ADDIS ABABA UNIVERSITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY (AAiT)

SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING

Investigating the Factors Influencing Reinforcement Bar Consumers Shifting from Local to Imported and its Improvement

By

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DECLARATION

I, the undersigned declare that this thesis is my original work, and has not been presented for degree in this or any other university and all sources of material used for this thesis have been fully acknowledged.

Aboma Tariku _____ _____

Signature Date

This is to certify that the declaration made by the candidate is correct to the best of my knowledge.

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ABSTRACT

Development strategy of the government gives priority to local industries which consider the technological capacity of the country and which are smooth and suitable to the technological transformation to substitute imports. Align to this developmental direction many local and foreign direct investors were attracted to the metals and engineering sector. Reinforcement bar manufacturing industries are one of these categories which produce the main input for construction sector of the country. As many investors were attracted to these industries the design capacity of industries producing this product were increasing from year to year and reached currently on 4,754,874 ton per annum. These companies are operating with low capacity utilization as 32% capacity utilization in 2014/15 which was decreased to 6.79% in 2019. Report of 2019 indicated that on average 57.51% of reinforcement bar yearly consumption are imported.

The objective of the study is to identify factor that highly affect consumer purchasing decision, whether there is evidence based quality difference between local and imported reinforcement bar or not, the product that have higher price and to identify the more available product in the market as per consumer need. For the purpose of this study primary and secondary data has been collected through different data collection mechanisms, and data were analyzed using descriptive statistics and factor analysis. The result revealed that quality is the major factor that highly influences consumer shift from local to imported reinforcement bar followed by availability. However, tested quality result of secondary data indicates that local reinforcement bar have higher quality than imported. This contradicts the consumers view. Moreover, all primary and secondary data analyzed shows that local reinforcement bar is more available in market than imported and price of imported is higher than local. As quality problem arises from products produced from scrap manufacturers should strongly control the quality of products produced from scrap through installation of necessary laboratory facilities, manipulation of chemical composition at melting stage, determination of rebar grade and should price accordingly. Government also should contribute its share by tightening its quality control method. Furthermore, to increase the supply of local industries the government should intervene to increase availability of raw materials locally through the development of iron ore by direct reduction iron (DRI) process.

Keywords: - Consumer switch, quality, availability and price, factor analysis, DRI.

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BC: -	Building Contractor
BOF: -	Basic Oxygen Furnace
COO: -	Country of Origin
CEB: -	Comit Euro-International
DRI: -	Direct Reduced Iron
ECAE:-	Ethiopian Conformity Assessment Enterprise
ERCA: -	Ethiopian Revenue and Custom Authority
ETCPA:-	Ethiopian Trade and Consumers' Protection Authority
EAF: -	Electric Arc Furnace
FDRE: -	Federal Democratic Republic of Ethiopia
GC: -	General Contractor
IS: -	International Standard
MIDI: -	Metals Industry Development Institute
Rebar: -	Reinforcement bar
TQM: -	Total Quality Management
VA: -	Value Analysis

CHAPTER ONE

INTRODUCTION

1.1. Background of the problem

Globalization and the accessibility of markets international have expanded the potential customer base from purely domestic to both domestic and international customers. Increased travel and education as well as enrichment in communications such as the global-spanning television networks and the internet have also contributed to the convergence of preferences in a number of product categories around the world including reinforcement bars. According to Saffu & Walker (2005) cited in Ryoba and Dev (2014), this has motivated consumers in developing countries such as Ethiopia to demand the same quality of goods available to their counterparts in developed countries. With this increased stiff competition originating from globalization, it has become increasingly important for businesses to understand how consumers appraise foreign products against locally produced products including reinforcement bars, which has attained the status of a global product (Thach & Matz, 2008).

The powers of globalization are unlikely to be stoppable. According to K. Veerakumar (2017) more and more businesses are going global. They look to improve production efficiency, broaden markets, seek raw materials, new technologies, and increase the variety of customers. It is essential for companies to understand the importance of globalization. Even if a company or business is considered “domestic”, it needs to be concerned about foreign competitors that may enter domestic markets.

The problem of attitude to local or imported products has been known in many parts of the world as a key economic issue in the consumer behavior markets. Bias against imports is high among people with positive attitudes towards their host countries (Durvasula et al., 1997) cited in Boonghee and Naveen, (2005). Moreover the mentioned study observed that people in developed country are more likely to purchase their locally made products because of positive attitude on these products while it is the reverse of developing countries. Likewise, attitudes toward products from culturally similar countries are more favorable than those toward products from culturally different countries. However, the effects of negative attitude to local products are diverse and affect local industries, local culture style of life and behaviors and the economy at large (Nanzia, Natalia and Robert, 2014)

Developed countries are considered superior at making high quality and innovative products, while manufacturers in developing countries have advantages in producing low-cost goods (Aulakh et al., 2000; Erramilli et al., 1997; Lall, 1999; Makino et al., 2004; Porter, 1990; Reinhardt, 2000) in Ayob and Hussain (2016). This global understanding has subsequently shaped the perceptions of customers. They often look for products from developed countries when seeking quality and innovative features, while goods from developing countries are regarded as less expensive alternatives (Brouthers and Xu, 2002; Hulland et al., 1996; Insch, 2003; Li et al., 2009; Pappu et al., 2006) as cited in Ayob and Hussain (2016).

The literature on international trade, says that comparative advantages of a nation are acquired when the goods are manufactured using its abundant, cheap and resource-surplus factors of production (Leamer, 1984; applied in Lall, 1999; Singh, 2009 studies). Some later studies defined how comparative advantages of advanced nations are different than those of developing countries. Rich countries are associated with innovative and high-quality goods produced using the advantage of innovative technologies. Several factors give firms in developed countries a greater ability to offer products with distinctive features (Porter, 1990). Additionally, these countries have a massive supply of white-collar labor with expertise in entrepreneurial, managerial, and technical skills, especially in technologically concentrated activities (Erramilli et al., 1997; Huo and McKinley, 1992). As a result, high value products from developed countries have long sustained a strong international reputation, although such goods are sold at a premium price (Rosenbusch et al., 2011).

On the other hand, sources of advantage for organizations in developing countries rely heavily on access to natural resources, the low cost of raw materials, and cheap labor (Coxhead, 2007; Erramilli et al., 1997; Lall, 1999; Reinhardt, 2000). Therefore, many of the products are concentrated in labor-intensive and diversified resource-based section such as simple furniture, electrical appliances, and electronic components (Coxhead, 2007). These undifferentiated goods with limited innovative features have eventually entered international markets using a low price strategy (Makino et al., 2004). It is reasonable to believe that products from developed countries provide unique characteristics and high value for customers, whilst products from developing countries are typically lower in quality and cheaper in price.

In Africa, Ethiopia as a developing country has been noted to be a hard working nation lively to become a middle income country with a target by the year 2025. This is an effort towards the

right direction competing positively with other African countries and across the globe which will increase the living standard of the country's citizens (Ethiopian Growth and Transformation plan - 2). In pursuing the aim to become a middle income country, Ethiopia as a developing nation cannot continue to depend on a large quantity of imported products to feed the local market.

The majority of developed countries have attained their objectives by depending on domestic production and also through government campaigns in support of the utilization of local goods. The research on a consumer's decision to purchase local or foreign products has been studied at both the nation and individual level. As explained in Ayob and Hussain (2016) the former has drawn interest among policy makers to promote the idea that purchasing products made in the home country is good for the government because it reduces dependency on imported goods. This move benefits the country in numerous ways such as creating demand for local industries, cutting unemployment, encouraging economic activity, and ultimately increasing the national gross domestic product. On the other hand, at a country level, overly dependence on foreign products can negatively harm domestic production mainly in those countries that had weaker production capacities or those that had closed marketing systems. Generally, importation of foreign products might limit the sales of domestic products; this might consequently limit the expansion of local industries. Furthermore, abundant inflows of foreign products into the country could damage the economy through trade deficits, job losses and the erosion of local expertise (Monacelli and Perotti, 2010) cited in Ayob and Hussain (2016). However, at the individual level, purchasing behavior is influenced by both intrinsic and extrinsic cues (Agrawal and Kamakura, 1999) as cited in Ayob and Hussain (2016). The former refers to the physical attributes of a product such as durability, quality and performance, while the latter refers to the non-physical characteristics such as price and a "Made in …" label.

According to Iwarere (2010) in Owusu (2013), as competition and other environmental influences rise globally, it is obvious that there are growing emphases on quality improvement and cost minimization in order to achieve customer satisfaction and enhancing organizational value. Many companies and organizations have now acknowledged the critical importance of being customer-oriented and customer-driven in all their accomplishments. It is stated in Kotler (1997) cited in Owusu (2013) that it is not enough to be product-driven or technology-driven, without bringing the power of customer into the center of the business. In marketing economy, customers are the lifeblood of every organization, and without customers no organization can be

in its existence. Customers are very important because they determine survival of an organization.

Owusu (2013) stated that in today's marketing environment, price and quality of product is fundamental issue, but not only in consumer decision making process and the outcomes of their overall satisfaction but also in marketing strategy of the producer. In purchasing of reinforcement bar, price, quality and availability may be among the factors that consumers consider when making purchase decision. Therefore, it is important for industries producing this product to understand how customers compare price and quality when making purchase of this product. This will help organizations to strategize in order to meet the needs of customer. Customers are not only influenced by price, quality and availability, they are also influenced by variety of factors but for the purpose of this study price, quality and availability will be considered. Thus the study intends to understand whether there are differences in price, quality and availability between domestic and imported reinforcement bar and also to identify the factors highly influence consumer switch and whether consumers switch from local to imported products are due to these factors.

1.2. Statement of Problem

Ethiopia is one of the developing countries where large amounts of products from other countries are imported each year and reinforcement bar are not an exception. This has exposed many consumers to alternative preference for domestic made and foreign products. The great variety of goods from other countries has made many consumers to patronize (to be a frequent customer of) imported products. However, many of the local industries are striving hard to survive in today's turbulent Ethiopian market. Data from metals industry development institute (MIDI) in 2019 shows that on average 57.51 % of reinforcement bar yearly consumption are imported products and this is the highest import that covers 74.01% of all basic metal imported; as a result there are also many compliant from local manufacturers. This is because local reinforcement bar manufacturing industries are working with 32% capacity utilization in 2014/15 which was decreased to 6.79 % in 2019. Due to this serious problem, the product was selected for the case study. This situation is opposite to governments' development strategy as the strategy gives priority to industries which consider the technological capacity of the country and which are smooth and suitable to the technological transformation to substitute imports.

Despite the policy direction, the local manufacturing industries are characterized as import intensive for raw materials/semi-finished goods, capital intensive (not labor intensive), and weak in contributing to import substitution/export earnings (Beyene, 2018). He further explained that low capacity utilization of these manufacturing industries also continued throughout the last periods as reflected in low production and productivity, low export and increasing import dependence on many of the sector's products. As a result of this situation, the study aims to investigate the factors influencing reinforcement bar consumers shifting from local to imported particularly to study in detail whether the shifting of consumers is due to the difference in quality, price and availability of domestic and imported reinforcement bar or not as majority of consumers indicated during preliminary survey that the main factors influencing consumer shifting on this product are the above three factors.

1.3. Research questions

1. What is the factor that highly affects Ethiopians' purchase behavior towards imported reinforcement bar?
2. What are the true (evidence based) quality differences between locally manufactured and imported reinforcement bars?
3. How locally produced and imported reinforcement bars are compared in terms of price?
4. Which product imported or locally manufactured reinforcement bar is more available in market?
5. What measures should be taken to enhance domestic consumption of reinforcement bars?

1.4. The Objectives of the Research

1.4.1. General Objective

The general objective of this study is to investigate factors influencing reinforcement bar consumers shifting from local to import and to propose local manufacturing industries and policy makers' ways of enhancing domestic consumption.

1.4.2. Specific Objectives

To address the general objective of the study, the following specific objectives are studied:-

1. To study the factors that highly affects Ethiopians' purchase behavior towards imported reinforcement bar;
2. To analyze and determine whether there are quality differences or not between locally manufactured and imported reinforcement bars;
3. To perform price comparative study to determine whether there are price differences or not between locally manufactured and imported reinforcement bar;
4. To identify which product imported or locally manufactured reinforcement bar is more available in Ethiopian market;
5. To find a suitable strategy or methods that is appropriate for local manufacturers and policy makers to increase domestic consumption.

1.5. Significance of the Study

The study pinpoints the marketing policy and production issues and indicate necessary approaches to enhance the consumption of locally manufactured reinforcement bar. This helps the society to get quality products with reasonable price from local industries. It can also shows decision makers areas of intervention and in formulating ways of motivating local manufacturers which in turn can boost up the consumption of locally manufactured products which encourages the growth of national economy. Finally, it is also hoped that the study will be a reference point to open up further research.

1.6. Scope of the study

The scope of this research is focused on investigating factors influencing reinforcement bar consumers shifting from local to import in Ethiopia. Specifically it analyzes and determines the difference in quality, price and availability between domestic and imported of this product as majority of consumers indicated during preliminary survey that the main factors influencing consumer shifting on this product are these three factors. Therefore, the scope is only limited to investigate the differences in quality, price and availability between domestic and imported reinforcement bar. The study was also carried out on construction companies existing in Addis Ababa due to the fact that majority of contractors exist in this capital city and due to constraints of finance and time. This may limit the study to one particular area. The results may be different out of Addis Ababa, due to lower educational level and poor familiarity with foreign products.

1.7. Limitations of the Study

While conducting this study the researcher faced lack of sufficient tested quality result data of all sizes and types of both local and imported reinforcement bar to investigate the difference in quality between both products in great detail. As a result, the researcher forced to conduct analysis with some sizes and types of tested quality result data obtained from the enterprise. In addition, because of constraint of finance already tested quality data was taken from Ethiopian conformity assessment enterprise but it was better if sample of both products were purchased and given for testing by the researcher.

1.8. Organization of the Documentation

This research document is organized into five chapters. The first chapter deals with background of the study, statement of the problem, objectives, significance of the study, scope and limitation of study. Chapter two focuses on reviewing literatures that are related with the issues considered under the research and overview of the metal sector and the product under the study. Chapter three describes research methodology and it includes the research design, population of the study, sampling technique, sources of data and data collection tools, method of data processing and analysis. In chapter four, the gathered data are statistically analyzed using descriptive statistics and factor analysis in SPSS. The last chapter that is chapter five includes conclusion and recommendation. Finally, list of reference materials and annexes for questionnaires, interview questions and different data from different organizations were included.

CHAPTER TWO

2. RELATED LITERATURE REVIEW

2.1. Introduction

In this chapter, relevant topics are discussed in line with the study area to get basic theoretical information and knowledge to strengthen the research output. It also enables us to develop ideas, which is later serve as a ground for comparing our findings. It focuses on consumer behavior, factors influencing consumers buying decisions, religious, demographic, marketing mix like pricing strategy, product strategy, product quality, product availability, distribution strategy, promotions strategy, productivity and quality, impact of country of origin of products on consumers buying decision, ethnocentrism, and impact of globalization and overview of the product under the study.

2.2. An Overview of Consumer and Consumer Buying Behavior

In order to understand reasons behind consumer shift from local to imported product, it is always essential to first of all have the understanding of consumer behavior. In today's turbulent market, the attitude of consumers is a topic of great concern for marketers today because an order from this base can be very important with regards to selecting the right marketing strategy, and also making business activities successful (Solomon, Marshal & Stuart, 2008).

Consumer behavior

Consumer behavior is defined by Solomon et al. (2008) as the understanding of a process that an individual or a group passes through to satisfy a need, by making preference and purchasing as well as utilizing and disposing products. In doing this, consumer follows the five-step model i.e. need ____ information search ____ evaluation of alternatives ___ purchase ___ post purchase evaluation which is usually appropriate for decision making that assumes rational problem solving behavior and, in most cases, complex decision making. Factors that influence consumer's decision- making to purchase or select a product or service differs with the type of perception each and every individual may have about the product at hand (Owusu, 2013).

According to Zeugner-Roth et al. (2015) in Faizah, M. & Mohd, G. (2015) the knowledge of consumer behavior allows businesses and firms in predicting consumer plans to purchase in-group (home-country products) or out-group (foreign products). By understanding consumer

behavior, it supports businesses to understand the way consumers think, perceive, and feel so that it gives better understanding on factors affecting their purchase decision.

Different scholars outlined different factors that influence consumers in their purchasing decisions. Kotler (2003) mentioned cited in Faizah, M. & Mohd, G. (2015) explained that there are four important elements influencing buyer behaviour; namely, cultural, social, personal and psychological factors. Babu et al. (2010) outlined the determinants for purchase decision as internal influences and external influences in which the former is associated to consumers' perception, knowledge, attitude, personality, lifestyle, role and consumers' desire to attain certain outcome and the latter related to culture, group membership and purchase situation.

2.3. Factors Influencing Consumers Buying Decisions

Surrounding consumer behavior there are several influencing factors which affect the manner in which customers act and reason during the purchasing process. These factors have an effect from the time a consumer perceives a stimulus through post-purchase behavior (Shapiro, 2013). Therefore, careful examination of those factors enables many firms to attain their objectives of marketing strategy by gaining control over the domestic market (Charles et al. 2010). These factors are explained as the following.

2.3.1. Cultural Influence

According to Shapiro (2013) culture is the vital character of a society that differentiates it from other societal groups. The underlying elements of every culture are the values, language, customs, rituals, and laws that form the behavior of the people, as well as the material artifacts, or products, of that behavior as they are transferred from one generation to the next. As explained in Charles et al. (2010) culture has a notably powerful influence on consumers' views with regards to any product.

Charles et al. (2010) explained that as more companies expand their operations internationally, the need to understand the cultures of foreign countries becomes more important. A firm has little chance of selling products in a culture it does not understand. Like people, products have cultural values and rules that influence their perception and use. In addition, language is another important part in which care should be taken in translating product names, slogans, and promotional messages into foreign languages not to convey the wrong message. A social class is additional characteristic of culture that marketers are interested in for two main reasons. First,

which medium to use for advertising and second, knowing what products appeal to which social classes can help marketers determine where to best distribute their products.

Consumer behavior is affected by internal factors including local culture; it is also influenced by external factors resulting from globalization such as communication, information and interaction. The increase in world trade, an increasing combination of the world's major economies, and the progression of globalization, will mean that understanding marketing strategies will continue to be an important issue for academic research and marketing practice (Viswanathan & Dickson, 2007).

Social status is another factor influencing consumer buying decision. According to Batra et al. (2000) in Ryoba, M. and Dev, J. (2014) foreign brands are likely to have higher respect because of their relative scarcity and higher price compared with local brands. Some consumers prefer global brands because they improve their self-image as being multinational, stylish, and modern.

2.3.2. Social Influence

Many consumers try to find out the views of others to reduce their search and evaluation effort or uncertainty, especially as the perceived risk of the decision increases. Shapiro (2013) explained that consumers may also seek out others' opinions for direction on new products or services, products with image-related attributes, or products where characteristic information is lacking or uninformative. Specifically, consumers interact socially with reference groups, opinion leaders, and family members to obtain product information and decision approval (Charles et al. 2010).

2.3.3. Individual Factors

Another factor which has an influence on a person's purchasing decisions are personal characteristics that are unique to each individual, such as gender; age and life-cycle stage; and personality, self concept, and lifestyle. As people grow their desires and needs changes alongside (Charles et al. 2010). Particularly age and family life-cycle stage of a consumer can have a significant influence on consumer behavior. How old a consumer is generally indicates what products he or she may be attracted in purchasing. As explained in Shapiro (2013) looking at the life-cycle is to look at major occasions in one's life over time. Life-changing events can occur at any time. Many times life-changing events will mean new consumption patterns. Marketers realize that life-events often mean a chance to gain a new customer.

Consumer's self-concept is another personality element affecting the consumer's behaviour. Self concept, or self-perception, is how consumers perceive themselves. Self-concept includes attitudes, perceptions, beliefs, and self-evaluations. According to Kotler (2002) cited in Shapiro (2013) actual self-concept represents the way individual realistically sees himself, which differs from the ideal self-concept meaning the way person would like to see himself. Others-self-concept is the way others see the person from the point of view of that person.

Worldmindedness is another individual factors that influence consumer purchase decision. It is frankness to foreign product purchase and way of understanding the world surrounding the self. Sampson and Smith (1957: 99) cited in Ulvi and Mustafa (2015) defines worldminded person "who favors a world-view of the problems of humanity, whose key reference group is mankind, rather than" national identities. World minded individuals are who has a more positive view of foreign products. Since awareness of foreign products as a threat does not apply to worldminded individuals, worldminded consumers do not act biased to national products. On the other hand, nationalism is a feeling of supreme consumer loyalty towards a nation-state, having important effects on attitudes and purchase intentions. As explained by Han (1988) cited in Ulvi and Mustafa (2015) consumer nationalists are willing to make a sacrifice to purchase a national brand because they believe that imported goods may damage their country's economy.

2.3.4. Psychological influence

An individual's purchasing decisions are further influenced by psychological factors such as perception, motivation, learning, and beliefs and attitudes. According to Charles et al. (2010) these factors are what consumers use to interact with their world. They are the gears consumers use to recognize their feelings, gather and analyze information, formulate thoughts and opinions, and take action.

According to Shapiro (2013) a stimulus is any element of input affecting one or more of the five senses: sight, smell, taste, touch, and hearing. The process by which we select, organize, and interpret these stimuli into a meaningful and clear picture is called perception. Consumers use this perception to categorize and define products and brands.

By studying motivation, marketers can analyze the key forces influencing consumers to buy or not buy products. When consumers buy a product, they usually do so to fulfill some kind of need. These needs become motives when stimulated sufficiently. Therefore, motives are the driving forces that cause a person to take action to satisfy specific needs (Shapiro, 2013).

Almost all consumer behavior results from learning, which is the process that generates changes in behavior through experience and practice. If a new brand evokes neutral feelings, some marketing activity, such as a price change or an increase in promotion, may be required to bring further consumption. As explained by Shapiro (2013) learning theory is helpful in reminding marketers that real and timely actions are what reinforce desired consumer behavior. Repetition is a key strategy in promotional campaigns because it can lead to improved learning. Generally, to heighten learning, advertising messages should be spread out over time rather than gathered together. Another factor influencing consumer behavior is belief and attitude. Beliefs and attitudes are closely connected to values. A belief is an organized form of knowledge that an individual holds as true about his or her world. These beliefs may be based on knowledge, faith, or hearsay. Consumers tend to develop a set of beliefs about a product's features and then, through these beliefs, form a brand image—a set of beliefs about a particular brand. In turn, the brand image shapes consumers' attitudes toward the product. An attitude is a learned tendency to respond steadily toward a given object, such as a brand. Attitudes rest on an individual's value system, which represents personal standards of good and bad, right and wrong, and so forth (Charles et al., 2010).

The factors illustrated in Figure 2.1 below cause consumers to mature a product and a brand preference. Although many of these factors cannot be directly controlled by marketer, understanding of their influence is essential as marketing mix strategies can be developed to appeal to the preference of the target market.

