Garibaldi, Barbara., Zeng, Yvette., and Pilcer, Julie. (1998). Consumer Demand for Counterfeit Goods, *Psychology and Marketing*, August, Vol. 15 (5), pp. 405-421.

Trochim, W. M. K. (2005). General linear model Retrieved December 2, 2005, from <http://www.socialresearchmethods.net/kb/genlin.htm>.

Uzma Khan and Rari Dhar (2004), "*A behavioural Decision Theoretic Perspective on Hedonic and Utilitarian Choice*", Yale University.

Vanan, H.R. (1999), *Intermediate Microeconomics: A Modern Approach*, 5th ed., W.W. Norton and Company, N.

Vincent Wenxiong Yao (2006). "An Economic Analysis of Counterfeit Goods: A case Study of China", *Journal of the Washington Institute of China*

Vitell, S.J., Singhapakdi, A., Thomas, J. (2001), "Consumer ethics: an application and empirical testing of the Hunt-Vitell theory of ethics", *The Journal of Consumer Marketing*, Vol. 18 No.2, pp.153-78

Wee, Chow-Hou, Tan, Saa-Jiuam, Cheok, Kim-Hong. (1995). Non-price determinants of intention to purchase counterfeit goods: An exploratory study, *International Marketing Review*, Vol. 12, No. 6, pp. 19- 46.

Wilcox, Keith, Hyeong Min Kim, and Sankar Sen (2009) Why do consumers buy counterfeit luxury brands?, *Journal of Marketing Research*, 46, pp.247-259.

Appendix 1: Questionnaire

1. Gender: Male Female

2. Age (years):
21-30 31-40
41-50 above 50

3. Level of Education
1-8
9-12
13 and above

4. What is your monthly Income level?
Below Kshs. 10,000 Kshs. 10,000-20,000
Kshs. 20,000-40,000 Above Kshs. 40,000

5. Do you own a mobile phone?
Yes No

6. Which Make

7. What was the price of the mobile phone?
Below Kshs. 5,000 Kshs. 5,001-10,000
Kshs. 10,001-20,000 Above Kshs. 20,000

8. Are you satisfied with the services of your mobile phone?

Yes No

9. Do you consider your mobile phone to be

Genuine Counterfeit ?

10. If counterfeit, did you buy it knowingly?

Yes No Not applicable

11. In case of a replacement will you buy a similar phone?

Yes No

12. If you press *#06# does the phone give an IMEI number?

Yes No

13. Where did you purchase your mobile phone?

a. Mobile phone dealer

b. Supermarket

c. Stalls

14. What did you consider while buying your current mobile phone?

a. Price of the phone

b. Value of the phone

c. Prestige

THANK YOU FOR FILLING THIS QUESTIONNAIRE.

Appendix 2: Research Advisors Table

Required Sample Size[†]

| Population Size | Confidence = 95% | | | | Confidence = 99% | | | |
|-----------------|------------------|------|------|------|------------------|------|------|-------|
| | Margin of Error | | | | Margin of Error | | | |
| | 5.0% | 3.5% | 2.5% | 1.0% | 6.0% | 3.5% | 2.5% | 1.0% |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 20 | 19 | 20 | 20 | 20 | 19 | 20 | 20 | 20 |
| 30 | 28 | 29 | 29 | 30 | 29 | 29 | 30 | 30 |
| 50 | 44 | 47 | 48 | 50 | 47 | 48 | 49 | 50 |
| 75 | 63 | 69 | 72 | 74 | 67 | 71 | 73 | 75 |
| 100 | 80 | 89 | 94 | 99 | 87 | 93 | 98 | 99 |
| 150 | 108 | 126 | 137 | 148 | 122 | 135 | 142 | 149 |
| 200 | 132 | 160 | 177 | 196 | 154 | 174 | 186 | 198 |
| 250 | 152 | 190 | 215 | 244 | 182 | 211 | 229 | 246 |
| 300 | 169 | 217 | 251 | 291 | 207 | 246 | 270 | 295 |
| 400 | 198 | 265 | 318 | 384 | 250 | 309 | 348 | 391 |
| 500 | 217 | 306 | 377 | 475 | 285 | 365 | 421 | 485 |
| 600 | 234 | 340 | 432 | 565 | 315 | 418 | 490 | 579 |
| 700 | 248 | 370 | 481 | 653 | 341 | 462 | 554 | 672 |
| 800 | 260 | 398 | 526 | 739 | 363 | 503 | 615 | 763 |
| 1 000 | 278 | 440 | 606 | 906 | 399 | 575 | 727 | 943 |
| 1 200 | 291 | 474 | 674 | 1067 | 427 | 636 | 827 | 1119 |
| 1 500 | 306 | 515 | 759 | 1297 | 460 | 712 | 959 | 1376 |
| 2 000 | 322 | 563 | 869 | 1655 | 498 | 808 | 1141 | 1785 |
| 2 500 | 333 | 597 | 952 | 1984 | 524 | 879 | 1268 | 2173 |
| 3 500 | 346 | 641 | 1068 | 2565 | 558 | 977 | 1510 | 2890 |
| 5 000 | 357 | 678 | 1211 | 3288 | 586 | 1066 | 1734 | 3842 |
| 7 500 | 365 | 710 | 1275 | 4211 | 610 | 1147 | 1960 | 5165 |
| 10 000 | 370 | 727 | 1332 | 4899 | 622 | 1193 | 2098 | 6239 |
| 25 000 | 378 | 760 | 1448 | 6939 | 648 | 1285 | 2399 | 9972 |
| 50 000 | 381 | 772 | 1491 | 8056 | 655 | 1318 | 2520 | 12455 |
| 75 000 | 382 | 776 | 1506 | 8514 | 658 | 1330 | 2563 | 13583 |
| 100 000 | 383 | 778 | 1513 | 8762 | 659 | 1336 | 2585 | 14227 |
| 250 000 | 384 | 782 | 1527 | 9248 | 662 | 1347 | 2626 | 15555 |
| 500 000 | 384 | 783 | 1532 | 9423 | 663 | 1350 | 2640 | 16055 |
| 1 000 000 | 384 | 783 | 1534 | 9512 | 663 | 1352 | 2647 | 16317 |
| 2 500 000 | 384 | 784 | 1536 | 9567 | 663 | 1353 | 2651 | 16478 |
| 10 000 000 | 384 | 784 | 1536 | 9594 | 663 | 1354 | 2653 | 16560 |
| 100 000 000 | 384 | 784 | 1537 | 9603 | 663 | 1354 | 2654 | 16584 |
| 300 000 000 | 384 | 784 | 1537 | 9603 | 663 | 1354 | 2654 | 16586 |

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Appendix 3: Letter of Introduction

Dear Respondent,

My name is Joseph M. Tulula. I am a student at the University of Nairobi, School of Economics undertaking a degree in Masters of Economics. I am Carrying out a research on the Demand for counterfeit Mobile Phones in Kenya. I humbly request that you take some of your time and answer the questions in the questionnaire.

Kindly note that all the information will be kept confidential.

Joseph Masambu Tulula