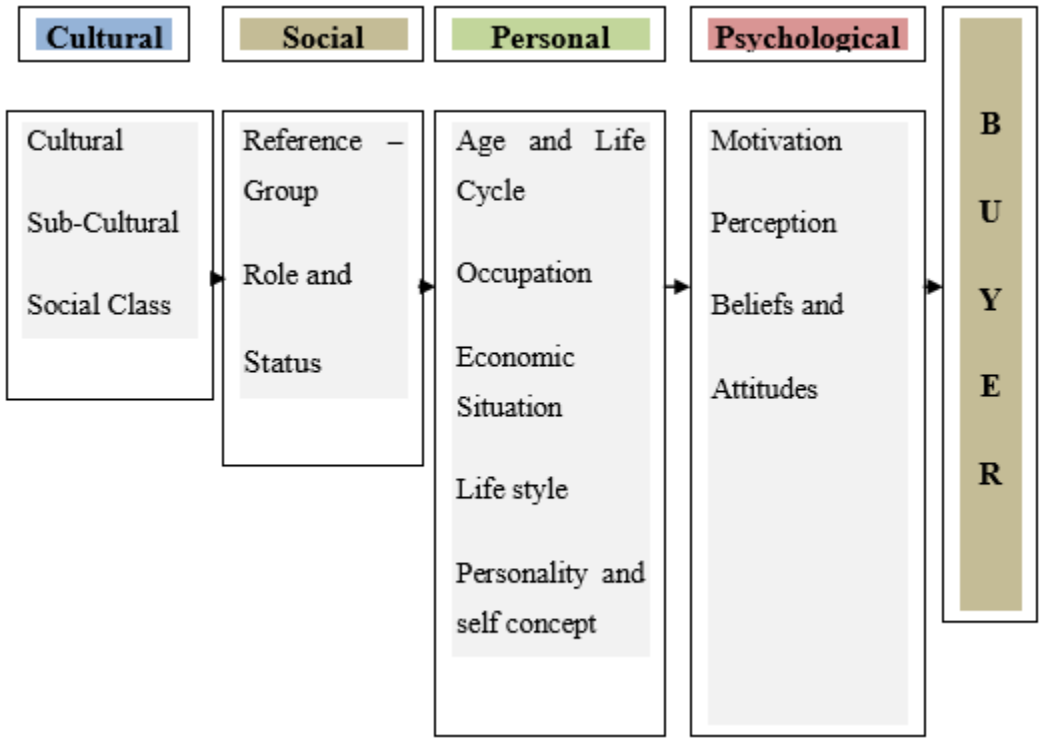

Fig.2. 1: Influencing factors of consumer buying behavior (Kotler, 2003)

2.4. Religiosity and Demographic

Religion is one of the greatest vital elements in the lives of every individual, because people from different religious backgrounds are obligated to follow the principles and beliefs prescribed by their own religions. According to Khraim (2010) cited in Ahasanul et al. (2015), religion cannot be considered a mere short-lived fashion that changes over time; rather, it is a permanent pillar that remains in the lives of believers forever. As a matter of fact, religion is one of the most prominent features in society, influencing every aspect of a person's life, lifestyle, attitude, belief, behavior, and habit. Essoo & Dibb (2004) cited in Ahasanul et al. (2015) explained religion as an important factor that monitors peoples' consumption habits and at the same time has an powerful impact on their purchases of products as consumers from different religions are encouraged to abide by their religious principles in their selection of products. Some studies like Tabassi et al. (2012) cited in Ahasanul et al. (2015) has showed that as consumers' religiosity increases, their intention of buying products coming from foreign countries declines.

Some studies have found that demographic characteristics have straight or moderating effects on buying behavior on numerous dimensions. Often, stereotypes of gender traits draw an explanation as to why men and women behave differently when making a purchase. The general supposition links men with aggressiveness, rationality, and independence; while women are

more considerate, sensitive, and caring. Therefore, as explained by Coley and Burgess (2003) cited in Ayob et al. (2016) the latter is found to be more emotional and psychologically rooted when choosing a product than the former. Other studies have also found similar findings. For example, women are more sensible of brand, design, and price (Barber et al., 2006; Seock and Bailey, 2008) cited in Ayob et al. (2016); while men are less aware of price and are willing to pay more in the case of online auctions. Also, women, compared to men, perceive online shopping as risky and have low faith in it. Hence, buying products through e-commerce is perceived as more difficult to women than men.

Another demographic characteristic often studied is the age of customers. However, the effect on purchasing behavior remains unclear. While some studies have found age to be significant (Barber et al., 2006) cited in Ayob et al. (2016); others have not (Hernandez et al., 2011) cited in Ayob et al. (2016).

2.5. Marketing Mix

The term marketing mix refers to a unique combination of product, place (distribution), promotion, and pricing strategies (often referred to as the four Ps) designed to produce mutually satisfying exchanges with a target market.

In the late 70's it was widely acknowledged by Marketers that the Marketing Mix should be updated. This directed to the creation of the Extended Marketing Mix in 1981 by Booms & Bitner which added 3 new components to the 4 Ps Principles. This now allowed the extended Marketing Mix to include products that are services and not just physical things. Though in place since the 1980's the 7 Ps are still widely taught due to their fundamental reason being sound in the marketing environment and marketers abilities to adapt the Marketing Mix to include changes in communications such as social media, updates in the places which we can sell a product/service or customers' expectations in a continuously changing commercial environment. (www.professionalacademy.com).

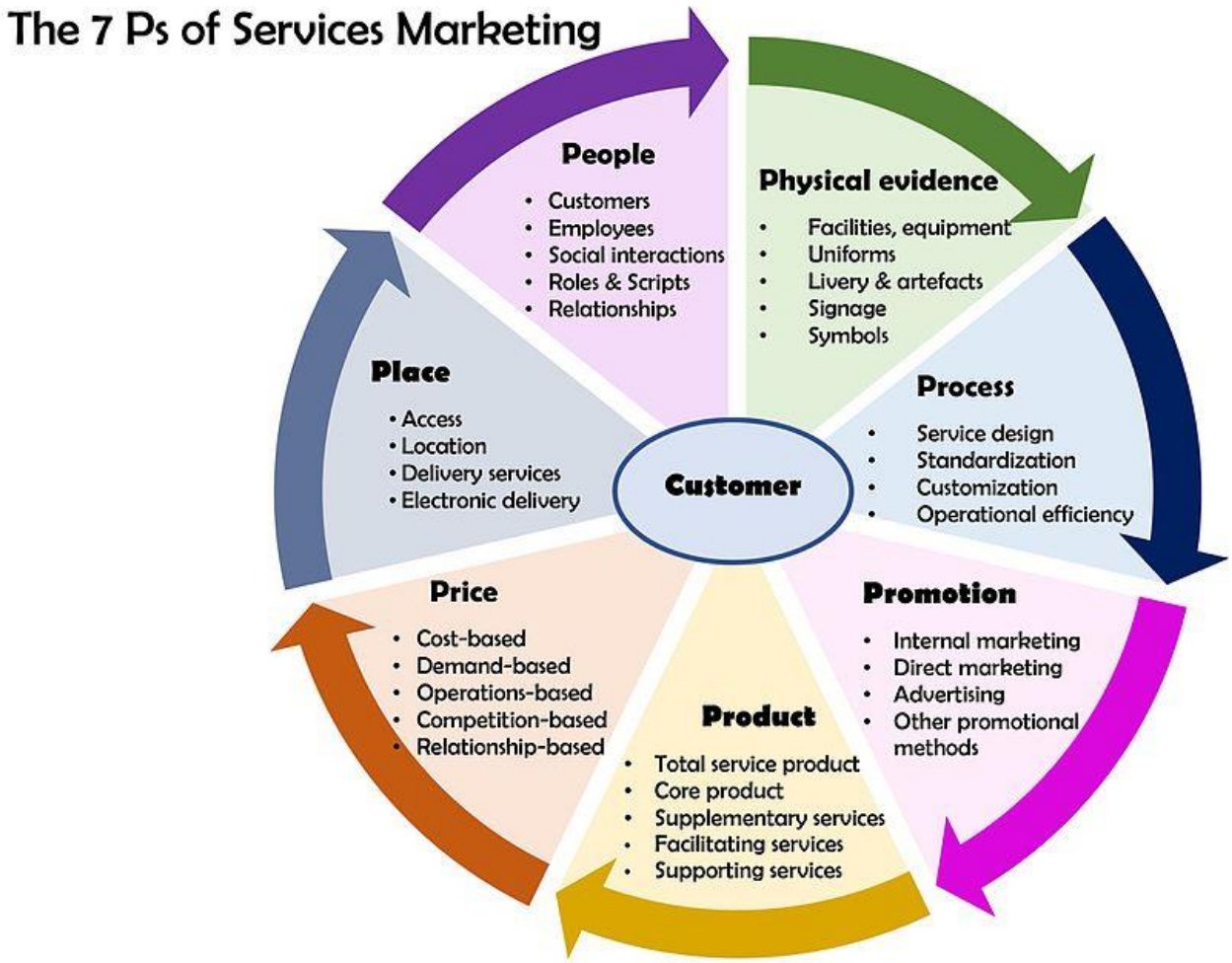

Fig.2. 2: The marketing mix (https://en.wikipedia.org/wiki/Services_marketing)

2.5.1. Pricing Strategies

Price is what a buyer must give up to get a product. It is often the most elastic of the seven marketing mix elements—the quickest element to change. Marketers can raise or lower prices more often and easily than they can change other marketing mix variables. Price is an important competitive weapon and is very important to the organization because price multiplied by the number of units sold equals total revenue for the firm (Charles et al., 2010). Kotler and Armstrong (1990) cited in Owusu (2013) also explained that price is the only element in the marketing mix which generate revenue and that all the other element represent cost. Price is the amount for which product, service or idea is exchanged, or offered for sale regardless of its worth or value to potential. According to Robert (1995) cited in Owusu (2013), price is the manager biggest marketing pain, and it's where they feel the most pressure to perform and the least confident that they are doing a good job. As explained in Owusu (2013), pricing decision should consider customer and competitor reactions.

Customers who are aware of high prices (are price sensitive) are more likely to buy local products instead of imported products from advanced countries, as they perceive the former as cheaper. Different studies contribute substantially to this argument. As explained by (Ayob et al., 2015; Aulakh et al., 2000; Hulland et al., 1996 and Li et al., 2009) cited in Ayob (2016) explains that local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as distance logistics and tariffs, which consequently would lower the price. In addition, their studies have revealed that cost advantage is more outward for products from developing than developed countries because certain factors of production, such as labor and raw materials, are lower. Finally, these studies have found that customers perceive products from advanced countries as scarce; they are willing to pay a premium price.

2.5.2. Product Strategies

Shapiro (2013) explained that product is anything that can be presented to market for attention, acquisition, use or consumption that might satisfy a need or want. Typically, the marketing mix starts with the product "P." The core of the marketing mix, the starting point, is the product offering and product strategy. It is difficult to design a place strategy, decide on a promotion campaign, or set a price without knowing the product to be marketed. The product includes not only the physical unit but also its package, warranty, after-sale service, brand name, company image, value, and many other factors (Charles et al., 2010).

Product Brand

The success of any business or consumer product depends in part on the target market's ability to differentiate one product from another. Branding is the main tool marketers use to distinguish their products from the competition's. According to Charles et al. (2010), a brand is a name, term, sign, symbol, design, or mixture them that identifies a seller's products and differentiates them from competitors' products. As explained by Ger et al.(1993) cited in Zeenat et al. (2012) for consumers, when deciding between brands which are in the marketplace will include brands as an element to determine the qualities of the product rather than paying their time to enhance their knowledge of the product in information searching activities. Therefore, consumers use brands as signals to make decisions to purchase or try products.

Benefits of Product Brand

Branding has various purposes: like product identification, repeat sales, and new-product sales. The main important purpose of brand is product identification. Branding allows marketers to

distinguish their products from all others. Many brand names are familiar to consumers and show quality. The term brand equity refers to the value of company and brand names. According to Charles et al. (2010), a brand that has high awareness, perceived quality, and brand loyalty among customers has high brand equity. Keller (2008) cited in Ayob et al. (2016) ascertains that perceptions of brand image have an effect on purchasing behavior because they generate trust and decrease risk when buying products.

Empirical evidence has found that consumers give a positive evaluation to products from advanced countries based on brand image (reputation). According to Ayob et al. (2016) electronics and cars from countries like Japan, Germany, the US, and Italy are rated higher than electronics and cars from China and Malaysia.

It has been stated by (Hu, Jou, and Liu, 2009) in Ahasanul et al. (2015) that brand image is encompassed of three components, namely, the image of the product itself, followed by the corporation's image, and finally the image of competitors' brands. It was concluded by them that for improving consumers' loyalty toward a brand, it is important to improve the image of the product as well as the company image.

Product Quality

The meaning of quality differs depending upon circumstances and perceptions. For example, quality is a different thought when focusing on tangible products versus the perception of a quality service. The meaning of quality is also time-based or situational. American society for Quality Control's definition for quality is the totality of features and characteristics of a product or service that bear ability to satisfy stated or implied needs.

Product quality is the group of features and characteristics of a product that contribute to its ability to meet given requirements. AS McGraw-Hill Concise Encyclopedia of Engineering (2002) mentioned, there are three views for describing the total quality of a product. First is the view of the manufacturer, who is mainly concerned with the design, engineering, and manufacturing processes involved in fabricating the product. Second is the view of the consumer or user. To consumers, a high-quality product is one that well satisfies their favorites and expectations. This consideration can include a number of characteristics, some of which contribute little or nothing to the functionality of the product but are important in providing customer satisfaction. A third view relating to quality is to consider the product itself as a system

and to include those characteristics that relate directly to the operation and functionality of the product. This approach should include overlap of the manufacturer and customer views.

Concurrent engineering, quality function deployment, and total quality management (TQM) are up-to-date management approaches for improving quality through effective planning and integration of design, manufacturing, and materials management functions throughout an organization. Quality improvement programs typically include goals for reducing warranty claims and related costs because warranty data directly or indirectly impact most of the product quality dimensions.

Quality is how the receiver of the product or service views the product or service: before buying, upon delivery, and after the delivery-and use. In other words, quality is satisfying the customer and it is defined by customer. Quality is exceeding the customer expectations and the degree to which the customers or users believe the product or service exceeds their needs and expectations. As explained by Zeithaml & Dawar (1999) cited in Owusu (2013), product quality in a broad sense, is defined as "superiority or excellence" of a product. There are drivers of quality according to customers: in a customer-driven organization, quality is established with emphasis on satisfying or exceeding the requirements, expectations, needs, and preferences of customers. Customer-driven quality is a common culture within many organizations. This driver of quality suggests that quality starts with customer needs, goes beyond customer satisfaction and end with customer retaining. Also another driven of quality is products or services: a culture of product or service-driven quality was common in the early stages of quality improvement. Conformance to requirements and zero defect concepts have roots in producing a product or service that meets stated or documented requirements. According to Owusu (2013), product or service requirements originate from customer requirements, thereby generating a common link to customer-driven quality, but the focus of the culture is on the quality of the product or service. If the customer requirements is precisely stated and designed into the production or service delivery process, then as long as the product or service meets the requirements, the customer should be satisfied. Faizah & Mohd (2015) stated that high-quality products and services are vital to a successful competitive strategy. Because high quality results in the high product evaluation, accordingly, it is followed by the high purchase intentions.

From a business strategy viewpoint, price and quality maximization often lie on opposite sides of the plane, although in some cases they might match each other. This was explained in Ayob et

al. (2016) as consumers need to pay a premium price when buying quality products, while lower quality products are usually sold at a cheaper price. According to (Li et al., 2009; Porter, 1990) and (Cordell, 1992; Verlegh and Steenkamp, 1999; Pappu et al., 2006) cited in Ayob et al. (2016), at the international level, products from developed countries are perceived to be of the highest quality because of improvements in production technology and the availability of highly skilled labor. In contrast, goods from developing countries suffer a bad reputation from lower quality and performance, often causing dissatisfaction among consumers.

On the other hand, value analysis (VA) process is used to offer a higher performing product or service to the customer at a reduced cost as opposed to substituting an existing product with poorer solution. It is the principle that guides all actions within the VA process and allows any improvement ideas to be converted into commercial gains for the company and its customers. The VA process is therefore one of the important features of a business that understands and seeks to achieve TQM in all that it does to satisfy customers. For many of the worlds' leading companies, VA process of design review has provided major business returns. The key to realizing these returns is knowledge of the customer requirements, the costs of the product, and an in-depth knowledge of manufacturing process and the costs associated with failures due to poor or insufficient product design. All these inputs to the VA process are vital if decisions regarding product and process re-design are to produce lower costs and enhanced customer value (Nick et al. 2000).

Value analysis is therefore a process that needs periodic review in order to improve any 'avoidable' costs that can be removed throughout the life of the product (by correcting weaknesses or exploiting new processes, materials or methods) and lowering the costs of production while keeping its Use value to the customer. A detailed understanding of how costs are quickly accumulated throughout the process of design to the dispatch of the product is important to exploiting the process of VA. All VA activities are aimed at the decrease of avoidable and unnecessary costs, without compromising customer value. If a company seeks to reduce the costs of producing a product then it must seek out costs that are unnecessary or items of the product that provide no functional value to the customer. If the company implements this approach then the VA process is concerned with removing a specific type of cost. This cost is one that can be removed without adversely affecting the function, quality, reliability, maintainability or benefit required by the customer (Nick et al. 2000).

Advantages of standards

Ram (2005) explained that standard guarantees product interchangeability, reduces quality costs and other costs, and provides opportunity for appraising supplier's goods and services consistently and uniformly regardless of the location of the supplier. It also helps in controlling the import and export of products through reinforcement System Discipline, which will help in the overall quality, leading towards World class Quality.

Product Availability

According to porter's five forces, a substitute product is a product from another industry/country that offers comparable benefits to the consumer. The benefit of substitute products is that provides consumers diversity when choosing goods to satisfy their needs. If substitute products are readily available in all corners of the market, there is a likelihood of consumers shifting more often. This means consumption of one product reduces or substitutes the need for the other. It means if the price of one product increases, the demand for the other increases.

According to Nanzia et al. (2014), the chance to buy imported products increased with unavailability of local substitutes. It can be concluded that inaccessibility of local substitutes increases the chance of purchasing foreign products. When there were no locally made products, they tend to purchase substitutes imported products.

2.5.3. Place (Distribution Strategies)

Place, or distribution, strategies are concerned with making products available when and where customers want them. A part of this place "P" is physical distribution, which comprises all the business activities concerned with storing and transporting raw materials or finished products. The goal is to make sure products reach in usable condition at designated places when needed (Charles et al., 2010). McCharthy and Perreault (1993) cited in Shapiro (2013) explained place from the perspective of making the products available in the right quantity and location.

2.5.4. Promotion Strategies

This is based on the effort regarding to selling and communication to customers about the product. Promotion includes advertising, public relations, sales promotion, and personal selling. Charles et al. (2010) explained promotion's role in the marketing mix as to bring about jointly satisfying exchanges with target markets by informing, educating, persuading, and reminding

them of the benefits of an organization or a product. Each element of the promotion "P" is synchronized and managed with the others to create a promotional blend or mix.

2.5.5. People

All companies are dependent on the people who run them from front line Sales staff to the Managing Director. Having the right people is vital because they are as much a part of our business offering as the products/services we are offering.

2.5.6. Processes

The delivery of our service is usually done with the customer present so how the service is delivered is once again part of what the consumer is paying for.

2.5.7. Physical Evidence

Almost all services include some physical features even if the bulk of what the consumer is paying for is intangible. For example a hair salon would provide their client with a completed hair do and an insurance company would give their customers some form of printed material. Even if the material is not physically printed (in the case of PDFs) they are still receiving a "physical product" by this definition.

2.5.8. Productivity and Quality

In some spheres of thinking, there are 8 Ps in the Marketing Mix. The final P is Productivity and Quality. This P asks "is what we're offering our customer a good deal?" This is less about owner of business as a business improving its own productivity for cost management, and more about how our company passes this onto its customers (www.professionalacademy.com).

2.6. The Impact of Country of Origin

According to Elliott and Cameron (1994) explained in Zeenat et al. (2012), country of origin (COO) effect has been defined as "the positive and negative influence that a product's country of manufacture may have on consumers' decision making processes or subsequent behavior. It can be defined as also "the picture, the status, and the stereotype that businessmen and consumers attach to products or brands of a specific country. COO simply defined as the general consumer perception of the country where the product being purchased comes from. As explained in Ryoba and Dev (2014), COO is the beliefs about the country's technological and industrial superiority,

feelings about the country and its people and the consumer's desired level of communication with the country. COO also plays an important role along with other attributes such as quality and reliability in shaping consumers attitudes toward products. Aliaksei & Nikita (2016) stated COO as a category by which consumers can immediately make their decisions and attribute or associate products with positive or negative characteristics. According to this study the label "made in" plays a significant role in the market and affects consumer behavior.

Parkvithee and Miranda (2012) cited in Hoang et al. (2017) explained that besides brand name, appearance, and design, COO is one of the most important indicators of product quality. For consumers in developing countries, the COO consequence makes them believe that foreign products are superior in quality to local products. Prior empirical evidence suggests a general consensus that customers relate products from developed countries with a strong brand image and quality that will increase the status of buyers, in comparison with products from developing countries. From this conclusion we can understand that buyers in developing countries will buy locally made products when they look for non-exclusive cheap goods and will buy imported products from advanced countries when they seek quality goods regardless of price (Ayob et al.(2016).

As explained by Li et al. (2009) and Hulland et al. (1996) cited in Ayob et al. (2016) local manufacturers are accused of selling low quality products in the market, while producing high quality products for export. As a result, products from developed countries yield great success in capturing the demand of quality-conscious consumers in developing countries.

2.7. Ethnocentrism

Consumer ethnocentrism is a preference towards domestic products over imported ones. In its turn, consumer ethnocentrism as a concept was first widely discussed and applied by Shimp and Sharma in 1987. The concept reveals beliefs of consumers regarding domestic goods and their superiority over foreign ones. According to Shimp and Sharma (1987), consumption of imported goods in this case implies negative goals and harmful effect for domestic economy. Local population perceives that foreign products consumption is incorrect and can lead to higher unemployment, to a decrease in economic development and it is generally considered unpatriotic behavior.

Consumer ethnocentrism implies strong effect on export and import; it creates encouragements to discard foreign products. According to Aliaksei & Nikita (2016), in this period of

globalization where widespread decrease of tariffs and elimination of barriers for the purpose of trade amplification between nations, consumer ethnocentrism is remaining a strong non-tariff barrier. As explained by Garland and Coy, (1993); Herche, (1992) in Nanzia et al. (2014), ethnocentric consumer will have no choice but to purchase imported goods if and only if there are no local made products. Stela (2016) explained that ethnocentric consumers are unwilling to buy imported products due to feelings of loyalty towards domestic product and also because of fear of economically hurting the beloved country by purchasing imported products. C. L. Wang & Chen (2004) cited in Ahasanul et al. (2015) also found that ethnocentric consumers tend to perceive the quality of local products as superior to the quality of foreign products. Generally, according to (Nguyen, Nguyen and Barrett, 2008; Supphellen and Grønhaug, 2003) explained in Stela (2016), the findings of different studies suggest that consumer ethnocentrism is negatively related to the intention to buy imported products and positively related to the intention to buy domestic products.

According to Shankarmahesh (2006) cited in Ulvi and Mustafa (2015), consumers may also think that shopping from their own group, purchasing domestic products, will eventually benefit them in a long run, since it is perceived as a way to support their own economic interests. This understanding presents the normative dimension of domestic product preferring and refusal of foreign products.

2.8. The Impacts of Globalization

Globalization has made the world a different place. This is vital for today's marketers to recognize because they face the necessity of designing an effective strategy that will promote their products and services in foreign markets, in addition to their home countries. Globalization has also amplified market competition. A company cannot assume they are the only actor in a domestic market, as there are new competitors appearing all the time- some of which may be international. One benefit of this globalization has been a growth in product variety for consumers. Today, consumers have more purchasing choices than ever before due to globalization. The natural obstacles of time have been reduced, and the cost of moving information, people, goods and capital across the globe has been radically reduced. Markets are now global in scope and encompass an expanding range of goods and services. Consumers use technology to reach out to the world on the Internet gathering and sending information, and purchasing goods and services. "Marketing globalization puts the power of the world's markets

in the palm of consumers' hand". This has had the effect of changing consumer behavior in many ways.

Globalization has brought several manufacturers competing for their own stake in the economy. This is a benefit to the consumer as the quality of goods and services should increase as a result. With more competitors in the combination looking to gain a part of the market share, companies have to be constantly improving their goods and generate more value for the consumer. Further, globalization challenges firms to become more updated and efficient while simultaneously extending the geographic reach of their operations. Responding to these opportunities and challenges increasingly requires a fundamental rearrangement of organizational strategy and processes (Bradley et al., 1993). Many argue that these tendencies are closely associated, each driving the other forward, and both being driven by other common forces, such as trade liberalization, deregulation, migration, and the expansion of capitalism and democracy (Held et al., 1999). Firms facing foreign competition are under greater pressure to accept technologies such as e-commerce that enable them to defend or expand market share, while operating more efficiently. In addition, those doing business outside their own country may be more motivated to lower their transaction and coordination costs by using information technology to a greater extent (Malone et al., 1987). It would be expected that this would be particularly true in the specific case of Internet-based e-commerce. Using the Internet for more internal transactions and coordination can save time and money on delivery of goods by using rich information flows to simplify, streamline, or substitute for the flows of physical goods in the supply chain (Sturgeon, 2002). Thus, due to increased competitive pressure, companies are using new technologies to spread their products and operation into the international marketplace (Snow et al., 1996). They are also using technologies to achieve new innovative transnational organizational forms (Sturgeon, 2002). Technology has promoted efficiency in many sectors of the economy. It has led to new products and thoughts across countries and cultures. Creating efficient and effective channels to exchange information, technology has been an incentive for global integration.

In general, the benefits of globalization have been an increase of product diversity and quality as well as lower prices. However, the damage has been a loss of jobs and manufacturing industries. In addition, there are concerns over worker safety and environmental conditions. The fact is that all of us are affected by globalization in one way or the other.

Another consequence or concern is that people are looking at the "global" market too often and forgetting the "local" market. This flows into another concern or effect about local markets and products. With new generations looking for foreign goods or out-of-market goods, it leaves local suppliers and business failing. Local businesses, that do not have the resources to export their goods or depend on the locals to buy those goods, experience losses because their goods are not selling to the same extent.

2.9. Overview of the Metal Sector and the Products under the Study

2.9.1. Overview of the Metal Sector in Ethiopia

Metal and engineering industry is one of the manufacturing industries that have been given due attention by the government with the target of increasing the per capital of steel products and gradually substitute imported products of this industry. In addition, steel industries are planned to support other industries such as Leather, Textile, Cement, Agro-industries, Construction, Vehicle and other industries by supplying them with spare parts and other necessary products. The implication of all of these is that steel industries will have many –fold impacts on the national economy and that overhauling these industries requires the design of better polices and strategies (Tesfaye et al., 2017)

International Standard for Industrial Classification classified metal industry into basic metal and engineering industry.

a. ***Basic Metal Industries:*** This deals with production of metal from ore, scrap and conversion of billet, slabs etc. into primary metal products such as metal sheet, tubes, bars, wires, cables and nails.

b. ***Engineering Industries*****:** This converts primary metal products into secondary products such as metallic structures, tanks, pressure vessels, machine parts, machineries, transport equipment, electrical and electronic equipments, measuring and control instruments.

2.9.2. Raw Materials for Metals and Engineering Sector

Metal industry is reliant on a number of raw materials, particularly iron ore, coal (coke), ferrous scrap and various alloying elements for the steel making process. Iron ore provides the ferrous content for steel, and is used almost exclusively by the steel industry. Coking coal is used to produce coke, which is an essential element that provides heat and the carbon

required to remove oxygen from the ore. Ferrous scrap is the key ingredient in the electric-arc furnace (EAF) route, where recycled steel is melted and subsequently rolled into new steel products. Scrap is also used along with iron in basic oxygen steel furnaces (BOF), to reduce levels of heat in the furnace. According to Tesfaye et al. (2017), the amount and quality of iron (Fe) influences the selection of specific furnaces for production of steel in addition to energy sources.

The details of iron ore with its specific iron (Fe) are summarized in Table 2.1 below

Table2. 1: Quality of iron raw materials

No	Name of Iron Ore	Formula	%Fe
1	Hematite	Fe2O3	69.9
2	Magnetite	Fe3O4	74.2
3	Goethite/Limonite	HFeO2	App. 63
4	Siderite	FeCO3	48.2
5	Chamosite	(Mg,Fe,Al)6(Si,Al)4(OH)8	29.61
6	Pyrite	FeS	46.6
7	Ilmenite	FeTiO3	36.8

Source: FDRE, Policy Study and Research Center, 2017

As explained in Tesfaye et al. (2017), if the iron content of iron ore is above 65%, it is advisable to use direct reduced iron (DRI) steel production process from productivity point of view in which case Hematite and Magnetite iron ore types are typical examples.

DRI is also known as Sponge Iron, offers an alternative steel production route to BOF and Scrap-EAF routes. In DRI, iron ore is reduced in its solid state – unlike BOF process where a liquid metal is formed during reduction. DRI can then be transformed to steel in electric arc furnaces. DRI production is common in Middle East, South America, India and Mexico. DRI offers an attractive option due to its small scale low capital investment requirements and its suitability to local raw material situations (**http://ietd.iipnetwork.org/content/direct-reduced-iron**).

2.9.3. Discovered Iron Ore Deposits in Ethiopia

As discussed in Idris et al. (2017), most iron occurrence and deposit types, reserve, size, shape and other ore characteristics are not sufficiently explored, which constraints viability analysis for

better decision in investment. The occurrences can be sub grouped into medium-large deposit and small scale. Ethiopian iron ore has relatively low iron content. The deposit of Shire, Bikilal, Melka Arba and little area in Kaffa are extensively studied. The total known iron ore in the country aggregates to about 350mt as shown in annex II C. In addition to iron ore, potential deposits of other materials for iron making such as coal, limestone/dolomite and others are found in many areas at about total amount of 700Mt.

2.9.4. World Steel Industries

a. Production by Region

Among eight world regions, Asia and Oceania produced 1.27 billion metric tons of the 1.80 billion metric tons of steel produced globally in 2018 - accounting for 70 percent of global production. The European Union (28) was the second-largest steel producing region in 2018 with a 9 percent share of production (167 million metric tons), followed by North America with a 7 percent share (117 million metric tons) and the Commonwealth of Independent States (CIS) with a 6 percent share (101 million metric tons) (Global Monitor Report, 2018).

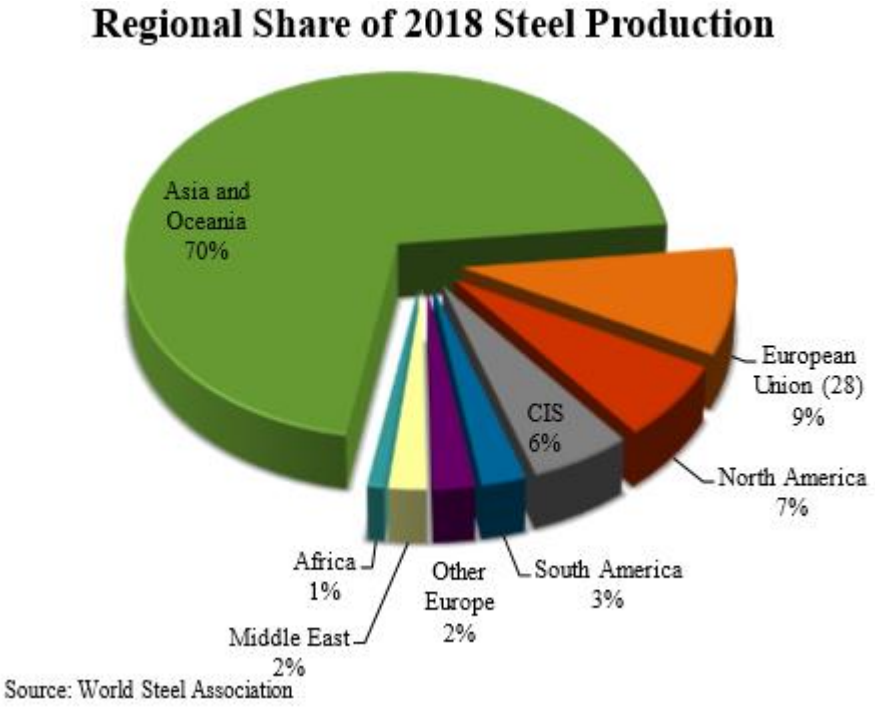

Fig.2. 3: Regional share of 2018 steel production

b. World Steel Industries Capacity Utilization

According to Global Monitor Report (2018) Global capacity utilization rates have declined in the majority of years since 2006. Between 2006 and 2008, capacity utilization remained above 80

percent globally. Capacity utilization dropped to 70.1 percent in 2009 following the global financial crisis — a 15 percentage point decline from its peak of 85.3 percent in 2006. The capacity utilization rate began to recover between 2009 and 2011, growing by 7.5 percentage points to 77.5 percent. After 2011, however, the annual rates began a steady downward trend. Capacity utilization reached an eleven-year low in 2015 at 69.8 percent. In 2018, global capacity utilization increased to 80.9 percent returning closer to the previous high seen in the 2006 to 2008 period.

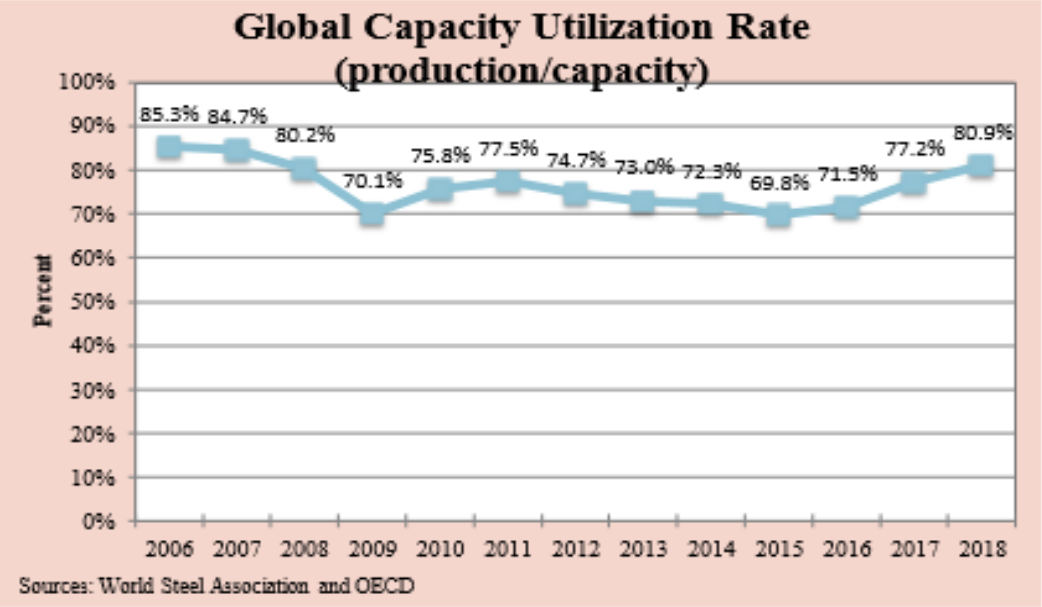

Fig.2. 4: Global capacity utilization

c. African Steel Industries Capacity Utilization

At the regional level, capacity utilization has maintained significantly different rates. However, all regions experienced similar trends since 2006: sharp declines in the capacity utilization rate in 2008 and 2009 during the global financial crisis and then lower average rates in the post-financial crisis period than in the pre-financial crisis period. Between 2007 and 2009, capacity utilization rates in all regions had decreased, with North America and the European Union experiencing the largest percentage point declines of 32 and 29 percentage points, respectively. Between 2006 and 2007, capacity utilization nearly reached or exceeded 80.0 percent in all regions except Africa and Middle East. Notably, CIS had capacity utilization rates above 90 percent (Global Monitor Report, 2018).

While the average capacity utilization rates were relatively high before the 2008-2009 financial crisis, average capacity utilization rates have generally been lower since. During the post-crisis 2010 - 2018 period, the North American region has had the highest average capacity utilization rate, at 75.9 percent. Asia and Oceania region the highest annual utilization rate during the post-crisis period in 2011, when it reached 80.1 percent, though its capacity utilization rate has

decreased since Asia and Oceania, CIS, and the European Union were the only other regions to have average capacity utilization rates above 70 percent between 2010 and 2018 at 75.4 percent, 75.0 percent, and 72.4 percent, respectively. The capacity utilization for Other Europe averaged 67.9 percent while South America averaged 65.1 percent. Average rates in the Middle East and Africa were even lower, at 52.8 percent and 42.1 percent, respectively (Global Monitor Report, 2018).

It is worth noting that capacity utilization rates, though on average lower than the pre-crisis period, have ticked up in all regions except the European Union and South America regions between 2017 and 2018 (Global Monitor Report, 2018).

Regional Capacity Utilization Rates

Region	Trend	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union (28)*		81.5%	85.9%	87.1%	81.9%	57.9%	71.2%	74.2%	72.3%	72.5%	73.9%	74.5%	73.9%	77.8%	61.2%
Other Europe		75.5%	79.0%	76.5%	75.3%	63.0%	65.6%	70.2%	69.3%	66.8%	66.2%	64.5%	64.2%	70.7%	73.7%
CIS		90.9%	92.4%	94.1%	81.7%	72.1%	78.4%	79.8%	78.5%	77.7%	74.9%	71.7%	71.8%	70.5%	71.3%
North America		85.3%	85.8%	86.3%	82.0%	54.4%	73.4%	77.4%	78.0%	77.8%	79.2%	72.9%	72.1%	75.3%	77.5%
South America		87.3%	83.2%	82.0%	79.7%	61.5%	66.1%	72.4%	69.7%	68.3%	67.1%	64.3%	56.4%	60.8%	60.4%
Africa		57.7%	60.1%	60.0%	53.9%	48.7%	51.5%	46.7%	47.2%	43.7%	40.8%	38.4%	34.3%	34.9%	41.8%
Middle East		72.3%	72.5%	66.6%	59.9%	56.8%	57.3%	59.1%	55.0%	48.3%	50.2%	47.9%	50.9%	49.7%	56.5%
Asia and Oceania		84.7%	85.9%	84.5%	81.2%	76.8%	79.1%	80.1%	76.3%	74.3%	73.3%	70.7%	74.0%	77.1%	73.3%

Sources: World Steel Association and OECD
*2003-2006 EU figures based on EU (27)

Fig.2. 5: Regional capacity utilization rates

2.9.5. Reinforcement Bar

Although, a variety of materials such as glass fibers and plastic filaments have been used as reinforcement, most concrete members are reinforced with steel in the form of bars, wire mesh and strand because of its high strength, ductility and stiffness. Steel reinforcement imparts great strength and toughness to concrete. Reinforcement also reduces creep and minimizes the width of cracks. According to Anthony et al. (2015), steel serves as a suitable reinforcement material because its coefficient of thermal expansion (5.8×10^{-6} to 6.4×10^{-6}) is nearly the same as that of concrete (5×10^{-6} to 7×10^{-6}). This means that there will be no relative movement between embedded bars and concrete in the reinforced concrete work due to temperature changes. Other advantages of steel as a reinforcing material for concrete include the fact that it is not easily corroded in the cement environment and it forms a relatively strong adhesive bond with cured concrete.

As explained by Reddi and Bhuvanesh (2004), steel reinforcement bar is routinely used in reinforced concrete (RC) structures to augment the relatively low inherent tensile strength of concrete. It is also used:

• To carry shear, compressive and torsional forces in excess of concrete capacity

• To control cracking of concrete members under working loads or as a result of early thermal effects

• To minimise or prevent spalling of concrete in fire conditions, as a result of seismic effects, or in the highly stressed regions around anchorages in pre-stressed concrete construction.

Reinforcement bar, therefore, plays a vital role in ensuring the safety, integrity and durability of almost all concrete structures. It can only perform that role satisfactorily if it:

• Possesses the required physical and metallurgical properties

• Is of acceptable quality

• Is stored, handled, cut and bent so as to avoid damage and contamination

• Is properly and accurately fixed.

a. Types of Steel Reinforcement Bars

Major types of steel bars used in the construction are as follows:-

Mild Steel Bar

The surface of the mild steel bars is plain and round in shape. They are available in various sizes of 6 mm to 50 mm. They are used in concrete for special purposes, such as dowels at expansion joints, where bars must slide in a metal or paper sleeve, for contraction joints in roads and runways, and for column spirals. They are easy to cut and bend without damage (https://theconstructor.org/practical-guide/steel-reinforcement-types-grades/24730/).

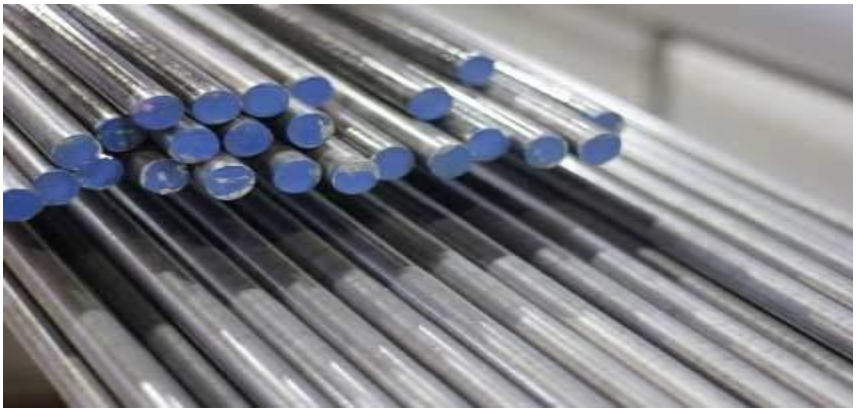

Fig.2. 6: Mild Steel Bar (https://theconstructor.org/practical-guide/steel-reinforcement-types-grades/24730/)

For structural buildings like bridges and other heavy structures, mild steel bar is not recommended due to no great bonding between concrete and steel, slippage and strength.

Grades in mild steel bars

1. **Mild Steel Bars**
    - Mild steel bars grade-I designated as Fe 410-S or Grade 60.
    - Mild steel bars grade-II designated as Fe-410-o or Grade 40.
2. Medium Tensile Steel Bars designated as Fe- 540-w-ht or Grade 75.

Deformed Steel Bar

Deformed steel bars have ribs, lugs and indentation on the surface of the bar, which reduces the major problem that is faced by mild steel bar due to slippage and good bonding, is achieved between concrete and rebar. The tensile property is higher compared to other rebar. These bars are produced in sections from 6 mm to 50 mm diameters (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/).

Types of Deformed Steel Bars

a. TMT Bars (Thermo Mechanically Treated Bars)

Thermo Mechanically Treated Bars are hot treated bars that are high in strength used in reinforced cement concrete (RCC) work. It is the latest induction in the MS steel bars with superior properties such as strength, ductility, welding ability, bending ability and highest quality

standards at international level (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/).

Fig.2. 7: Deformed TMT Steel bars (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/)

b. High Strength Deformed Bars

High strength deformed bars are cold twisted steel bars with lugs, ribs, projection or deformation on the surface. It is the extensively and majorly used for reinforcement purposes in a construction. These bars are produced in sizes or sections from 4 mm to 50 mm in diameter (http://www.bnproducts.com/blog/what-are-the-different-types-of-rebar-and-why-do-types-matter/)

Fig.2. 8: High Strength Deformed Steel Bars (http://www.bnproducts.com/blog/what-are-the-different-types-of-rebar-and-why-do-types-matter/)

c. Other Types of Rebar

Depending upon the type of material used in the production of rebar, there are different types of rebar. These are:-

1. **European Rebar**

European rebar is made of manganese, which makes them bend easily. They're not suitable for use in areas that are prone to extreme weather conditions or geological effects, such as earthquakes, hurricanes, or tornadoes. The cost of this rebar is low (http://www.bnproducts.com/blog/what-are-the-different-types-of-rebar-and-why-do-types-matter/).

2. **Carbon Steel Rebar**

As the name represents, it is made up of carbon steel and is commonly known as Black Bar due to carbon colour. The main drawback of this rebar is that it corrodes, which adversely effect on the concrete and structure. The tensile strength ratio coupled with the value makes black rebar one of the best choices (http://www.bnproducts.com/blog/what-are-the-different-types-of-rebar-and-why-do-types-matter/).

Fig.2. 9: Carbon Steel Rebar (http://www.bnproducts.com/blog/what-are-the-different-types-of-rebar-and-why-do-types-matter/)

3. **Epoxy-Coated Rebar**

Epoxy-coated rebar is black rebar with an epoxy coat. It has the same tensile strength, but is 70 to 1,700 times more resistant to corrosion. However, the epoxy coating is incredibly delicate. The greater the damage to the coating, the less resistant to corrosion (https://theconstructor.org/practical-guide/steel-reinforcement-types-grades/24730/)

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Fig.2. 10: Epoxy - Coated Rebar (https://theconstructor.org/practical-guide/steel-reinforcement-types-grades/24730/)

4. Galvanized Rebar

Galvanized rebar is only forty times more resistant to corrosion than black rebar, but it is more difficult to damage the coating of galvanized rebar. In that respect, it has more value than epoxy-coated rebar. However, it is about 40% more expensive than epoxy-coated rebar (https://theconstructor.org/practical-guide/steel-reinforcement-types-grades/24730/).

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Fig.2. 11: Galvanized Rebar (https://theconstructor.org/practical-guide/steel-reinforcement-types-grades/24730/).

5. Glass-Fiber-Reinforced-Polymer (GFRP)

GFRP is made up of carbon fibre. As it is made up of fibre, bending is not allowed. It is very resistant to corrosion and is costly when compared to other rebar (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/).

Fig.2. 12: Glass - Fiber - Reinforced - Polymer Rebar (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/).

6. Stainless Steel Rebar

Stainless steel rebar is the most expensive reinforcing bar available, about eight times the price of epoxy-coated rebar. It is also the best rebar available for most projects. However, using stainless steel in all but the most unique of circumstances is often overkill. But, for those who have a reason to use it, stainless steel rebar 1,500 times more resistant to corrosion than black bar; it is more resistant to damage than any of the other corrosive-resistant or corrosive-proof types or rebar; and it can be bent in the field (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/).

Fig.2. 13: Stainless Steel Rebar (https://gharpedia.com/blog/steel-reinforcement-types-and-properties/)

b. Ductility requirements of Reinforcement Bar

Classification of the ductility properties of reinforcing bar steels based on the value of the ratio of tensile strength to yield strength, as well as the elongation measured either as Agt or as A5. The ductility requirement was set in Compulsory Ethiopian Standard (CES) 101 as indicated in the following table

Table2. 2: Tensile Properties

Ductility class	Steel grade	Specified characteristic value of upper yield strength R_{eH} N/mm²		Ductility properties		
				Specified characteristic value of R_m/R_{eH}	Specified characteristic value of elongation [a] %	
		Minimum	Maximum	Minimum	A_5 Minimum	A_{gt} Minimum
A	B300A-R	300	—	1,02	16	2
	B400A-R B400AWR	400	—		14	
	B500A-R B500AWR	500	—			
B	300B-R	300	—	1,08	16	5
	B400B-R B400BWR	400	—		14	
	B500B-R B500BWR	500	—			
C	B300C-R	300	—	1,15	16	7
	B400C-R B400CWR	400	—		14	
	B500C-R B500CWR	500	—			
D	B300D-R	300	—	1,25	17 [b]	8
	B300DWR		1,3 × R_{eH}(min.)			
	B350DWR	350				
	B400DWR	400				
	B420DWR	420			16 [b]	
	B500DWR	500			13 [b]	

Source: Ethiopian Standard Agency, 2018

c. Recommended Diameters for Reinforcement Bar

As stated in Reddi and Bhuvanesh (2004) the International Standard specification (IS 1786) specifies nominal sizes of 4,5,6,7,8,10,12,16, 18, 20, 22, 25, 28, 32, 36, 40, 45 and 50 mm bars. The reasons for specifying such a large number (18) of nominal sizes are not clear. In practice many of the sizes are neither being rolled nor being used. On the other hand, it gives an

opportunity for the consultants/designers to specify odd sizes and create consequent difficulties during execution both due to non-availability of odd diameters in the market and in terms of quality assurance. It is not possible to distinguish between 20 and 22 mm diameters or 18 and 20 mm diameters by visual examination. Mistakes are bound to happen.

The European practice recommends only the following diameters: 8-10-12-16-20-25-32-40-50 mm. These diameters have the great advantage of being distinguishable with naked eyes.

The Comit Euro-International (CEB) model code recommends bar diameters of 32 mm or lower. Generally larger diameters are not recommended to be used for obvious quality reasons.

When we come to Ethiopian Standard, it recommends 6, 8, 10, 12, 14, 16, 20, 25, 28, 32, 40, 50 mm diameters. Ethiopian Standard dimensions, mass per unit length and permissible deviations are summarized in the following table.

Table2. 3: Dimensions, mass per unit length and permissible deviations

Nominal bar diameter [a]	Nominal cross-sectional area [b]	Mass per unit length	
		Requirement [c]	Permissible deviation [d]
d	A_n		
mm	mm^2	kg/m	%
6	28,3	0,222	±8
8	50,3	0,395	±8
10	78,5	0,617	±6
12	113	0,888	±6
14	154	1,21	±5
16	201	1,58	±5
20	314	2,47	±5
25	491	3,85	±4
28	616	4,84	±4
32	804	6,31	±4
40	1 257	9,86	±4
50	1 964	15,42	±4

[a] Diameters larger than 50 mm should be agreed between the manufacturer and purchaser. The permissible deviation on such bars shall be ± 4 %.

[b] $A_n = 0{,}785\,4 \times d^2$

[c] Mass per unit length = $7{,}85 \times 10^{-3} \times A_n$.

[d] Permissible deviation refers to a single bar.

Source: Ethiopian Standard Agency, 2018

d. Chemical composition

The IS code permits carbon content 0.3 percent whereas the internationally accepted maximum value is only 0.25 percent. The increased permissible carbon content has been responsible for corrosion of reinforcement steel in the large number of cases. The Ethiopian Standard (ES) for chemical composition of the steel reinforcement bar is determined by cast analysis, and shall conform to the following table.

Table2. 4: Chemical composition of steel reinforcement bar

Steel grade	C [a]	Si	Mn	P	S	N [b]	CEV [a, c]
B300A-R B300B-R B300C-R B400A-R B400B-R B400C-R B500A-R B500B-R B500C-R	—	—	—	0,060	0,060	—	—
B400AWR [d] B400BWR B400CWR B500AWR B500BWR B500CWR	0,22	0,60	1,60	0,050	0,050	0,012	0,50
B300D-R	—	—	—	0,050	0,050	—	—
B300DWR	0,27	0,55	1,50	0,040	0,040	0,012	0,49
B350DWR	0,27	0,55	1,60	0,040	0,040	0,012	0,51
B400DWR	0,29	0,55	1,80	0,040	0,040	0,012	0,56
B420DWR [d]	0,30	0,55	1,50	0,040	0,040	0,012	0,56
B500DWR	0,32	0,55	1,80	0,040	0,040	0,012	0,61

[a] For B400AWR, B400BWR, B400CWR, B500AWR, B500BWR and B500CWR with diameters larger than 32 mm, the maximum carbon content (C) is 0,25 % and the maximum carbon equivalent (CEV) is 0,55 %.

[b] A higher mass fraction of nitrogen may be used, if sufficient quantities of nitrogen-binding elements are present.

[c] Other CEV formulae and values may be used by agreement between the manufacturer and purchaser.

[d] Alloy elements, such as Cu, Ni, Cr, Mo, V, Nb, Ti and Zr, may be added by agreement between the manufacturer and purchaser.

Source: Ethiopian Standard Agency, 2018

e. Current Designed Capacity and Capacity Utilization of Reinforcement Bar

Currently, there are about 18 operational industries which produce reinforcement bar, with a total designed capacity of 4,754,874 ton per annum. The data below compare designed capacity (ton), actual production (ton) and capacity utilization (%) of reinforcement bar for a period of 9 years (2010/2011 – 2018/2019).

Table2. 5: Design capacity and capacity utilization of reinforcement bar producing industries

Year	**2010/ 2011**	**2011/ 2012**	**2012/ 2013**	**2013/ 2014**	**2014/ 2015**	**2015/ 2016**	**2016/ 2017**	**2017/ 2018**	**2018/ 2019**
Designed capacity (ton)	390,671	424,112	432,097	1,191,860	1,191,860	1,941,860	2,721,860	3,721,860	4,754,874
Actual production (ton)	91,124	138,846	127,873	297,331.33	386,270	408,259.28	441,336.3	392,764.91	322,633.2
Capacity Utilization (%)	**23**	**32**	**30**	**24.94**	**32**	**21.02**	**16.21**	**10.55**	**6.79**

Source: FDRE, Policy Study and Research Center, 2017 and MIDI 2018, 2019

2.10. Summary of Literature Review

Table2. 6: Summary of Literature Review

S.No	Author	Title of Article	Country, Year & Sector	Problem/Purpose	Methodology or tools used	Result/Conclusion	The researcher's reflection of research gap
1	Sharon Lew, Zuraidah Sulaiman	Consumer Purchase Intention toward Products Made in Malaysia vs. Made in China: A Conceptual Paper	Malaysia, 2014 (low-involvement products)	To investigate Malaysians' perceptions and ethnocentrism scale when buying local products.	Statistical Package for Social Science (SPSS), correlation, multiple regression and t-test were used to analyze the data	Findings from this research will assist the local manufacturing industry to further improve their products and services in order to compete in the global market strategically.	Consumers' purchase intentions was investigated only against factors like pricing, ethnocentrism and quality.
2	Endalew Adamu	Factors Affecting Consumers' Shoe Preference: on Domestic versus Imported Leather Shoes	Ethiopia, 2011 (Leather shoes)	To indicate how consumers evaluated both domestic and imported leather shoes interms of product quality, style and price, to examine to what extent these factors influenced the consumers' shoe choice and to look whether there was difference or not between the age groups regarding their preference	Statistical Package for Social Science (SPSS) was used to analyze the data	The findings revealed that the imported leather shoe were superior in comfortability, fashionability and range of variety. But, Domestic leather shoes had competitive advantage interms of durability and price. The study also indicated that quality, style, price, friends and culture as the major factors influenced the consumers' shoe preference. In addition, the result of the study discovered that there is difference in preference depending on consumers' age groups.	It doesn't indicate which factors influence consumers' shoes choice more
3	Owusu Alfred	Influences of Price And Quality On Consumer Purchase Of Mobile Phone	Ghana, 2013 (mobile phone)	how consumers are influenced by Price and Quality when buying mobile phone	The data analyzed quantitatively by using frequency table, and illustrated further with bar chart and	The outcome of the study was that Price and quality has influence on the consumer buying decision and that consumers consider both price and quality in their buying situation.	It doesn't indicate the extent of these factors influence on consumers preference

S.No	Author	Title of Article	Country, Year & Sector	Problem/Purpose	Methodology or tools used	Result/Conclusion	The researcher's reflection of research gap
					pie chart.		
4	Aliaksei Astapchyk & Nikita Strezhnev	Differences in Consumer Preferences between Local and Imported Goods	Latvia, 2016 (Beverage)	Conduct the study of consumer ethnocentrism, taking into consideration already available findings and expanding on the quantitative research, which, the researcher believe, is going to provide more accurate information about purchasing behavior of people.	hedonic price regression model and stated choice experiment, were used to analyze the data	Beer consumption habits in Latvia tend to prove that on aggregate the consumer is xenocentric, which means that foreign beer brands are perceived to be of higher quality – or, in other terms – are assigned a higher value by the consumer pool, than local brands – all other parameters held equal. In addition, there is a growing ethnocentricity pattern among older age groups.	It does not explore the issue on a deeper level to find out the reasons of consumer's xenocentric.
5	K. Veerakumar	Consumer Behavior and Factors Influencing Purchase Decision of Durable Goods	Tamilnadu, 2017 (Durable Goods)	An understanding of purchase behavior of consumers towards durable goods is essential as it reflects the influence of brands, price, quality, quantity, mode of purchase, etc.	Simple Percentages was used to analyze the data	The market for consumer durables is becoming more competitive now a days. Therefore, the producer of durable products should understand consumer interest much to find higher sale of their products.	It doesn't identify factors influencing consumer purchase decision and prioritize the extent of their impact very well.
6	Ayob, Abu H.; Hussain, Wan Mohd Hirwani Wan	Buying Local or Imported Goods? Profiling Non-income Consumers in Developing Countries	Malaysia, 2016 (Non-income Consumers in Developing Countries)	This paper attempts to further understand ex-ante purchasing decisions among non-income customers in developing countries. For the purposes of this study, non-income consumers are defined as buyers with no permanent/part time job, or a stable monthly income.	Probit regression analysis was used to analyze the data	The findings of this reveal that foreign products from advanced countries are preferred by male students because of the superior quality and brand image. On the other hand, family members encourage students to buy local products because they are perceived as being less expensive. Also, students who receive scholarships are more likely to buy local products than self-	It concentrates on who buy domestic or imported products rather than concentrating on factors influencing purchasing decision more

S.No	Author	Title of Article	Country, Year & Sector	Problem/Purpose	Methodology or tools used	Result/Conclusion	The researcher's reflection of research gap
						sponsored students.	
7	Zeenat Ismail1, Sarah Masood, and Zainab Mehmood Tawab	Factors Affecting Consumer Preference of International Brands over Local Brands	Pakistan, 2012 (General)	To find out the buying behaviour patterns of the young Pakistani consumers, attitudes towards global and local brands and the preference for foreign brands.	Data were analyzed using a percentage of respondents and through frequency distribution tables and charts.	The most important factors that influence a consumer's final decision are the price and quality of the product in question.	The research doesn't indicate whether there are quality and price differences between international and local brands
8	Stela CAZACU	Preference For Domestic Goods: A Study Of Consumer Ethnocentrism In The Republic Of Moldova	Moldova, 2016 (General)	To explore Moldovan consumer ethnocentric tendencies.	Data were analyzed using CETSCALE	The Moldovan consumers tend to be moderately ethnocentric.	The research advises the importers to use Moldovan name to sale their products since the Moldovan people are ethnocentric. In my view this is somewhat advising how to cheat the consumer
9	Ryoba Mzalendo and Dev Jani	Tanzania Consumers' Perception And Purchase Intention Of Imported And Domestic Wines	Tanzania, 2014 (Wine)	To ascertain Tanzania consumers' perception of imported wines compared to locally produced wines.	To analyze data descriptive analysis, one sample t-test and ANOVA test were used	The results indicate that wine consumers have a positive perception towards imported wines. Because they believe that foreign wines are of higher quality and status compared to local wines.	It does't indicate the negative impact of consuming foreign products on local economy and doesn't advise the way this situation changed but instead it advises importers as they have good opportunities in the country.
10	Ahasanul Haque, Naila Anwar, Farzana Yasmin, Abdullah Sarwar,	Purchase Intention of Foreign Products: A Study on Bangladeshi Consumer Perspective	Bangladeshi, 2015 (General)	To investigate various factors that influence consumers' intention of buying foreign products.	At the initial stage, statistical analyses, particularly descriptive analysis as well as exploratory factor analysis, were conducted using	The findings have revealed that brand image and quality of foreign products carry significant positive influence on purchase intention of foreign products.	The researcher had not indicated that whether there is quality difference between local and foreign products but simply advises marketers for informing the consumers about the superior quality of their products through

S.No	Author	Title of Article	Country, Year & Sector	Problem/Purpose	Methodology or tools used	Result/Conclusion	The researcher's reflection of research gap
	Zariyah Ibrahim, and Abdul Momen				SPSS, after which structural equation modeling was run by using AMOS.		advertisements.
11	Ulvi Cenap Topçu and Mustafa Kaplan	Willingness to buy foreign products in relation to ethnocentric tendencies and world minded attitudes of consumers	Çanakkale, 2015 (General)	To investigate how consumer ethnocentrism and world mindedness change consumer attitudes, and how domestic product judgment moderates this relationship.	Exploratory factor analysis model and Regression models with SPSS was used to analyze the data	Results show that consumer ethnocentrism is inversely related to willingness to buy foreign products, and domestic product judgment does not have significant moderating effect in this relationship. World mindedness, on the contrary, is not related with willingness to buy foreign products, but domestic product judgment has a significant moderator role on the relationship between world mindedness and willingness to buy foreign products.	Some statistical interpretation was not given due to the generic type of the study and also further research areas were not identified by the researcher.
12	Faizah Mashahadi & Mohd Ghazali Mohayidin	Consumers' Buying Behaviour toward Local and Imported Cars: An Outlook after the Implementation of ASEAN Free Trade Agreement (AFTA) In Malaysia	Malaysia, 2015 (Automobile)	To examine factors affecting Malaysian's car-buying behaviour, especially after AFTA was implemented.	The study uses factor analysis in identifying factors affecting consumers' car-buying behavior and Logistic regression is used to examine preferences in purchasing the car.	The findings of the study show that attributes of the car, car maintenance, acquisition process, attitude of consumers, and price of the car were significant in explaining the purchasing pattern. In addition to this, car maintenance, car attributes and consumers' attitude (nationalism) were highly significant in explaining whether consumers will buy local or imported cars.	The research showed factors affecting consumers buying behavior and also identified which factors influence more and which one influence less. But it doesn't clearly connect to the title whether these factors are after the Implementation of ASEAN Free Trade Agreement (AFTA) In Malaysia or not
13	Nanzia Florent, Natalia	Determinants of Consumers` Attitudes on	Tanzania, 2014	The objective of this study was to investigate the determinants of consumers‟	The data were analyzed using MS – Excel computer	The results indicated that Tanzanian consumers‟ attitudes on imported products were heavily influenced by	The research identified determinants that influences consumer attitudes but it

S.No	Author	Title of Article	Country, Year & Sector	Problem/Purpose	Methodology or tools used	Result/Conclusion	The researcher's reflection of research gap
	Kalimang`asi and Robert Majula	Imported Products in Tanzania: The Case Study of Dodoma Municipal	(General)	attitudes on imported products in Tanzania by exploring factors which attract Tanzanian consumers to purchase imported products.	software.	the sense of proud, advertising and marketing, local market destructions, consumers‟ awareness about the imported products, import brand name, group reference and unavailable local substitutes.	doesn't indicate which determinant influences more so that producers and importers cannot understand where to concentrate more to bring improvements.
14	Hoang TPM Le, Phuong V Nguyen, Ho Phi Dinh and Chi NA Dang	Effects Of Country Of Origin And Product Features On Customer Purchase Intention: A Study Of Imported Powder Milk	Vietnam, 2017 (Powder Milk)	To investigate drivers of purchase intention for imported powder milk	Data were analyzed using the partial least squares-structural equation model approach	The results indicate that product attitude has the strongest positively effect on purchase intention; meanwhile, the country of origin has indirectly relationship to the purchase intention via product features. Specifically, group conformity also has significant relationship with purchase intention. Lastly, ethnocentrism has a negative effect on product quality and purchase intention.	

2.11. Summary of the Literature Gap

The researcher has reviewed different empirical studies conducted by different researchers on purchase decision making of domestic versus import and factors influencing consumer switch from local to imported and come up with the following gaps.

1. There is no research done on factors influencing consumer switch from local to imported reinforcement bar. But two researches related to this title were conducted on leather shoes and wine.

2. The researches done on leather shoe and wine only depends on consumers view to identify problems but this research additionally uses tested laboratory results to compare with the results from consumers to know whether the results support each other or contradicts.

3. Furthermore, this research investigates into the detailed production process of the product under the study to understand the root causes of the problem which is not done in other researches.

4. In general, this research integrates the marketing part with technical (production process as well as quality control) to understand the problem very well and to reach on solutions.

CHAPTER THREE

3. RESEARCH DESIGN & METHODOLOGY

3.1. Introduction

This chapter deals with over all approach of the research. The coverage includes research design, population, sample size, and sampling techniques, source of data, data collection tools and data analysis method that the study will use.

3.2. Research Design

The research design provides the conceptual structure within which research is conducted. It provides for the collection of relevant evidence with minimal spending of effort, time and money. Kothari (2004) says that when the purpose happens to be correct description of a situation or of an association between variables, the descriptive research design is one that reduces bias and maximizes the reliability of the data collected and analyzed. Descriptive research is the process of collecting data in order to answer questions regarding the current status of the subject study. Therefore, the descriptive research design enables the researcher to gather data from a wide range of respondents on the factors influencing consumer switch from local to imported products.

3.3. Population of the study

According to Fraenkel and Warren (2002), population refers to the comprehensive set of individuals or organizations (subjects or events) having joint characteristics in which the researcher is interested. A source list should be comprehensive, correct, reliable and appropriate. It is very important for the source list to be as representative of the population as possible.

Reinforcement bar is an input for construction companies. Therefore, all construction companies are the consumer of this product. Data obtained from Ethiopian ministry of construction in February 2019 indicates that there are 5522 active construction companies (from level 1 to level 10 in both building and general construction) in the country. As financial and time constraints did not allow conducting the research broadly on all construction companies over the country and also since majority of the companies are in Addis Ababa, the target population of the study limited to some construction companies from level 1 to level 5 in both building and general construction existing in Addis Ababa. This is because these companies consume large amount of

reinforcement bar in their construction sectors and assumed to be the influential companies in consumption of the product.

Table 3. 1: Target Population of the study

S/N	Types of Contractors	Number of Companies
1	Building Contractor (BC)	90
2	General Contractor (GC)	90
	Total	**180**

Source: researcher's own tailored based on data from Ethiopian Ministry of Construction

3.4. Sample Size of the Study

The size of sample should neither be extremely large, nor too small. It should be optimum. An optimum sample is one which satisfies the requirements of efficiency, representativeness, reliability and flexibility. While deciding the size of sample, researcher must determine the preferred precision as also an acceptable confidence level for the estimate (Kothari, 2004).

The determination of the sample was done using Cochran's (1977) formulas. In Cochran's formula, the alpha level is included into the formula by utilizing the t-value for the alpha level selected (for example, t-value for alpha level of 0.05 is 1.96 for sample size above 100). For categorical data, 5% margin of error is tolerable (Krejcie& Morgan 1970). Cochran's sample size formula for categorical data is:

$$n=\left\{\frac{t^2(p)(q)}{(d^2)}\right\}$$

$$n=\left\{\frac{1.96^2(0.5)(0.5)}{(0.05^2)}\right\}=384$$

Where:

n = the desired sample size

t^2 = value of selected alpha level of .025 in each tail =1.96 (the level of .05 indicates the level of risk the researcher is willing to take. True margin of error may exceed the margin of acceptable margin of error

(p)(q) = estimate of variance = 0.25 (p-Maximum possible proportion (.5)* 1- maximum possible proportion (.5) produces maximum possible sample size)

d= acceptable margin of error for proportion being estimated = .05 (the error the researcher willing to accept)

Therefore, for a population of 180, the required sample is calculated as follows:

$$n_f = \left\{ \frac{n}{1 + n/population} \right\}, \text{ where } n_f \text{ is the target sample size}$$

$$nf = \left(\frac{384}{1 + \frac{384}{180}} \right) = 122$$

3.5. Sampling Techniques

The non-probability sampling technique was used because the construction company with the highest level/category is given more chance to be included in the sample since they are the largest consumer of the product under the study. From non- probability sampling technique the researcher applied purposive/judgmental non-random sampling in order to achieve the desired representation of the population. The selection was conducted in such a way that sampling proportional to their size was conducted from the population. Thereafter, through proportional allocation to each level or category of both groups, accessibility and voluntaries techniques were used to get the final respondents.

Table 3. 2: Number of samples from each category/level

S/N	Types of Contractors	Category	Number of Companies	Sample Size at each Category
1	BC	BC-1	35	35*(61/90) = 24
2	BC	BC-2	20	20*(61/90) = 14
3	BC	BC-3	15	15*(61/90) = 10
4	BC	BC-4	12	12*(61/90) = 8
5	BC	BC-5	8	8*(61/90) = 5
	Total BC		**90**	**61**
1	GC	GC-1	34	34*(61/90) = 23
2	GC	GC-2	4	4*(61/90) = 3
3	GC	GC-3	6	6*(61/90) = 4
4	GC	GC-4	4	4*(61/90) = 3
5	GC	GC-5	42	42*(61/90) =28
	Total GC		**90**	**61**

Source: researcher's own tailored based on data from Ethiopian Ministry of Construction

3.6. Sources of Data and Data collection tools

The study used both primary and secondary data sources. Primary data was collected using observation, questionnaires and semi-structured interview questions which was prepared in both English and Amharic version respectively. According to Boyd et al. (2004) the questionnaire method has advantages in terms of versatility of the method as well as speed and cost. It is the most appropriate tool for collecting data. It also gives respondents liberty to express their views or opinions and to make suggestions. However, it may have disadvantages as a result of refusal of respondents to provide information, incapability of respondents to provide information and influence of the questioning process.

The primary data that is collected using this questionnaire based on a five – point Likert scale ranging from 5 to 1, which show the level of the agreement of the respondents with the statements, where 5 represents their strongly agree with the statement and 1 – their strongly disagree. The researcher managed the questionnaire by himself. He went personally to the

working area of the selected respondents (construction companies) and gives orientations and explanations about the purpose of the questionnaires before distribution. Collection of filled questionnaires was conducted by the researcher few days after distribution. Interviews are also made with wholesalers, retailers, and construction workers to get their views.

The study also depends on secondary data that was collected from different concerned organizations. Two years sample quality test result data of locally manufactured and imported reinforcement bar of different sizes was collected from Ethiopian conformity assessment enterprise and four years price list of locally manufactured and imported reinforcement bar of different sizes were collected from trade competition and consumers' protection authority so as to see the difference in quality and price of domestic and imported products. Besides, different empirical reviews and internet broth were used to collect secondary data from any related materials.

3.7. Methods of Data Processing and Analysis

To accomplish the task of data analysis, the collected data were sorted, entered and analyzed using Factor Analysis in Statistical Package for Social Science software (SPSS). This software was selected because the study is investigating the factors influencing reinforcement bar consumers' shifting from local to import and as this software summarizes large numbers of variables using a smaller number of factors and good in analyzing data in a way to answer the research questions. Descriptive statistics is also used to organize process and interpret data by using tables, mean, frequency and percentage to better understand and interpret the data gathered through questionnaires, interviews and secondary sources.

3.8. Summarized Research Methodology

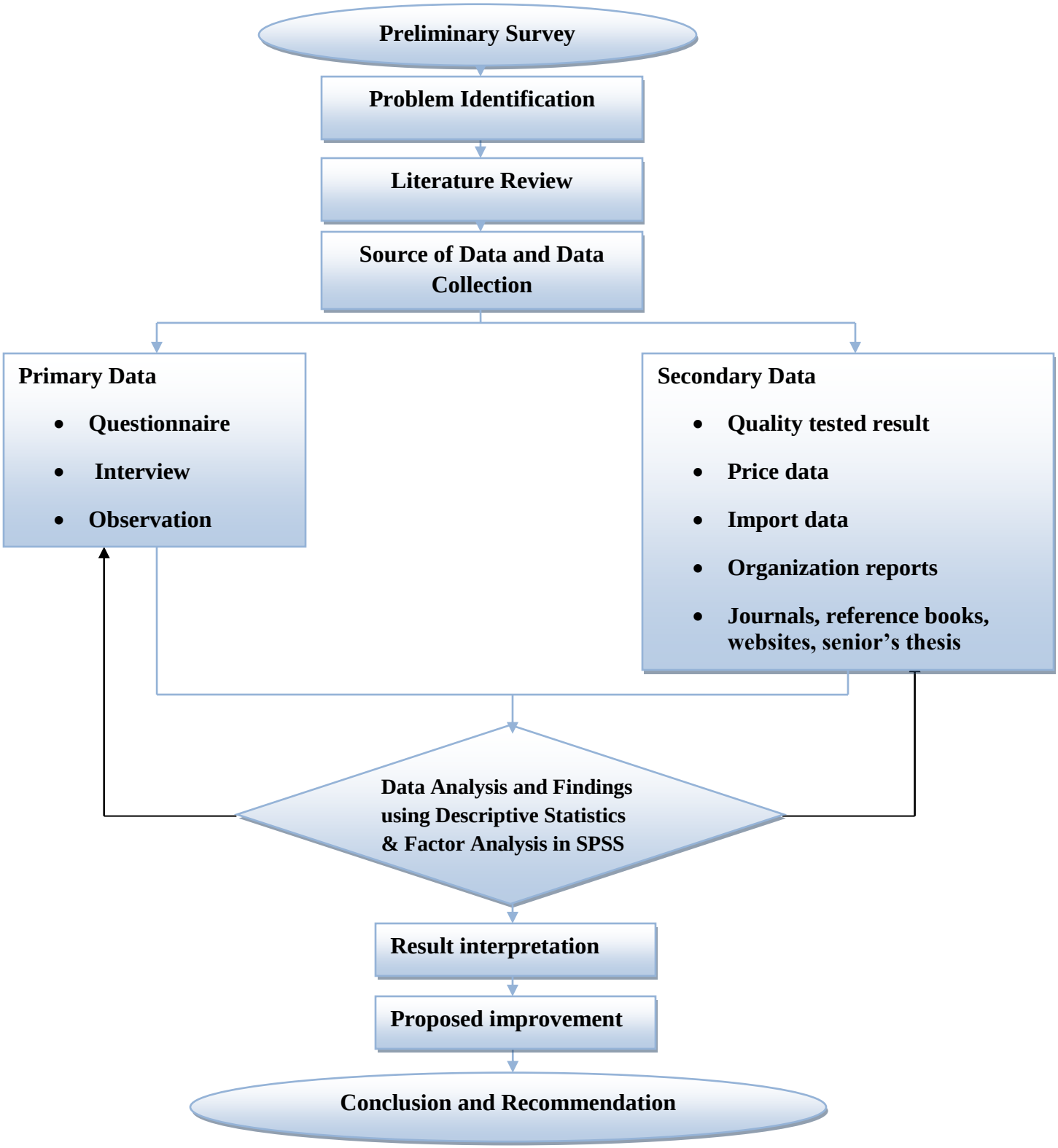

Fig.3. 1: Summarized Research Methodology

CHAPTER FOUR

4. DATA ANALYSIS AND INTERPRETATION

4.1. Introduction

This chapter analyzes and interprets both primary and secondary data. This analysis is to get the views of respondents concerning factors influencing reinforcement bar Consumers' shifting from Local to Import. Primary data was collected through observations, questionnaires and structured interview of the researcher and was aimed at addressing the objectives of the study.

In addition to the primary data, secondary data was also collected which includes two years sample quality tested result of locally manufactured and imported reinforcement bar of most consumable bars from Ethiopian Conformity Assessment Enterprise (ECAE), four years price data of both products from Ethiopian Trade and Consumers' Protection Authority (ETCPA), designed capacity and actual production data from Metal Industry Development Institute and import data from Ethiopian Revenue and Custom Authority. The analysis of these data is used to compare with the views of consumers' obtained through primary data analysis.

4.2. Analysis of Data obtained through Questionnaire

It starts with background information of the respondents and covers all parts of the questionnaire; including quality view of respondents, price of products, availability of products, customer handling and promotion of products.

4.2.1. Socio Demographic Characteristics of the Respondents

In this section response rate, gender, age, educational level, occupational conditions, work experience, types and category of consumers and ownership of companies of respondents which indicates importance and acceptance of data collected were analyzed.

a. Response Rate

Based on the number of sample size determined in chapter three, a total of 122 questionnaires were distributed out of which 112 (91.8%) were completed by the respondents. This is a better response which enables the researcher to conduct the analysis.

b. Gender of Respondents

A respondent's gender can have a huge effect on their way of thinking, thus majorly affecting the result of the research. It can indicate what they are really thinking of concerning the target of the research. For this purpose respondents were asked to indicate their gender by writing the appropriate category they belonged. Out of 112 respondents who participated in the study, majority (89) of the respondents representing 79.5% were males, while the remaining 23 respondents representing 20.5% being females. Analyzing their views concerning imported and locally manufactured reinforcement bars indicates that both genders prefer imported reinforcement bar due to its higher quality with an overall mean of 3.61 as shown in the following table.

Table4. 1: Gender views of imported and local products

Gender of Respondents		Quality Related Views	Price Related Views	Availability Related Views
Male	Mean	3.6404	2.3011	2.4135
	N	89	89	89
	Std. Deviation	.60316	.63827	.81061
Female	Mean	3.4957	2.2174	2.2435
	N	23	23	23
	Std. Deviation	.66297	.56541	.93217
Total	Mean	3.6107	2.2839	2.3786
	N	112	112	112
	Std. Deviation	.61562	.62248	.83541

Source: researcher's survey questionnaire, 2020

c. Age of Respondents

Different age groups of respondents who participated in the study can have different views for local and imported products. For this purpose respondents were asked in what age group they belong to. The analyzed result indicates that all age groups would prefer imported than local products due to its higher quality with an increasing mean (preference) of 3.5 to 4.0 from lower to higher age as shown in the following table.

Table4. 2: Views of different age groups

Age of Respondents		Quality Related Views	Price Related Views	Availability Related Views
21-30	Mean	3.4982	2.3927	2.5018
	N	55	55	55
	Std. Deviation	.62167	.55506	.90092
31-40	Mean	3.6848	2.0000	2.0848
	N	33	33	33
	Std. Deviation	.59798	.58310	.61853
41-50	Mean	3.7200	2.4400	2.4800
	N	20	20	20
	Std. Deviation	.63710	.66996	.86912
51 and above	Mean	4.0000	2.3500	2.6000
	N	4	4	4
	Std. Deviation	.32660	1.02470	.99331
Total	Mean	3.6107	2.2839	2.3786
	N	112	112	112
	Std. Deviation	.61562	.62248	.83541

Source: researcher's survey questionnaire, 2020

d. Educational Level of Respondents

Different educational level of respondents who participated in the study can have different views for local and imported products. To know their views, respondents were asked to indicate their educational background. The analyzed result indicates that all educational level would prefer imported than local products due to its higher quality with an increasing mean (preference) of 3.34 to 3.66 from Diploma to Masters educational level as shown in the following table.

Table4. 3: Views of different educational levels

Educational level of Respondents		Quality Related Views	Price Related Views	Availability Related Views
Diploma	Mean	3.3400	2.3600	2.2800
	N	10	10	10
	Std. Deviation	.69952	.60955	.66800
Degree	Mean	3.6274	2.2575	2.3479
	N	73	73	73

	Std. Deviation	.61311	.62759	.85572
Masters	Mean	3.6621	2.3241	2.4897
	N	29	29	29
	Std. Deviation	.59065	.63113	.84951
Total	Mean	3.6107	2.2839	2.3786
	N	112	112	112
	Std. Deviation	.61562	.62248	.83541

Source: researcher's survey questionnaire, 2020

e. Occupational Level of Respondents

The occupational level of respondents can indicate that whether the respondent is at the position of decision making or not and to see the views of different levels. The analyzed result revealed that all occupational levels would prefer imported than local products due to its higher quality with a higher mean of ≥ 3.90 at purchasing managers and material management heads who have a direct involvement in the decision making of which product to consume.

f. Work Experience of Respondents

Respondents with different work experiences participated in the study may have different views for local and imported products. For this purpose respondents were asked to fill the different work experience category they belong to. The analyzed result indicated that all respondents with different experiences would prefer imported reinforcement bar than local due to its higher quality.

g. Types of Consumers Company

Different consumers may have different views for imported and locally manufactured reinforcement bars. To see their views respondents were asked to fill types of company they belong to. The analyzed result reveals that both General and Building contractors would prefer imported reinforcement bar than local due to its higher quality with higher preference by the General contractors.

h. Category of Consumers Company

There are different levels within type of company. The different levels may vary with their views for imported versus local. To differentiate their views respondents were asked to fill the level of

their companies it belongs to. The result of analysis showed that all levels of General and Building contractors would prefer imported reinforcement bar than local due to its higher quality.

i. Ownership of Consumers Company

There is different ownership in the construction company. Some are government owned, some others are private owned and the others may be share companies. These different companies may have different views for imported and local reinforcement bars. To understand their views respondents were asked to fill the ownership of companies they belongs to. The analyzed result reveals that all companies would prefer imported reinforcement bar than local due to its higher quality.

4.2.2. Factor that Highly Affects Consumer Shift to Imported Reinforcement Bar

To identify the factor that highly affects consumer switch from local to imported reinforcement bar in Ethiopia, respondents were asked which reinforcement bar would they prefer more for their construction company. From a total of 112 respondents, 76 (67.86%) would prefer imported even by mentioning the origin of the products' country as Turkey's reinforcement bar. They reason out as Turkey's reinforcement bar is higher quality than locally manufactured. This concept align with Parkvithee and Miranda (2012) cited in Hoang et al. (2017) that explained besides brand name, appearance, and design, country of origin is one of the most important indicators of product quality. For consumers in developing countries, the country of origin effect makes them believe that foreign products are superior in quality to local products. Respondents of this research explained that this imported Turkey's reinforcement bar have flexibility, easily bendable, workable and have high strength. In addition, these products have exact standard length which is 12m but this fails sometimes when we come to locally manufactured reinforcement bar.

This reality can be best explained by the decreasing capacity utilization of Ethiopian reinforcement bar manufacturing industries and the highest percentage share of Turkey's reinforcement bar in Ethiopian import data. Even though Ethiopian's reinforcement bar manufacturing industries have relatively high design capacity, these industries are currently operating with low capacity utilization and it is decreasing from year to year specially in the last four years as shown in the following graph.

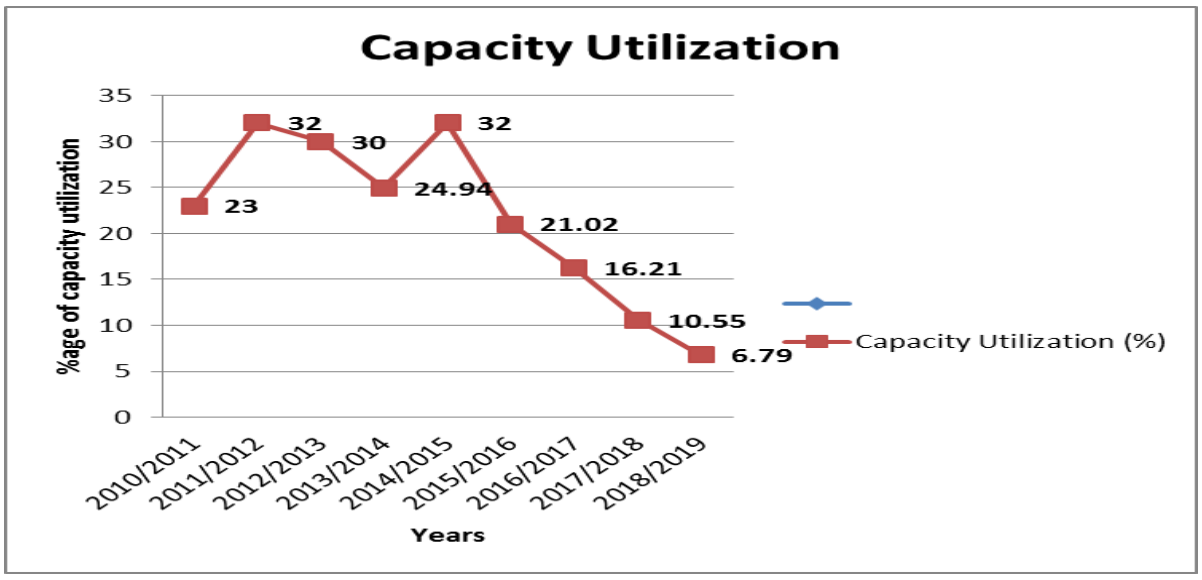

Fig.4. 1: Capacity utilization of reinforcement bar production industries (FDRE, Policy Study and Research Center, 2017 and MIDI 2018, 2019)

When we compare the quantity of local and imported reinforcement bar during a period of five years (2014/2015 – 2018/2019), it appears that there is no significant difference in the quantity of imported products. But during these times the design capacity of local industries producing this product was increasing but the quantity of imported product remains the same. The following graph reveals this situation.

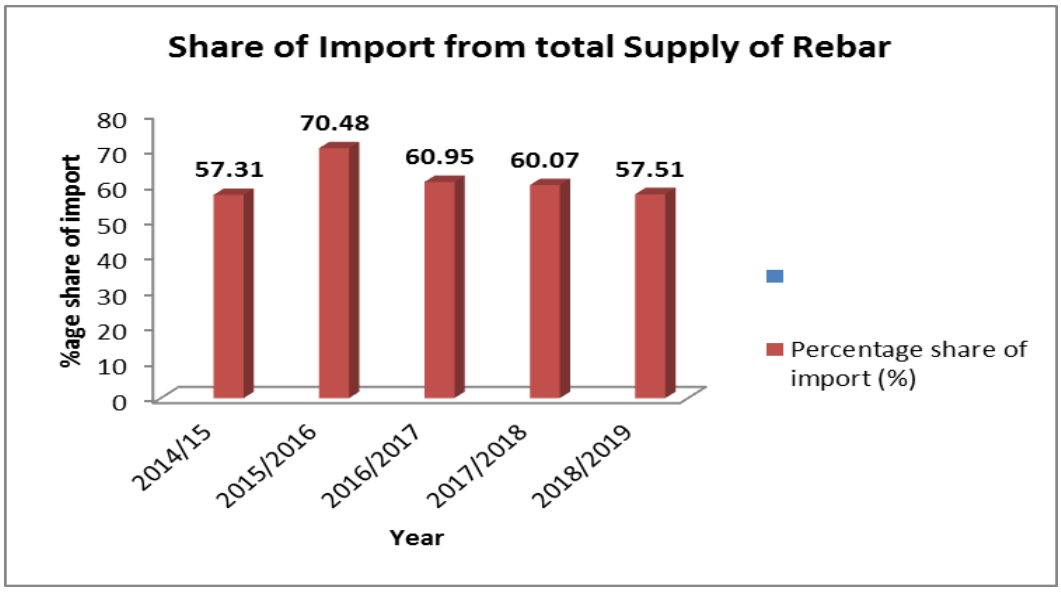

Fig.4. 2: Share of import from total supply of reinforcement bar in years 2014-2019 (ERCA and MIDI)

Ethiopia imports different products from different countries. From these imported products, reinforcement bar is one of the main products that support the construction sector which has a great influence on the economy of the country. Even if many reinforcement bar producing industries with high designed capacity were established in the country, the country still importing large amount of the products from different countries. Among countries exporting this product to Ethiopia, Turkey is the leading by 62.4% of the total export and china is following by 25.23% as she is importing this product from china for the constructions under their contract. The following graph reveals this reality.

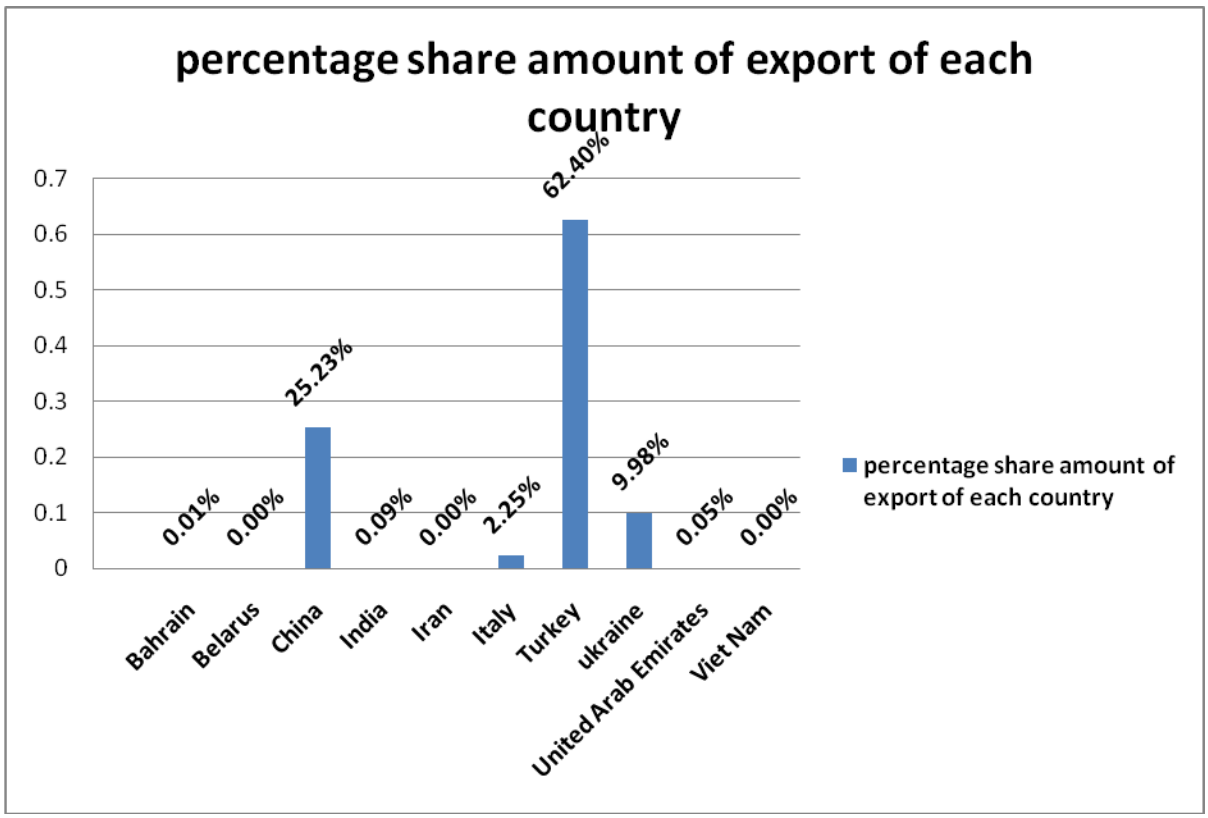

Fig.4. 3: Percentage share of reinforcement bar export of each country **(Ethiopian Revenue and Custom Authority, 2019)**

Therefore, from the above explanations it can be concluded that majority of Ethiopian construction companies prefer imported reinforcement bar particularly Turkey's bar as they believe due to its higher quality. Their responses confirmed true as the cumulative import of last two years reveals this reality.

a. Factor Analysis

Factor analysis allows looking at the relationship between a large numbers of variables and summarizes using a smaller number of factors (or latent variables). It enables the researcher to group variables together to identify and interpret what those factors might be; which in turn helps to better understand the variance in the data.

This analysis focus on exploratory factor analysis using principal components analysis (PCA). PCA aims to reduce a set of variables into a smaller, more meaningful set of factors by looking for clusters of variables that appear to be related to one another (and therefore may be tapping into the same underlying factor). PCA is primarily concerned with identifying variables that share variance with one another.

In this research the factor analysis is used to analyze a newly developed questionnaire designed to measure consumers' views concerning factors influencing Consumer Switch from Local to Imported reinforcement bar. In this research 112 participants completed a questionnaire examining views on factors influencing consumers switch by disagreeing or agreeing with a series of statements about how consumers switch. The questionnaire had 15 items (variables) and answers were given on a scale of 1 to 5, where:

1 = Strongly Disagree

2 = Disagree

3 = Neither Agree nor Disagree

4 = Agree

5 = Strongly Agree

KMO and Bartlett's Test

The following two statistics confirm that whether or not Factor Analysis is appropriate for collected data set.

Table4. 4: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.710
Bartlett's Test of Sphericity	Approx. Chi-Square	419.282
	df	105
	Sig.	.000

Source: researcher's survey questionnaire, 2020

First, the Kaiser-Meyer-Olkin test of sampling adequacy assesses whether or not researcher's sample size is sufficient for factor analysis. A value of less than 0.5 indicates the sample is too small, the commonly recommended value is above 0.6 but ideally 0.7 or above is expected. In this case the value is KMO = 0.71, which means that sample size is sufficient.

The second statistic is Bartlett's test of sphericity which tells the researcher whether he/she has an adequate number of correlations between his/her variables for factor analysis. In this case the researcher is looking for a significance value of less than his or her alpha level (i.e. $p<0.05$), just like ANOVA. In this research the value is $p < 0.001$, which means that the researcher has enough correlations between variables for factor analysis.

4.2.2.a.1. Total Variance Explained

There are three key components to this table, which are highlighted here.
Table4. 5: Total Variance Explained

Table 4.5: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.763	25.085	25.085	3.763	25.085	25.085	2.578	17.184	17.184
2	2.574	17.162	42.247	2.574	17.162	42.247	2.519	16.796	33.980
3	1.239	8.257	50.504	1.239	8.257	50.504	1.898	12.653	46.632
4	1.124	7.496	58.000	1.124	7.496	58.000	1.611	10.737	57.369
5	1.025	6.833	64.834	1.025	6.833	64.834	1.120	7.465	64.834
6	.812	5.411	70.244						
7	.735	4.900	75.145						
8	.727	4.847	79.991						
9	.651	4.339	84.330						
10	.586	3.908	88.238						
11	.507	3.382	91.619						
12	.398	2.655	94.274						
13	.359	2.390	96.664						
14	.299	1.993	98.657						
15	.201	1.343	100.000						

Extraction Method: Principal Component Analysis.

Initial Eigenvalues: The first three columns list all of the factors that can be found within the data set. As factor analysis always extracts as many factors as there are variables, in this case there are 15 factors in total. The % of Variance column tells the researcher how much of the variance in the dataset can be explained by each factor. The first few factors account for relatively large proportions of the variance compared to the latter factors. The researcher really only interested in extracting factors that account for a meaningful amount of variance.

Extraction Sums of Squared Loadings: The middle set of columns is almost identical to the first, except it only displays the factors that account for a significant amount of variance in the data. As the researcher asked SPSS to use a criterion of eigenvalues over 1 for extraction, this section only displays the factors that meet this criterion. The eigenvalue for each factor (before

rotation) can be seen in the Total column. In this study, SPSS has extracted five factors as a result of the factor analysis.

Rotation Sums of Squared Loadings: The final set of columns gives the eigenvalues of the extracted factors after rotation has taken place. Rotation maximizes the loading of each of the variables onto one factor, while minimizing its loading on the others. This optimizes the factor loadings which also brings the eigenvalues more into line with one another.

Scree Plot

This graph plots all the 15 factors and can help in visualizing which factor has the highest influence in switching consumer from local to imported reinforcement bar. These plots often show a point in the curve (or 'elbow') where the eigenvalues drop off and level out which is indicated by an arrow. Eigenvalues above this point may be important enough to retain, whereas the others may not. Above all, the first factor which is found at the top is the factor that highly influencing consumer switch.

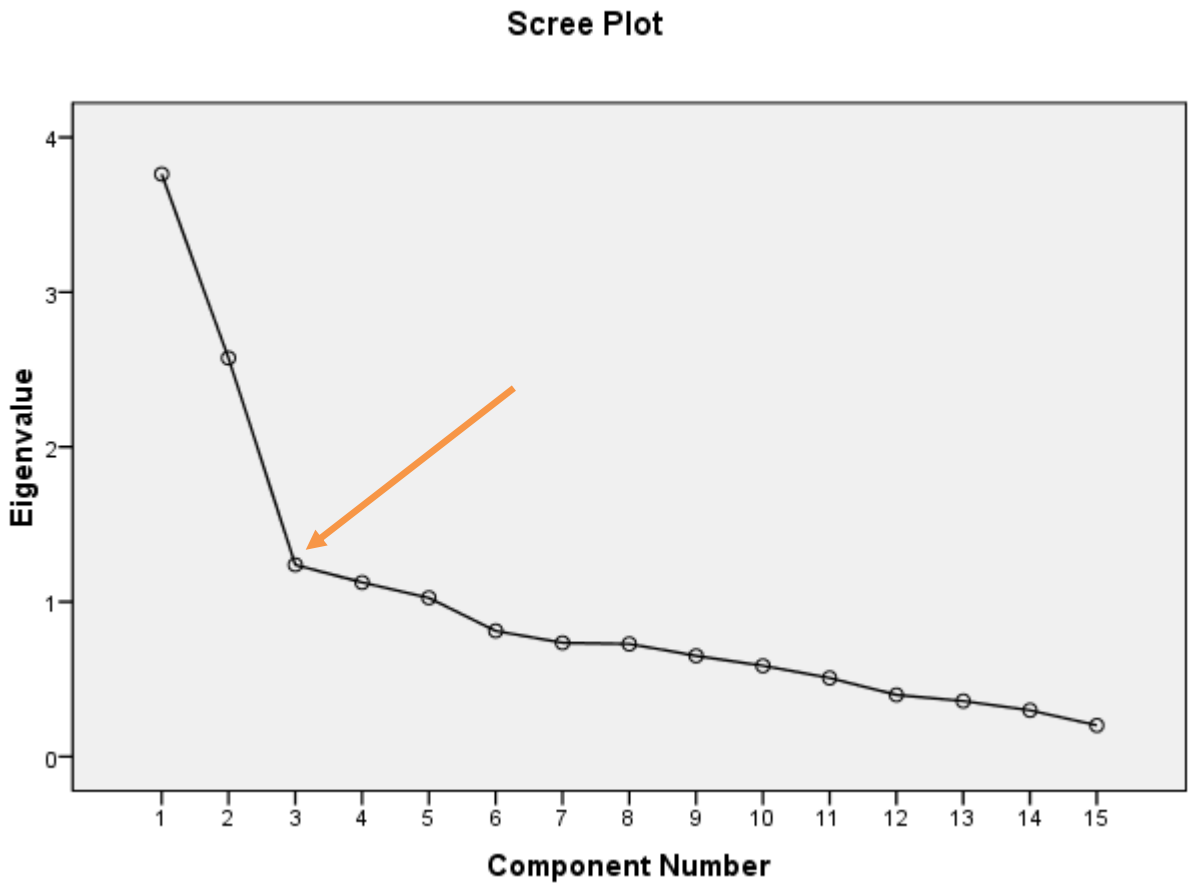

Fig.4. 4: Scree plot **(**researcher's survey questionnaire, 2020)

Rotated Component Matrix

The table tells the researcher how each variable loads onto each of five factors after rotation, and to what extent. This allows the researcher to interpret what each of his/her extracted factors might represent. Factor Analysis only tells which variables group together mathematically and the researcher interpret what this means. To establish what the factors might be, the researcher need to look at all of the variables that load onto them and try to establish a common theme.

Table4. 6: Rotated Component Matrix

Table 4.6: Rotated Component Matrix[a]

Variables	Component				
	1	2	3	4	5
Our company checked both imported and local reinforcement bar for their quality by laboratory and found that imported is higher quality	.747				
Our company buy imported reinforcement bar because of its higher quality	.733				
Our company didn't face any quality failure with imported bar but faced failure with locally manufactured one	.731				
Friends, traders of reinforcement bar recommend to buy imported reinforcement bar	.684				
Our construction workers reported that imported reinforcement bar is good while bending or generally working with it	.663				
Our company buys imported reinforcement bar only when there are no locally manufactured ones		.834			
Our company buys imported reinforcement bar because local industries' supply is insufficient		.713		.420	
We buy imported reinforcement bar since some of the sizes are not manufactured locally.		.632			
The company buys imported reinforcement bar because we have no information whether there is locally manufactured reinforcement bar or not		.630			
Our company don't care about price, but always intend to buy imported reinforcement bar based on friends and others suggestions			.776		
Our company buy imported reinforcement bar because their price lists for each size of products are easily accessible than local producers			.691		
Our company buy imported reinforcement bar because importers arrange credit terms for us but local one doesn't			.642		
Our company buy imported reinforcement bar because its price is cheaper than locally manufactured				.789	
We buy imported reinforcement bar because locally manufactured is not easily accessible		.437		.575	
Our company highly influenced by price while purchasing reinforcement bar since it affects our profit level					.947

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Looking at the 5 variables that load onto the **Factor 1** which is marked red in the above table, they all about aspects of quality. Therefore, this factor can be named as "quality related view of consumers."

The variables that load most strongly onto **Factor 2** refer to availability. As a result, this factor can be named as "Availability related views of consumers."

For **Factor 3**, the variables that load refer to price. So in this case, the factor can be named as "Price related views of consumers."

Therefore, the above factor analysis indicate that quality is the major (first) factor that highly influences consumer switch from local to imported reinforcement bar followed by availability.

4.2.3. Differences in Quality, Price and Availability between Imported and locally manufactured reinforcement bar

To identify the difference between imported and locally manufactured reinforcement bar in quality, price and availability, respondents were asked to fill their choices which product would they prefer if price of both products are the same. The result of analysis revealed that 81 (72.32%) of respondents prefer to consume imported product. This is because they believe that imported are produced from iron ore not from scrap as a result it has better strength, durability, easy bendability and workability, flexibility, accurate weight and sizes, meet quality requirements on laboratory test as majority of respondents 85 (75.89%) evaluate quality of reinforcement bar they purchase through laboratory and imported in general has higher quality than local.

Results of interviews and physical observations of local industries shows that from 18 operational industries only 10 of them have melting furnaces to melt scrap and these scrap product constitutes only 20% of their total production. These 10 industries and the rest 8 are importing billet as per Ethiopian standard. This indicates that the product from scrap only covers small portion of local reinforcement bar. In addition, when quality failure at work place is evaluated among 112 respondents, 50 of them faced quality failures at workplaces from which 38 (76%) failure were associated with local reinforcement bars. This result align with the finding of (Makino et al., 2004) which explains that it is reasonable to believe that products from

developed countries provide unique characteristics and high value for customers, whereas products from developing countries are typically lower in quality and cheaper in price.

To understand the root causes of quality failure it is necessary to study the production process of the product. The existing situation of production processes of these industries reveals the following situation.

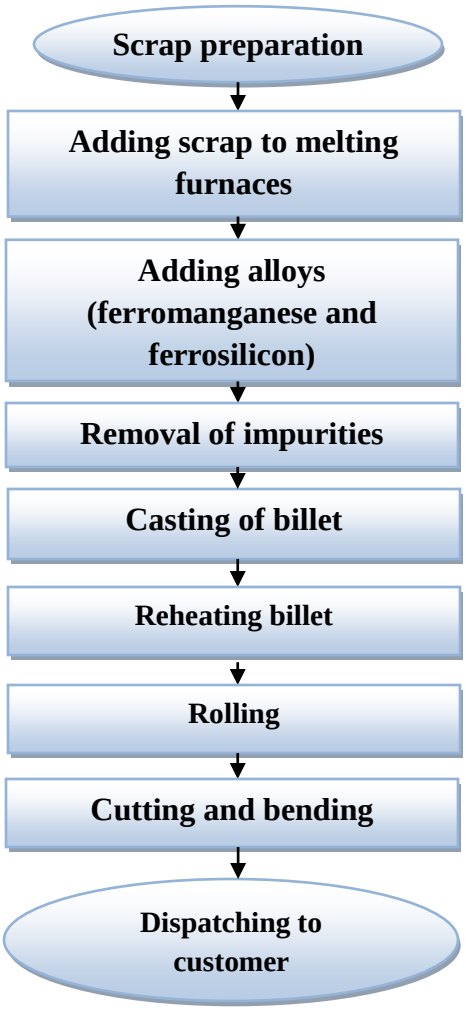

Fig.4. 5: Existing production process of reinforcement bar manufacturing from scrap (researcher's own investigation, 2020)

As the quality of this product depends on chemical composition, manipulation of standard composition should be conducted at the melting stage of scrap. Because tensile strength, yield strength and elongation of the product which determines the quality of the product mainly depends on the content and level of chemical composition the product made of. As it can be seen from fig.4.5 above there is no testing and manipulation of chemical composition at the melting stage of the scrap. This is the main cause for quality failure of the product made from scrap.

Furthermore, majority of respondents consume imported because there is strong influence from consultants as well as from owner of businesses to use imported products. Consultants and owner of projects bind with contract documents and does not approve if requirement does not meet.

If both (imported and local) reinforcement bars were equal in quality, 80 (80.36%) would prefer to consume local to support or encourage local manufacturer, due to its lower price, due to its more availability or accessibility and to save foreign currency. This result align with Stela (2016) which explain ethnocentric consumers are unwilling to buy imported products due to feelings of loyalty towards their own country and also because of fear of economically hurting the beloved country by purchasing imported products. As it is shown above majority of consumers consume their local products if it compliance with the quality requirements.

Analysis of the both products in terms of price reveals that imported reinforcement bar has higher price than local. Out of 112 respondents, 106 (94.64%) indicated that imported has higher price. This idea is supported by (Ayob et al., 2015; Aulakh et al., 2000; Hulland et al., 1996 and Li et al., 2009) cited in Ayob (2016) that explains local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as distance logistics and tariffs, which subsequently would lower the price.

Availability is one factor that affects consumer purchase decision. Respondents were asked to indicate as which reinforcement bar is more available in market. The result reveals that 85 (75.89%) of the respondents experienced local reinforcement bar is more available in market than imported. This contradicts with the results obtained by Nanzia et al. (2014) that say the chance to buy imported products increased with unavailability of local substitutes. In the case of this study, the result shows that local reinforcement bar is more available in market than imported but the consumption is higher on imported bar. Majority of consumer particularly larger construction companies complain that local manufacturers' supply is insufficient. This is due to shortage of foreign currency as a nation since more than 80% of raw materials for the product under the study is imported. Even if some iron ore deposits were discovered with their potential level in the country that can solve the raw materials problem of the product as indicated in sector overview in this research, there is no promising movement yet to exploit these ores.

Promotion of product is one of the marketing mixes that influences purchase decision of consumers. Analysis of collected data reveals that 90 (80.36%) of respondents feels local manufacturers promote better than those of importers. As briefly explained by Charles et al. (2010) promotion is about mutually satisfying exchanges with target markets by informing, educating, persuading, and reminding them of the benefits of an organization or a product. Local manufacturers of the product under the study are doing this better than those of importers.

Customer handling has its own effect in influencing consumer switch. To evaluate the degree of customer handling, respondents were asked to fill their exposures and experiences concerning local manufacturers and importers. The result of analysis indicates that majority of respondents 54 (48.21%) experienced both local manufacturers and importers are good at customer handling. Therefore, this factor cannot be the cause for consumer switch from local to import.

4.3. Analysis of Data obtained through structured interview

Under this section two interview were conducted. The interview was with reinforcement bar wholesalers, retailers and construction workers. Here structured interview questions that are related to their work were prepared. Accordingly, interview was conducted with 21 wholesalers and retailers of reinforcement bar and 18 construction workers. The aim of the interview was to get the view of both groups on imported and locally manufactured reinforcement bars particularly concerning quality, price and availability.

4.3.1. Interview with Wholesalers and Retailers

This section was aimed to get the view of wholesalers and retailers of reinforcement bar on quality, price and availability of imported and locally manufactured reinforcement bar. To see their view, 21 interviews were conducted with wholesalers and traders working around Teklehaimanot and Megenagna. The summary of this interview is presented in the following table.

Table4. 7: Interview result of reinforcement bar wholesalers and retailers

S/N	Questions	Local reinforcement bar	Imported reinforcement bar	Both reinforcement bars same	Total respondent	%age share of imported reinforcement bar	%age share of local reinforcement bar
1	When consumers come to your shop, which product they request to buy?	3	15	3	**21**	**71.43**	**14.29**
	If they request imported, which country's reinforcement bar?	0	15	0	**15**	**100.00**	**0.00**
2	When consumers comes to your shop, which product you advice them to buy?	7	12	0	**19**	**63.16**	**36.84**
3	Which product do you think have better quality?	2	16	3	**21**	**76.19**	**9.52**
4	Which product do you think available on market as per consumer interest?	13	5	3	**21**	23.81	**61.90**
5	Did you face consumer complaining for quality failure? If so on which product?	6	0	0	**6**	0.00	**100.00**
6	Which product have higher price?	0	21	0	**21**	**100.00**	**0.00**

Source: researcher's interview result, 2020

Based on the result analyzed using the above table, 71.43% of traders responded that reinforcement bar consumers request the imported product particularly Turkey product when they went to their shops. This is because majority of consumers come to buy the product based on their contractor's recommendation. In addition to consumers' request, 63.16% of wholesalers and retailers advise their consumers to buy imported reinforcement bars. It also shows that the view of consumers' and traders' towards imported product is similar. This indicates that nothing was done on the view or on the knowhow of contractors and traders on local product by local manufacturers.

With regard to the quality of product, 16 (76.19%) of traders believe that imported product have more quality than local. In addition, from 21 traders interviewed, 6 of them faced consumers' complain concerning quality failure on local products. But concerning product availability in the

market as per consumers' interest, 61.90% of traders responded that local product is more available than imported in the market.

All interviewed traders responded that imported product have higher price than local. This aligns with the four years price data obtained from Ethiopian Trade and Consumers' Protection Authority. It also supports the findings of different studies conducted by (Ayob et al., 2015; Aulakh et al., 2000; Hulland et al., 1996 and Li et al., 2009) cited in Ayob (2016) which says that local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as distance logistics and tariffs, which subsequently would lower the price.

In general, majority of wholesalers and retailers believe that imported product has higher quality than local but local products are more available in market than imported. Their experience showed them that large constructions always prefer imported products and smaller ones need local.

4.3.2. Interview with Foreman and Benders (Ferayu)

This section was aimed to get the view of foreman and bender (ferayu) on quality of imported and locally manufactured reinforcement bar. To see their view, 18 interviews were conducted with them at different construction sites. The summary of this interview is presented in the following table.

Table4. 8: Interview result with Forman and Benders (Ferayu)

S/N	Questions	Local reinforcement bar	Imported reinforcement bar	Both reinforcement bars are same	Total respondent	%age share of imported reinforcement bar	%age share of local reinforcement bar
1	Which reinforcement bar is comfortable when you work with it?	0	18	0	**18**	**100.00**	**0.00**
2	Do contractors or construction owners consult you on the selection of reinforcement bar? If so which reinforcement bar would you advice to buy?	0	18	0	**18**	**100.00**	**0.00**
3	Which reinforcement bar do you belief have a better quality?	0	18	0	**18**	**100.00**	**0.00**

S/N	Questions	Local reinforcement bar	Imported reinforcement bar	Both reinforcement bars are same	Total respondent	%age share of imported reinforcement bar	%age share of local reinforcement bar
4	Which rienforcement bar is easily bendable and comfortable while working with it?	0	18	0	**18**	**100.00**	**0.00**
5	Which reinforcement is difficult to bend and crack while bending?	17	1	0	**18**	**5.56**	**94.44**
6	In your site, on which reinforcement bar workers always raise complain?	18	0	0	**18**	**0.00**	**100.00**

Source: researcher's interview result, 2020

As it can be seen from the above table, all interviewed foreman and benders (ferayu) are comfortable when working with imported reinforcement bar and would prefer construction owners to buy always the imported product. This is due to the fact that all believe the imported product having higher quality than local. They responded from their experience that imported reinforcement bar are easily bendable and does not crack while bending. In reverse, 94.44% of respondents experienced that local reinforcement bar are difficult to bend and crack while bending which reduces the quality of work. As a result, most of construction site workers particularly ferayu raise complain on local reinforcement bar.

In general, majority of respondents experienced that local products are sometimes brittle and crack while bending. It creates fatigue on workers while bending since it needs high force to bend and reduces the efficiency of workers. Besides these problems, local products does not meet the standard length which 12m. Due to these all problems faced with local products, the foreman and benders (ferayu) would prefer imported reinforcement bar than local in their construction site or for their construction works.

4.4. Analysis of Secondary Data

In this part secondary data that were collected from different sources and organizations were analyzed. Particularly, for this study data of both products (imported as well as locally manufactured) were considered for analysis. Based on this, two years tested quality result and four years price data were collected from Ethiopian Conformity Assessment Enterprise and

Ethiopian Trade and Consumers' Protection Authority respectively and analyzed in the following ways.

4.4.1. Analysis of Test Result of Quality

Steel reinforcement bars or rebar are used to improve the tensile strength of the concrete, since concrete is very weak in tension, but is strong in compression. Steel is only used as rebar because elongation of steel due to high temperatures (thermal expansion coefficient) nearly equals to that of concrete. The rebar have ribs, lugs and indentation on the surface of the bar, which reduces the major problem that is faced by mild steel bar due to slippage and good bonding is achieved between concrete and rebar.

The **quality** and grade of **steel** is **dependent** on the proportion of carbon. Reinforcement bar with lower carbon level, results in good ductility, strength, welding ability, excellent bonding strength when used with concrete, high tensile strength and offer great asset in construction process where a lot of bending and re bending is required.

Durability is the ability of the structure to maintain safety and serviceability criteria during its design life. Chemical composition of reinforcement bar plays an important role in this respect. The mechanical properties of rebar, whose minimum values are generally given in most of the specifications are yield strength, ultimate strength (or maximum tensile strength) and elongation as parameters for characterization.

Classification of the ductility properties of reinforcing bar steels based on the value of the ratio of tensile strength to yield strength, as well as the elongation measured either as Agt or as A5. Quality test of reinforcement bar in Ethiopia is conducted through mas per unit length, tensile strength to yield strength ratio and elongation characteristics of the bars. This indicates that only physical verification is conducted but not chemical verification.

a. Mass per Unit Length

This is one of the physical verification through which quality of steel reinforcement bar is checked. Two years data obtained from Ethiopian Conformity Assessment Enterprise on mass per unit length are summarized in the following tables.

Table4. 9: Average mass per unit length of 2017

S/N	Nominal bar diameter (mm)	Test result of mass per length of locally manufactured reinforcement bar	Test result of mass per length of imported reinforcement bar	Requirement of mass per length by the standard			Remarks
				Requirement Kg/m	Permissible deviation %	Permissible deviation (Kg/m)	
1	12	0.876	0.871				
2	12	0.836	0.838				
3	12	0.846	0.864				
4	12	0.843	0.888				
5	12	0.861	0.874				Since the mass per unit length of all the samples of both locally manufactured and imported bar are within the permissible deviation, both fulfill the requirement
	Average	**0.852**	**0.867**	0.888	±6	**0.835 - 0.941**	
6	14	1.194	1.182				
7	14	1.191	1.16				
8	14	1.166	1.198				
9	14	1.226	1.174				
10	14	1.174	1.198				Since the mass per unit length of all the samples of both locally manufactured and imported bar are within the permissible deviation, both fulfill the requirement
	Average	**1.190**	**1.182**	1.21	±5	**1.150 - 1.271**	
11	16	1.559	1.575				
12	16	1.545	1.561				
13	16	1.51	1.555				
14	16	1.574	1.537				
15	16	1.527	1.549				Since the mass per unit length of all the samples of both locally manufactured and imported bar are within the permissible deviation, both fulfill the requirement
	Average	**1.543**	**1.555**	1.58	±5	**1.501 - 1.659**	
16	20	2.399	2.398				
17	20	2.373	2.431				
18	20	2.338	2.412				
19	20	2.386	2.427				
20	20	2.412	2.42				One of the locally manufactured bar sample does not fulfill the requirements, but all imported bar fulfill the requirement
	Average	**2.382**	**2.418**	2.47	±5	**2.347 - 2.594**	

Source: Ethiopian Conformity Assessment Enterprise 2017

Table4. 10: Average mass per unit length of 2018

S/N	Nominal bar diameter (mm)	Test result of mass per length of locally manufactured reinforcement bar	Test result of mass per length of imported reinforcement bar	Requirement of mass per length by the standard			Remarks
				Requirement Kg/m	Permissible deviation %	Permissible deviation (Kg/m)	
1	12	0.849	0.853				
2	12	0.867	0.866				
3	12	0.867	0.858				
4	12	0.843	0.858				Since the mass per unit length of all the samples of both locally manufactured and imported bar are within the permissible deviation, both fulfill the requirement
5	12	0.849	0.89				
	Average	**0.855**	**0.865**	0.888	±6	**0.835 - 0.941**	
6	14	1.185	1.212				
7	14	1.207	1.177				
8	14	1.156	1.173				
9	14	1.156	1.162				Since the mass per unit length of all the samples of both locally manufactured and imported bar are within the permissible deviation, both fulfill the requirement
10	14	1.187	1.161				
	Average	**1.178**	**1.177**	1.21	±5	**1.150 - 1.271**	
11	16	1.452	1.574				
12	16	1.515	1.535				
13	16	1.549	1.532				
14	16	1.528	1.531				
15	16	1.452	1.571				two of the locally manufactured bar samples & their average does not fulfill the requirements, but all imported bar fulfill the requirement
	Average	**1.499**	**1.549**	1.58	±5	**1.501 - 1.659**	
16	20	2.417	2.428				
17	20	2.373	2.401				
18	20	2.394	2.417				
19	20	2.398	2.355				Since the mass per unit length of all the samples of both locally manufactured and imported bar are within the permissible deviation, both fulfill the requirement
20	20	2.373	2.467				
	Average	**2.391**	**2.414**	2.47	±5	**2.347 - 2.594**	

Source: Ethiopian Conformity Assessment Enterprise 2018

As it can be seen from the two years tables above, the average mass per unit length of both products are within the permissible deviations except diameter 16 of 2018 of locally manufactured reinforcement bar which is out of the permissible range. Therefore, based on the samples taken the average mass per unit length of both imported and local products are relatively fulfills the requirements of Ethiopian standard.

b. Tensile Strength to Yield Strength Ratio (Rm/ReH)

Ductility properties of Steel reinforcement bar are expressed through the value of the ratio of tensile strength to yield strength, as well as the elongation of the bar. In general, the higher the ratio of tensile strength to yield strength and elongation of the bar is the better ductile the product which leads to the better quality. The following summarized tables and graphs show the overall average ratio of tensile strength to yield strength of all samples for both products for two years.

Table4. 11: Overall average ratio of tensile strength to yield strength in 2017

Average ratio of tensile strength to yield strength (Rm/ReH)	Diameter (mm)			
	12mm	14mm	16mm	20mm
Locally manufactured rebar	1.2	1.23	1.24	1.21
Imported rebar	1.15	1.2	1.19	1.18

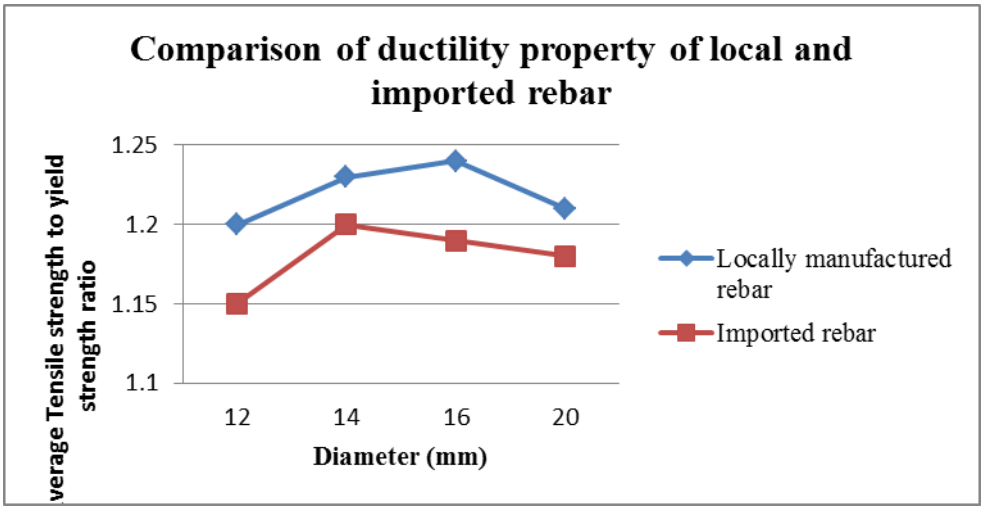

Fig.4. 6: Comparison of ductility property of local and imported rebar of 2017 (ECAE, 2017)

Table4. 12: Overall average ratio of tensile strength to yield strength in 2018

Average ratio of tensile strength to yield strength (Rm/ReH)	Diameter (mm)			
	12mm	14mm	16mm	20mm
Locally manufactured rebar	1.29	1.25	1.24	1.23
Imported rebar	1.16	1.16	1.18	1.17

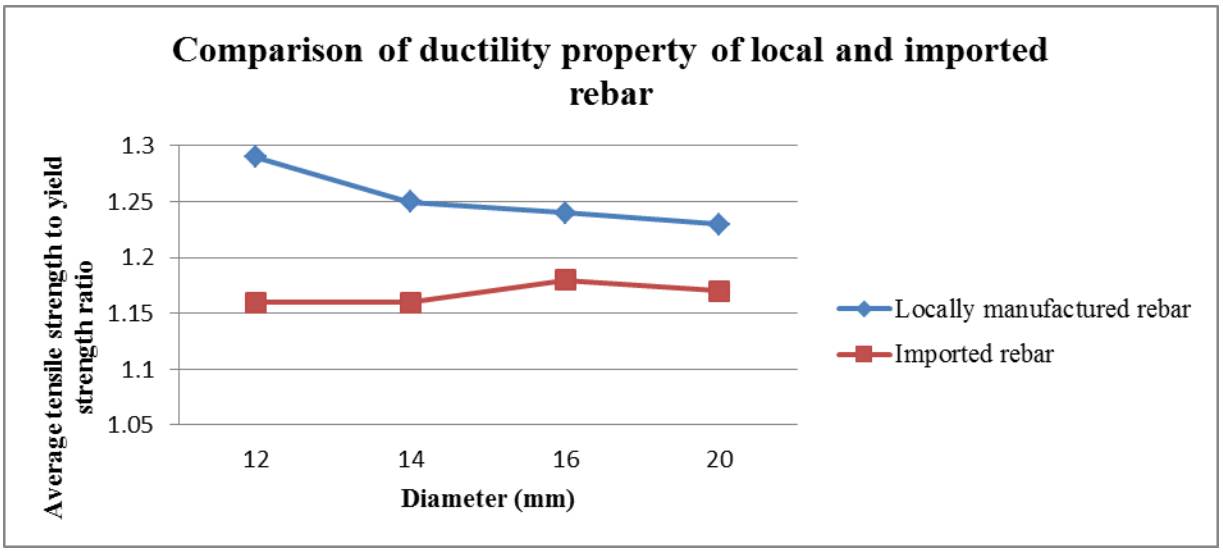

Fig.4. 7: Comparison of ductility property of local and imported rebar 2018 (ECAE, 2018)

As it can be observed from the above tables and graphs, the overall average ratio of tensile strength to yield strength of locally manufactured reinforcement bar in both years are higher than of imported. This indicates that local products are more ductile than imported which verifies that locally manufactured reinforcement bar have higher quality than that of imported. This finding contradicts with some studies like (Li et al., 2009; Porter, 1990) and (Cordell, 1992; Verlegh and Steenkamp, 1999; Pappu et al., 2006) cited in Ayob et al. (2016), which says that at the international level, products from developed countries are perceived to be of the highest quality because of advancements in production technology and the availability of highly skilled labor. In contrast, goods from developing countries suffer a bad reputation from lower quality and performance, often causing dissatisfaction among consumers.

However, among 18 reinforcement bar factories currently operating in the country only 55.56% of them have melting furnaces and around 20% of their products are from local scraps. This means that 80% of their products are from imported billet. Considering 2018/2019 or 2011 E.C of reinforcement

bar production, about 394,174 ton was produced locally and about 310,580.43 ton of billet was imported. This confirms that 78.8% of rebar were produced from imported billet which were ordered as per Ethiopian standard.

c. Elongation

Elongation stands for a mechanical property of steel reinforcement bar i.e the degree to which a material is supposed to be stretched or compressed prior to rupture. It is a point among tensile strength and yield strength and is presented as a percentage of the original length.

Elongation is a measure of ductility, which provides confidence that metals can be formed, without cracking or fracture. In rebar, it defines ductility so that bars can be bent without cracking. In general, the higher the percentage elongation of the bar is the better ductile the product which leads to the better quality. Here two years quality test data for both local and imported products are collected from Ethiopian Conformity Assessment Enterprise. Organization and analysis of these data were conducted using excel and its final result are presented using the following tables and figures.

Table4. 13: Average elongation percentage in 2017

Elongation (%)	Diameter (mm)			
	12mm	14mm	16mm	20mm
Locally manufactured rebar	26.72	25.84	22.68	23
Imported rebar	23	22.56	22.02	21.2

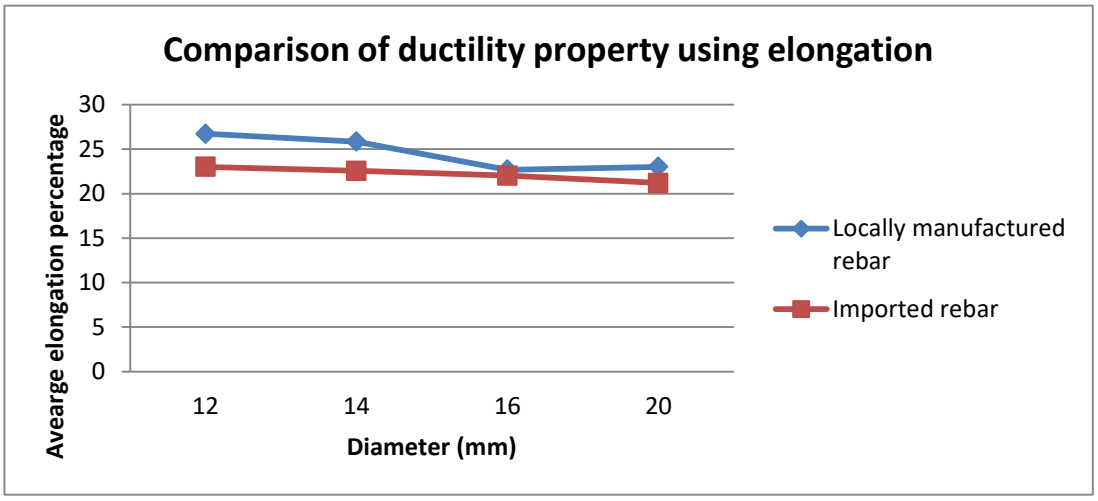

Fig.4. 8: Comparison of ductility property using elongation in 2017 (ECAE, 2017)

Table4. 14: Average elongation percentage in 2018

Elongation (%)	Diameter (mm)			
	12mm	14mm	16mm	20mm
Locally manufactured rebar	24.8	23.42	19.8	22.2
Imported rebar	20.12	18.68	19.32	20.1

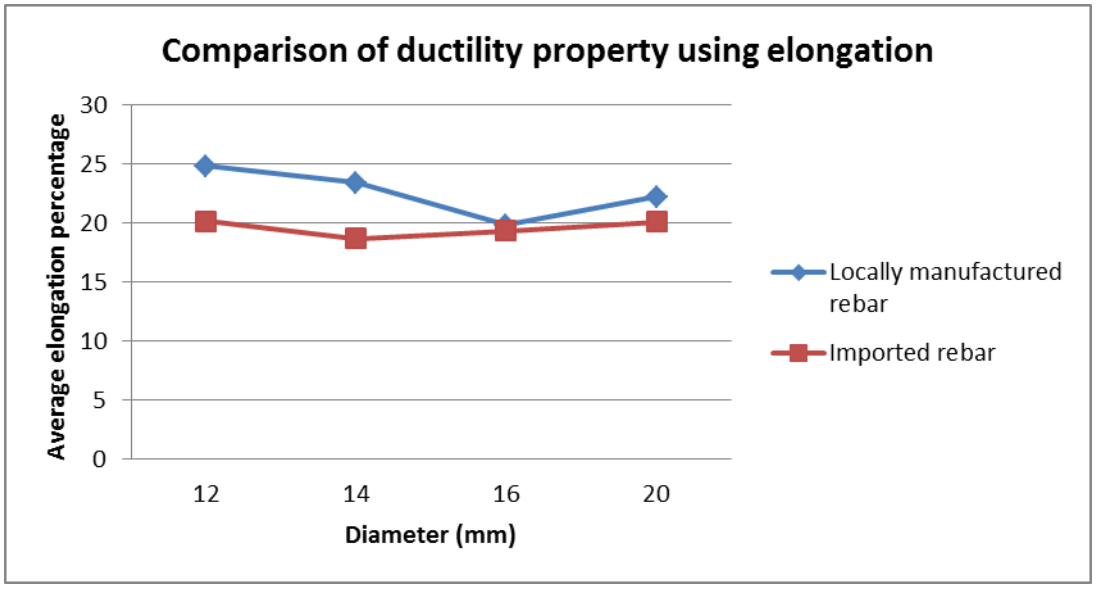

Fig.4. 9: Comparison of ductility property using elongation in 2018 (ECAE, 2018)

The above tables and figures of elongation shows that local reinforcement bars have more elongation than imported products. This means that local products are more ductile than imported hence has better quality.

4.4.2. Analysis of Price Data

In the analysis of price data, four years (2015/2016 – 2018/2019) price data of the most consumable sizes (Ø8, Ø10, Ø12, Ø14, Ø16, Ø20, Ø24) of reinforcement bars for imported and locally produced were collected from Ethiopian Trade and Consumers' Protection Authority and analyzed. Each year average price for each size was taken to see which product either local or imported having higher

price. In this way, comparison of average price for both products for each year for each size were shown in the following figures.

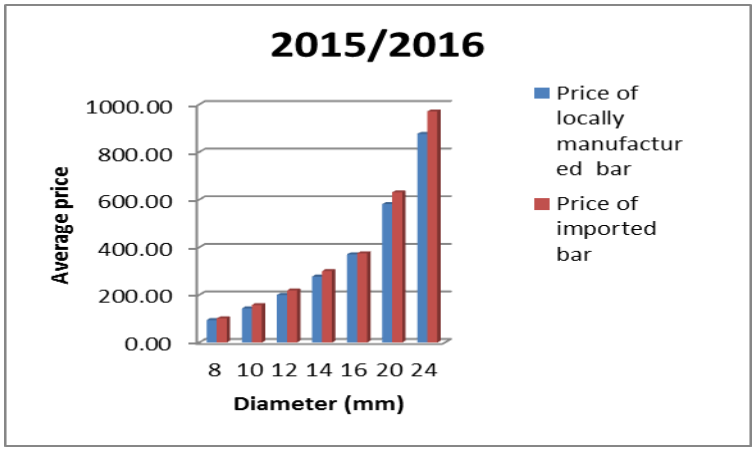

Fig. 4.11a

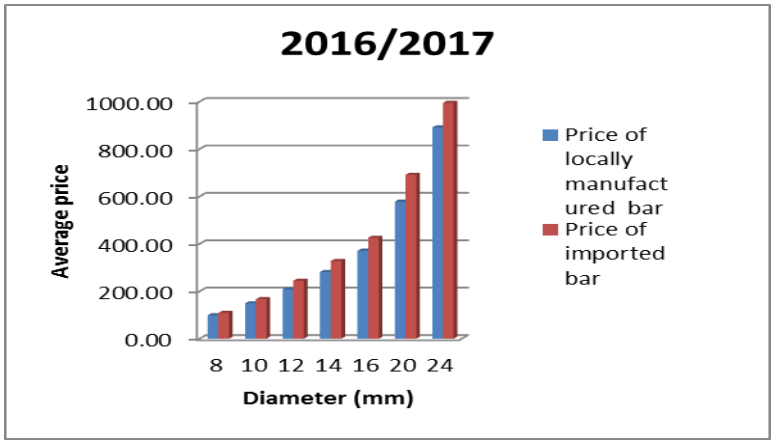

Fig. 4.11b

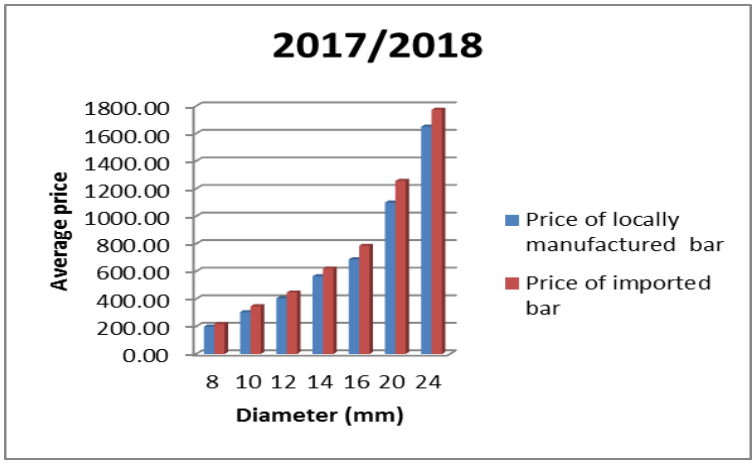

Fig. 4.11c

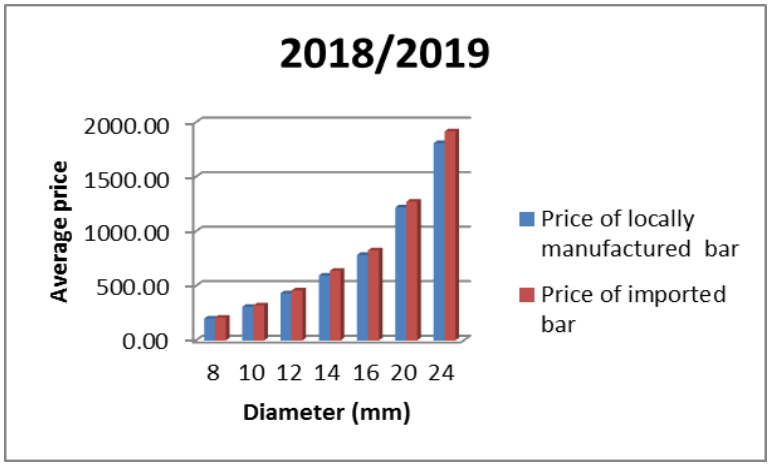

Fig. 4.11d

Fig.4. 10a-d: Comparison of average price from 2015-2019 (ETCPA, 2019)

When we compare average price of four years of imported and locally manufactured reinforcement bar as indicated above in fig. 4.11a, fig.4.11b, fig.4.11c and fig.4.11d, imported reinforcement bar has higher price than locally manufactured one in all years. This can be summarized in overall average and shown in the following graph.

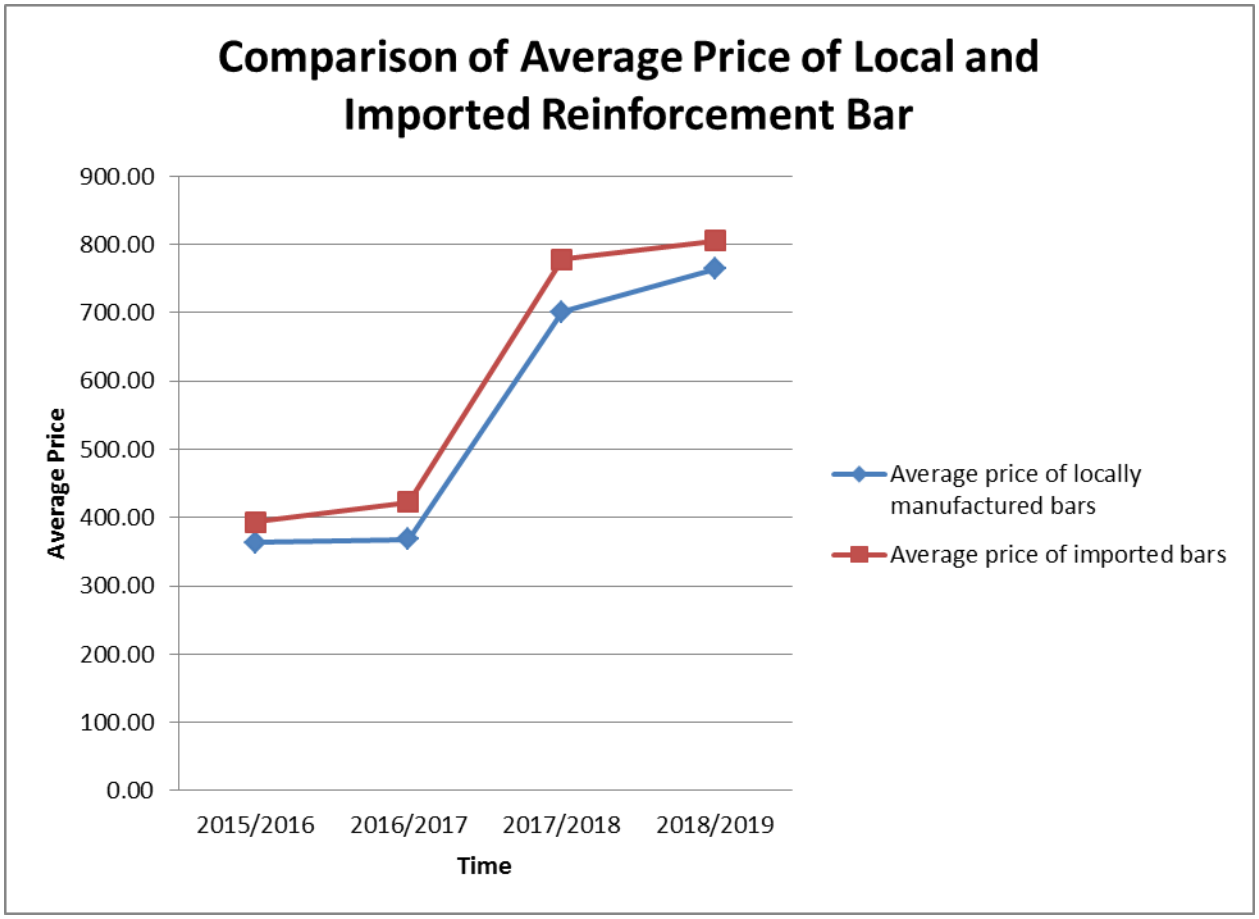

Fig.4. 11: Overall price comparison (ETCPA, 2019)

The higher in price of imported reinforcement bar align with the concept explained by (Ayob et al., 2015; Aulakh et al., 2000; Hulland et al., 1996 and Li et al., 2009) cited in Ayob (2016) which says that local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as distance logistics and tariffs, which subsequently would lower the price. In addition, their studies have revealed that cost advantage is more apparent for products from developing than developed countries because certain factors of production, such as labor and raw materials, are lower. Finally, these studies have found that customers perceive products from advanced countries as scarce; they are willing to pay a premium price.

Therefore, as it can be concluded from the above analysis since imported reinforcement bar have higher price than locally manufactured, price cannot be the factor that influences consumer switch from local to imported product in case of reinforcement bar.

From all analysis conducted above, the existing interactions among factors influencing reinforcement bar consumers' shifting from local to imported and other stakeholders are summarized in the following model.

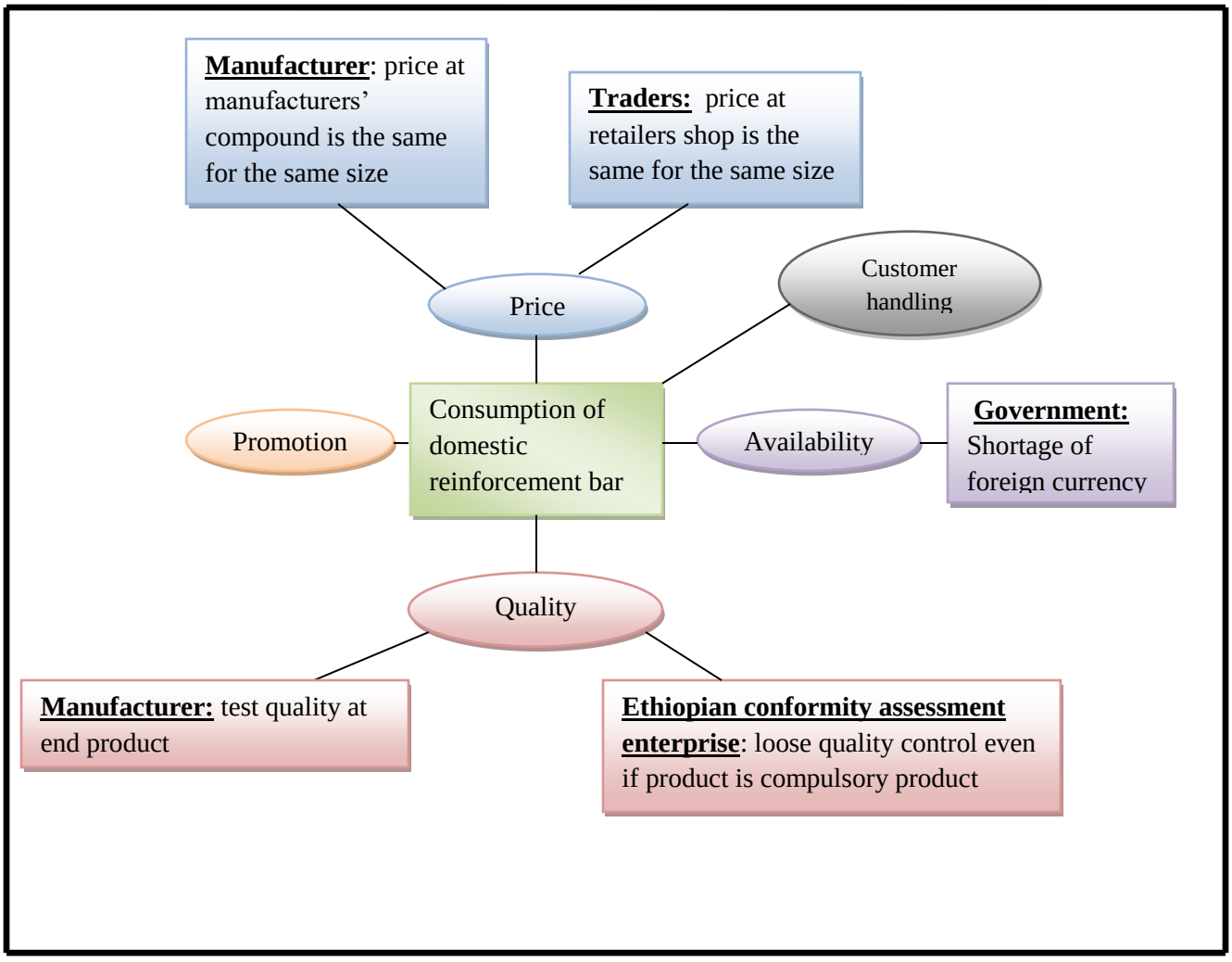

Fig.4. 12: Existing model of factors influencing reinforcement bar consumers' shifting from local to imported (researcher's own investigation, 2020)

It can be easily understood from the above existing model that quality is only checked at the end product which cannot assure quality product but only indicate status of the product. Reinforcement bar is mandatory product that should be produced as per the Ethiopian standard, but due to lose control method by the concerned government organization there are a lot of sub-standard products produced which reduce consumption of domestic reinforcement bar. On the other hand, consumers complain on the insufficient supply of local reinforcement bar. As it can be seen from the above model sufficient supply can be realized only through sufficient supply of raw materials. Majority of raw materials for reinforcement bar is imported. Since there is shortage of foreign currency in the country, sufficient supply of inputs could not be realized and hence the product.

The model also shows as price for same sizes are same at manufacturers' compound since the grade of steel is not differentiated. Same is true at the retailers shop. Moreover, the model indicates that there is only general promotion by manufacturers to the public which did not identify and concentrate on target consumers.

4.5. Proposed Improvement

Based on the analysis of primary, secondary data and observations the researcher propose the following improvements that hoped helps in enhancing consumption of locally manufactured reinforcement bar.

a. Proposed Improvement for production processes

To improve the situation and to create trust with consumers on local product, manufacturers should implement the following improved production processes especially for products produced from scrap.

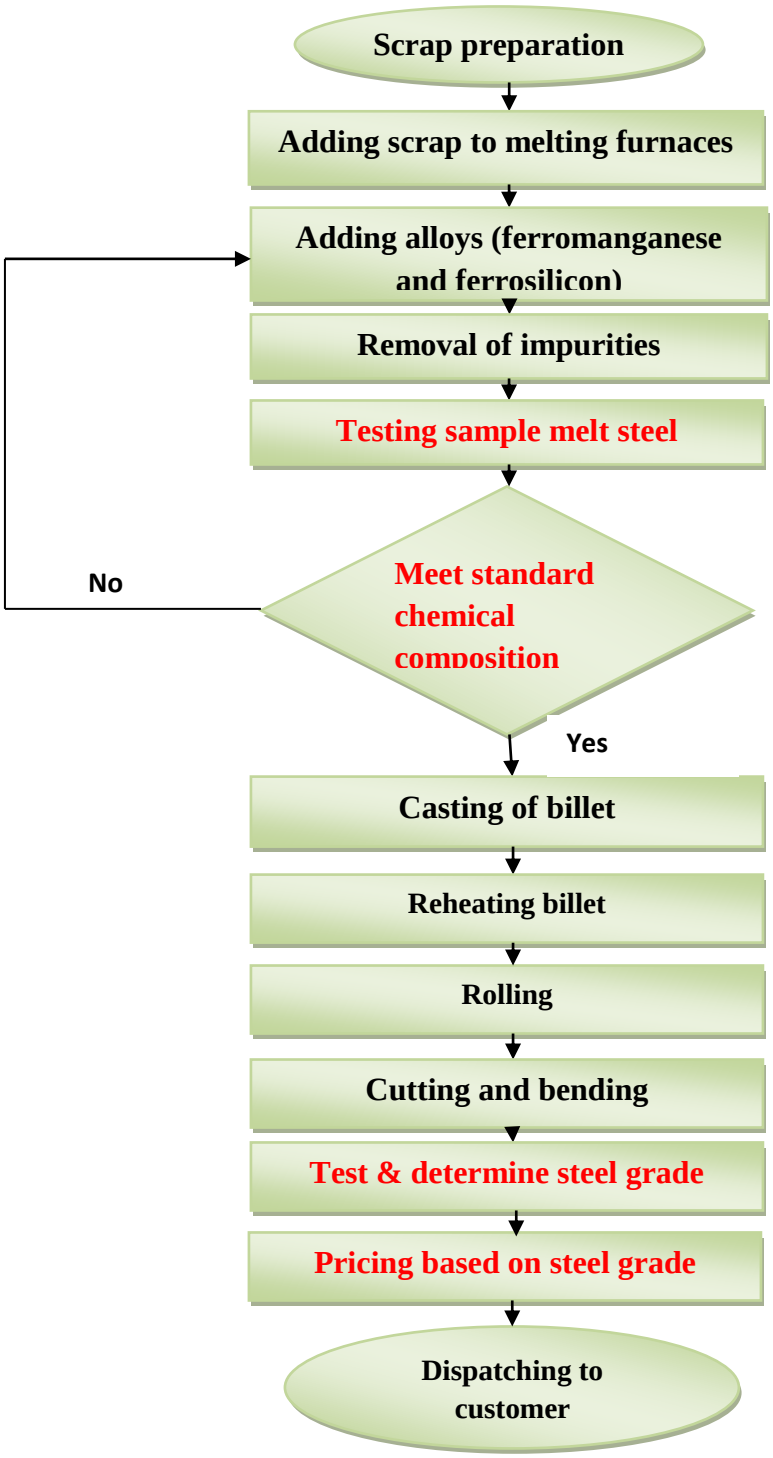

Fig.4. 13: Improved production process of reinforcement bar manufacturing from scrap (researcher's own proposed production processes, 2020)

As it can be understood from fig.4.13 above, if manufacturers manipulate chemical composition at the melting stage through testing of sample melted steel and additions of alloys if necessary and also if they test to determine steel grade after rolling and pricing based on their grade level, they can create trust with consumers hence enhancing domestic consumption.

b. Proposed Improvements between Factors and Stakeholders

To enhance consumption of locally manufactured reinforcement bar, the interactions among factors influencing consumers' shifting and stakeholders should be improved in the following ways.

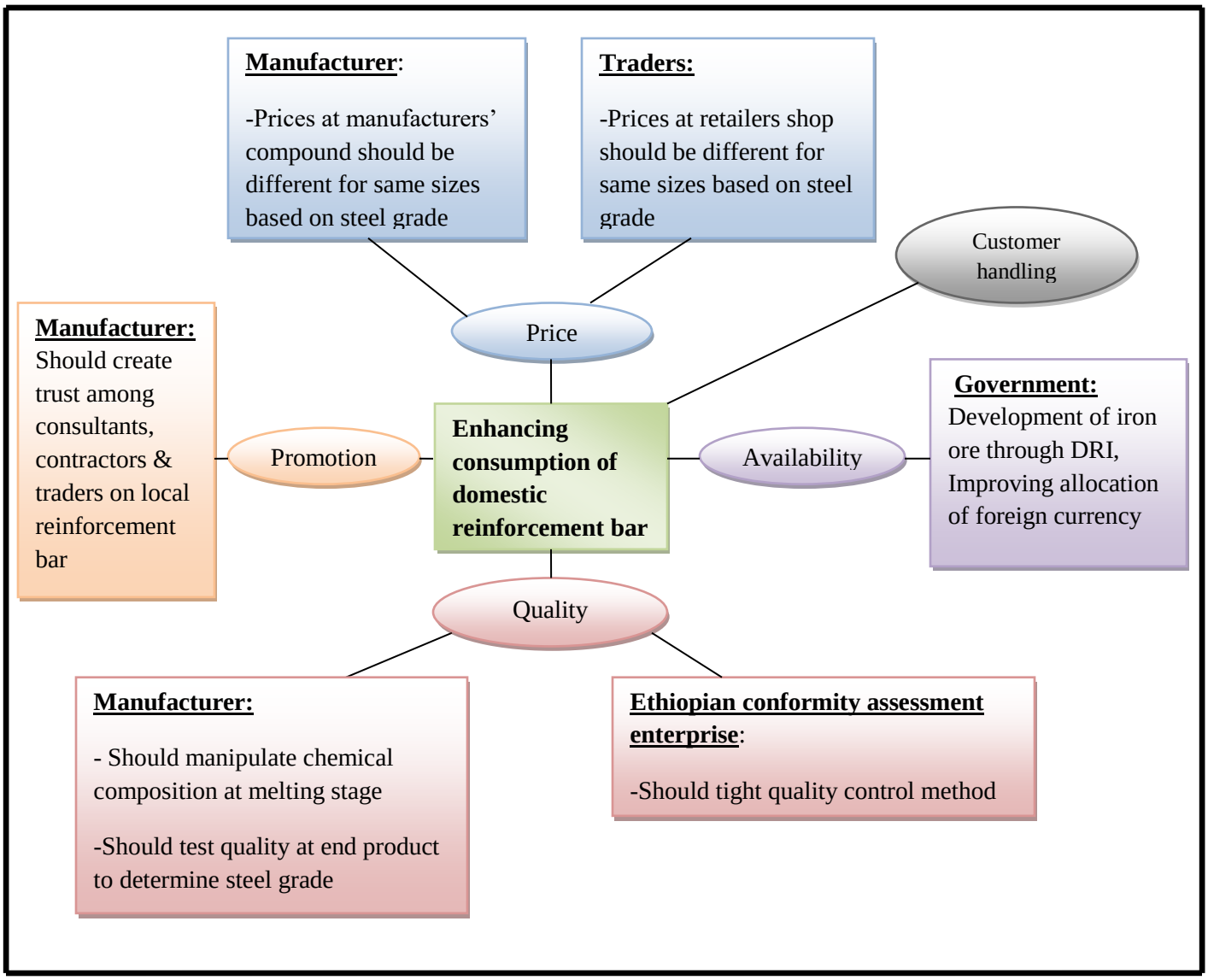

Fig.4. 14: Proposed improved interaction model between factors and stakeholders (researcher's own proposed model, 2020)

Different stakeholders have different responsibilities on different factors in enhancing consumption of domestic reinforcement bar. As it can be seen from fig. 4.14 above, both manufacturers and government have responsibilities in improving the quality of local products. From the government side Ethiopian Conformity Assessment Enterprise have a responsibility of tightening its control on locally manufactured products to realize that local products are produced as per Ethiopian Standard. Furthermore, manufacturers have a great share in assuring the quality of products during the production processes. The above improved model indicates that manufacturers are expected to control the quality of products at each stage of production processes.

Both manufacturers and traders have responsibility on prices of products. To create trust among consumers both part are expected to sale the products based on the determined steel grade. Moreover, sufficient availability of local products is largely depends on the availability of raw materials. Availing the raw materials is the responsibility of government through intervention of iron ore development.

Analyses of primary data indicate that consultants and business owners are enforcing contractors to use imported reinforcement bar. If they don't use imported consultants do not approve the final output. Therefore, manufacturers are expected to work strongly with consultants and business owners to create trust in order to enhance domestic consumptions.

4.6. Summary of Results

The summary of the results from data analysis (primary & secondary data analysis) are given as follow:-

4.6.1. Results from primary (questionnaire) data

Descriptive analysis of primary data shows that 76 (67.86%) of respondents would prefer imported even by mentioning the origin of the products' country as Turkey's reinforcement bar. They reason out as Turkey's reinforcement bar is higher in quality than locally manufactured. This concept align with Parkvithee and Miranda (2012) cited in Hoang et al. (2017) that explained besides brand name, appearance, and design, country of origin is one of the most important indicators of product quality. For consumers in developing countries, the country of origin effect makes them believe that foreign products are superior in quality to local products. Respondents of this research explained that this imported Turkey's reinforcement bar have flexibility, easily bendable, workable and have high

strength. In addition, these products have exact standard length which is 12m but this fails sometimes when we come to locally manufactured reinforcement bar.

This reality can be best explained by the decreasing capacity utilization of Ethiopian reinforcement bar manufacturing industries and the highest percentage share of Turkey's reinforcement bar in Ethiopian import data. That means Ethiopian capacity utilization of this product decreased from 32% in 2015 to 10.55% in 2018, whereas import of the product increased from 57.31% in 2015 to 60.07% in 2018 out of which Turkey's reinforcement bar shares 62.40% of the total import.

Even if price of both products are the same, 81 (72.32%) of respondents prefer to consume imported product. This is because they reason out that imported are produced from iron ore not from scrap as a result it has better strength, durability, easy bendability and workability, flexibility, accurate weight and sizes and meet quality requirements on laboratory test as majority of respondents 85 (75.89%) evaluate quality of reinforcement bar they purchase through laboratory and found that 76% of quality failure on laboratory test were associated with local reinforcement bars. The concept that imported are produced from iron ore not from scrap is a psychological influence as individual buying decisions are influenced by psychological factors such as perception, motivation, learning, and beliefs and attitudes. Because results of interviews and physical observations of local industries shows that from 18 operational industries only 10 of them have melting furnaces to melt scrap and these scrap product constitutes only 20% of their total production. These 10 industries and the rest 8 are importing billet as per Ethiopian standard. But detail investigation of production process of products from scrap reveals that it lacks manipulation of chemical composition using alloys during melting and casting processes. Even if it constitutes small portion of total production, since it is sold mixing with products produced from imported billet as per standards, it damage image of local products.

Furthermore, majority of respondents consume imported because there is strong influence from consultants as well as from owner of businesses to use imported products. Consultants and owner of projects bind with contract documents and does not approve if requirement does not meet. From these all it can be concluded that majority of Ethiopian construction companies prefer imported reinforcement bar particularly Turkey's bar as they believe that because of its higher quality.

If both (imported and local) reinforcement bars were equal in quality, 80 (80.36%) would prefer to consume local to support or encourage local manufacturer, due to its lower price, due to its more availability or accessibility and to save foreign currency. This result align with Stela (2016) which explain ethnocentric consumers are unwilling to buy imported products due to feelings of loyalty towards their own country and also because of fear of economically hurting the beloved country by purchasing imported products. As it is shown above majority of consumers consume their local products if it compliance with the quality requirements.

Factor analysis of the collected data also indicated that quality is the major (first) factor that highly influences consumer switch from local to imported reinforcement bar followed by availability.

As supported by (Ayob et al., 2015; Aulakh et al., 2000; Hulland et al., 1996 and Li et al., 2009) cited in Ayob (2016) that explains local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as distance logistics and tariffs, which subsequently would lower the price, Out of 112 respondents, 106 (94.64%) of them indicated that imported has higher price.

Considering availability, 85 (75.89%) of the respondents experienced local reinforcement bar is more available in market than imported which contradicts with the results obtained by Nanzia et al. (2014) that say the chance to buy imported products increased with unavailability of local substitutes. But in the case of this study, the result shows that local reinforcement bar is more available in market than imported but the consumption is higher on imported bar. But majority of consumer particularly larger construction companies complain that local manufacturers' supply is insufficient which created due to shortage of raw materials.

Promotion of product is one of the marketing mixes that influences purchase decision of consumers. As briefly explained by Charles et al. (2010) promotion is about mutually satisfying exchanges with target markets by informing, educating, persuading, and reminding them of the benefits of an organization or a product. As analysis of collected data revealed that 90 (80.36%) of respondents indicated that local manufacturers promote better than those of importers.

Customer handling has its own effect in influencing consumer switch. The result of analysis indicated that majority of respondents 54 (48.21%) experienced both local manufacturers and

importers are good at customer handling. Therefore, this factor cannot be the cause for consumer switch from local to import.

4.6.2. Interview result

The interview has been conducted with sellers and consumers. Accordingly, interview was conducted with 21 wholesalers and retailers of reinforcement bar and 18 construction workers. The aim of the interview was to get the view of both groups on imported and locally manufactured reinforcement bars particularly on concerning quality, price and availability.

a. Interview with Wholesalers and Retailers

This interview was conducted to get the view of wholesalers and retailers of reinforcement bar on quality, price and availability of imported and locally manufactured reinforcement bar. Based on the analysis 71.43% of traders responded that reinforcement bar consumers request the imported product particularly Turkey product when they went to their shops. This is because majority of consumers come to buy the product based on their contractor's recommendation. Moreover, 63.16% of wholesalers and retailers also advise their consumers to buy imported reinforcement bars. This shows that the view of consumers' and traders' towards imported product is similar. It also indicates that nothing was done on the view or on the knowhow of contractors and traders on local product by local manufacturers.

Concerning product availability and price, majority of wholesalers and retailers indicated that local product is more available than imported in the market and imported have higher price than local.

In general, majority of wholesalers and retailers believe that imported product has higher quality than local but local products are more available in market than imported. Moreover, imported reinforcement bar has higher price than local. Their experience also showed them that large construction companies always prefer imported products whereas smaller ones need local.

b. Interview with Foreman and Benders (Ferayu)

All interviewed foreman and benders (ferayu) are comfortable when working with imported reinforcement bar and would prefer construction owners to buy always the imported product. This is due to the fact that all believe the imported products are easily bendable and does not crack while bending. In contrary, 94.44% of respondents experienced that local reinforcement bar are difficult to

bend and crack while bending which reduces the quality of work. As a result, most of construction site workers particularly ferayu raise complain on local reinforcement bar.

In general, majority of respondents experienced that local products are sometimes brittle and crack while bending. It creates fatigue on workers while bending since it needs high force to bend and reduces the efficiency of workers. Besides these problems, local products does not meet the standard length which 12m. Due to these all problems faced with local products, the foreman and benders (ferayu) would prefer imported reinforcement bar than local in their construction works.

4.6.3. Secondary data result

In this part secondary data that were collected from two organizations for both imported and locally manufactured were analyzed. Based on these, two years tested quality result and four years price data were collected from Ethiopian Conformity Assessment Enterprise and Ethiopian Trade and Consumers' Protection Authority respectively and analyzed.

a. Quality test result

As it is expressed in Ethiopian standard, the quality of steel reinforcement bar is measured through chemical composition of the product, mass per unit length and ductility properties of the product. From these, Ethiopian conformity assessment enterprise conducts a measurement all except chemical composition. Based on two years quality test sample data of most consumable sizes, the average mass per unit length of both imported and local products are relatively fulfills the requirements of Ethiopian standard.

Ductility properties of Steel reinforcement bar are expressed through the value of the ratio of tensile strength to yield strength, as well as the elongation of the bar. In general, the higher the ratio of tensile strength to yield strength and elongation of the bar is the better ductile the product which leads to the better quality. Tested result of the samples revealed that the overall average ratio of tensile strength to yield strength as well as elongation of locally manufactured reinforcement bars are higher than that of imported. This indicates that local products are more ductile than imported which verifies that locally manufactured reinforcement bar have higher quality than that of imported. This finding contradicts with some studies like (Li et al., 2009; Porter, 1990) and (Cordell, 1992; Verlegh and Steenkamp, 1999; Pappu et al., 2006) in Ayob et al. (2016), which says that at the international

level, products from developed countries are perceived to be of the highest quality because of advancements in production technology and the availability of highly skilled labor. In contrast, goods from developing countries suffer a bad reputation from lower quality and performance, often causing dissatisfaction among consumers. This might be because of that local industries import above 80% of their total billets (inputs) from developed countries as per Ethiopian standard.

b. Price result

In the analysis of price data, four years (2015/2016 – 2018/2019) price data of the most consumable sizes (Ø8, Ø10, Ø12, Ø14, Ø16, Ø20, Ø24) of reinforcement bars for imported and locally produced were collected from Ethiopian Trade and Consumers' Protection Authority and analyzed. The result reveals that average price of imported reinforcement bar is higher than locally manufactured in all years.

The higher in price of imported reinforcement bar align with the concept explained by (Ayob et al., 2015; Aulakh et al., 2000; Hulland et al., 1996 and Li et al., 2009) in Ayob (2016) which says that local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as distance logistics and tariffs, which subsequently would lower the price.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Ethiopia's development strategy gives priority to industries which consider the technological capacity of the country and which are smooth and suitable to the technological transformation to substitute imports. Even if more industries were established with high design capacities to produce reinforcement bar, their capacity utilization is decreasing from time to time but importation of this product is increasing. To study the reasons both primary and secondary data were collected and analyzed. By undertaking a detailed analysis using descriptive statistics and factory analysis, the following points were concluded.

5.1. Conclusions

Based on the analysis, majority of consumers perceived that imported reinforcement bar has higher quality than local. Respondents explained that imported reinforcement bar have flexibility, easily bendable, workable, have high strength and have exact standard length which is 12m but these all fails sometimes when we come to locally manufactured reinforcement bar. In addition, majority of traders of this product and construction workers also believe that imported reinforcement bar have higher quality than local. Factor analysis of the data revealed that quality is the major factor that highly influences consumer switch from local to imported reinforcement bar followed by availability.

Contrary to consumers' response, tested result of the samples revealed that the overall average ratio of tensile strength to yield strength as well as elongation of locally manufactured reinforcement bars are higher than that of imported. This indicates that local products are more ductile than imported which verifies that locally manufactured reinforcement bar are higher in quality than that of imported. This might be because of that local industries import above 80% of their total billets (inputs) from developed countries as per Ethiopian standard. But 20% of local products which are produced from scrap may contribute to consumers' response.

All analysis of primary and secondary data confirmed that imported reinforcement bar have higher price than local. This result aligned with different empirical studies as explained local products have a cost advantage over imported ones because they are excluded from cross-border expenses such as

distance logistics and tariffs, which subsequently would lower the price. Therefore, price cannot be the factor that influence consumer switch from local to import.

Considering availability, analysis of data from consumers and traders of the products reveal that local reinforcement bar is more available in market than imported. But some consumers complain on the insufficient supply of local products and this is due to shortage of raw materials or billet as it is imported from different countries.

5.2. Recommendations

From analysis result and conclusion made above, the following recommendations should be implemented by local manufacturers and other stakeholders to increase consumption of domestic reinforcement bar.

Currently, the quality of reinforcement bar produced from scrap is not well controlled. These products are sold together by mixing with products produced from imported billet as per Ethiopian standard. As a result consumers faced some failurity on laboratory test with local reinforcement bar. These situations harmed the image of local reinforcement bar among construction companies, business owners, consultants, construction workers, and even traders. To improve this situations, manufacturers should strongly control the quality of products produced from scrap through installation of necessary laboratory facilities, manipulation of chemical composition at melting stage by using alloys and good scrap, should also test the final product to determine steel grade and should sell them based on their steel grades. In addition, manufacturers should control their wholesalers and retailers to sell the product by orienting consumers the type of steel grade and with the price allocated for each grade.

Reinforcement bar is mandatory product in Ethiopian standard for its safety and economic contribution. Therefore, Ethiopian conformity assessment enterprise should tight its quality control method and should take corrective actions based on the findings.

Consultants, contractors (construction owners) and traders have negative image for local reinforcement bar. To change this image, manufacturers should work in strong collaboration with these groups and create trust with them.

Larger consumers complain that local reinforcement bar supply is insufficient. This is due to the fact that more than 80% of raw materials are from import. Because of shortage of foreign currency as a nation, industries could not get the amount of inputs they need for their production. There are iron ore deposits identified by Ethiopian Geological Survey in the country. As explained in Tesfaye et al. (2017) and international experience indicates that, if the iron content of iron ore is above 65%, it is advisable to use direct reduced iron (DRI) steel production process from productivity point of view. From identified iron ores some have iron content above 65% which means can be processed through DRI. Therefore, government should intervene into this process by benchmarking from world

countries known by this technology like India. Doing this will improve shortage of raw materials for steel industries and enhance technology transfer of the country.

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Annex I

A. Questionnaire

QUESTIONNAIRE

ADDIS ABABA UNIVERSITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY (AAiT)

SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING

I am a student of Addis Ababa University Institute of Technology school of Mechanical and Industrial engineering and currently I am doing my thesis for the fulfillment of MSc degree on the title "Assessing the Factors Influencing Consumer Switch from Local to Imported Product and its Improvement" in the case of reinforcement bar.

The main objective of this study is to investigate factors influencing customer preference towards imported reinforcement bar particularly in terms of quality, price and availability and to propose a model that enhances domestic consumption.

This questionnaire is equipped to gather appropriate data for the study which is believed to come up with valuable recommendations for the problems observed. Therefore, your important support in responding to the questions raised is of vital importance to the success of the study. Answering all questions will not take you more than 25 minutes. Hence I sincerely request you to fill the questionnaire carefully. The quality and quantity of information you provide determines the ultimate reliability of the study. This questionnaire has no any intention except for academic purpose and its confidentiality is maintained. Thank you in advance for your cooperation!!

Kind regards,

Aboma Tariku

Mobile "+251- 911-816461"

E-mail abomatariku@yahoo.com

Part I: Respondents' and Company's Demographic Data

Please tick [√] where appropriate.

1. Gender Male ☐ Female ☐
2. Age 21-30 ☐ 31-40 ☐ 41-50 ☐ 51and above ☐
3. Educational level: Diploma ☐ Degree ☐ Masters ☐
   PhD ☐
4. Occupational level: General manager ☐
   Purchasing manager ☐
   Material management head ☐
   If any other specify_____
5. For how long you stayed in this company?

   Below 1 year ☐ From 1 – 3 years ☐ From 4 – 6 years ☐ 6 years and above ☐
6. What type of contractor your company is? General Contractor (GC) ☐
   Building Contractor (BC) ☐
7. What is the category/level of your company?

GC – 1 ☐	BC – 1 ☐
GC – 2 ☐	BC – 2 ☐
GC – 3 ☐	BC – 3 ☐
GC – 4 ☐	BC – 4 ☐
GC – 5 ☐	BC – 5 ☐

8. Who is the owner of this company? Government owned ☐ Private owned ☐
   Share company ☐

Part II: Consumers view of quality, Price and availability for domestic and imported reinforcement bar to identify the factor that highly affects Ethiopians' purchase behavior towards imported reinforcement bar.

1. Which reinforcement bar would you prefer more for your construction company?

   Imported ☐ locally manufactured ☐ I prefer both equally ☐

   If your answer for the above question is imported, which country's reinforcement bar? _____

   Why do you prefer this country's product?

   Due to quality ☐ Due to price ☐ Due to availability ☐

   If any other reasons specify: _____

Please indicate the extent of your agreement with the following statements by ticking [√] on the scale that most nearly reflects the extent to which you agree or disagree. Using this key

1= strongly disagree

2 = Disagree

3 = Indifferent

4 = Agree

5= Strongly Agree

S/N	Statement	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
	Quality Related Views					
1	Our company buy imported reinforcement bar because of its higher quality					
2	Our company didn't face any quality failure with imported bar but faced failure with locally manufactured one					
3	Our company checked both imported and local reinforcement bar for their quality by laboratory and found that imported is higher quality					

S/N	Statement	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
4	Our construction workers reported that imported reinforcement bar is good while bending or generally working with it					
5	Friends, traders of reinforcement bar recommend to buy imported reinforcement bar					
	Price Related Views					
1	Our company buy imported reinforcement bar because its price is cheaper than locally manufactured					
2	Our company don't care about price, but always intend to buy imported reinforcement bar based on friends and others suggestions					
3	Our company highly influenced by price while purchasing reinforcement bar since it affects our profit level					
4	Our company buy imported reinforcement bar because importers arrange credit terms for us but local one doesn't					
5	Our company buy imported reinforcement bar because their price lists for each size of products are easily accessible than local producers					
	Availability Related Views					
1	Our company buys imported reinforcement bar only when there are no locally manufactured ones					
2	Our company buys imported reinforcement bar because local industries' supply is insufficient					
3	The company buys imported reinforcement bar because we have no information whether there is					

S/N	Statement	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
	locally manufactured reinforcement bar or not					
4	We buy imported reinforcement bar because locally manufactured is not easily accessible					
5	We buy imported reinforcement bar since some of the sizes are not manufactured locally.					

Part III: To understand from consumer whether there are quality and price differences between imported and locally manufactured reinforcement bar.

1. If locally manufactured and imported reinforcement bar priced the same, which one would you prefer?

   Imported ☐ locally manufactured ☐

   Why? _____

2. How would you evaluate/check quality of reinforcement bar during purchasing?

   By observation ☐ By hearing from people ☐

   By laboratory ☐ Other, Specify _____

3. Have you got any quality failure with reinforcement bar in the work place?

   Yes ☐ No ☐

   If your answer for the above question is yes, on which product have you got more quality failure?

   On locally manufactured ☐ On imported product ☐ On both same ☐

4. If two reinforcement bars were equal in quality, but one is imported and the other is local, which one would you purchase?

   Imported ☐ locally manufactured ☐

   Why? _____

5. Which reinforcement bar have high price?

   Imported ☐ locally manufactured ☐ both have equal price ☐

6. Which reinforcement bar is more available in market?

   Imported ☐ locally manufactured ☐ both are equally available ☐

7. Which organization, local manufacturer or importer of reinforcement bar promote their product more?

   Importer ☐ local manufacturer ☐ both equally promote ☐

8. Which organization, local manufacturer or importer is good at customer handling?

   Importer ☐ local manufacturer ☐ both are equally good ☐

9. In general, what are your reasons of buying imported reinforcement bar for your construction company?

   _____
   _____

10. If you have any comment/suggestion, please write on the space below.

    _____
    _____
    _____

Thank you for your cooperation!!

B. Interview Questions for Reinforcement Bar Wholesalers and Retailers

የቃለ-መጠይቅ ጥያቄዎች ለአርማታ ብረት ነጋዴዎች

ለጅምላ አከፋፋዮችና ለቸርቻሪዎች የተዘጋጀ

1. አርማታ ብረት ገዢዎች ሲመጡ የትኛውን ይጠይቋችሃል?

ሀ) የሀገር ውስጡን ለ) የውጪውን ሐ) አያለያዩም

የውጪውን የሚጠይቁ ከሆነ የየትኛው ሀገር? _____

ለምን የውጪውን ሀገር የአርማታ ብረት የመረጡ ይመስልሃል?

_____

_____

2. ደንበኞች የአርማታ ብረት ለመግዛት ወደ እናንተ ሲመጡ የትኛውን እንድገዙ ትመክራላችሁ?

ሀ) የሀገር ውስጡን ለ) የውጪውን

ለምን? _____

3. የትኛው የአርማታ ብረት ጥራት አለው ብላችሁ ታምናላችሁ?

ሀ) የሀገር ውስጥ ለ) የውጪው ሐ) አይበላለጥም

4. እንደ ደንበኛ ፍላጎት በብዛት በገበያ ላይ የሚገኘው የአርማታ ብረት የትኛው ነው?

ሀ) የሀገር ውስጥ ለ) የውጪው ሐ) ሁለቱም በበቂ ሁኔታ አለ

5. ከናንተ ገዝቶ ከተጠቀመበት በኃላ መጥቶ ጥራት የለውም ብሎ ቅሬታ ያቀረበ አለ?

ሀ) አዎ ለ) የለም

ቅሬታ ቀርቦ ከሆነ በየትኛው አርማታ ብረት ላይ? ሀ) በውጪው ላይ ለ) በሀገር ውስጡ ላይ

6. የውጪው ነው ወይስ የሀገር ውስጡ አርማታ ብረት በዋጋ ይወደዳል?

ሀ) የሀገር ውስጡ ለ)የውጪው ሐ) አይበላለጥም

ለቃለ-መጠየቁ ስለተባበሩኝ አመሰግናለሁ !!

C. Interview Questions for Foremen and Ferayu

የቃለ-መጠይቅ ጥያቄዎች ለግንባታ ፎርማኖችና ግንበኞች

በሳይት ግንባታ ላይ ለሚሰሩ ፎርማኖችና ግንበኞች የተዘጋጀ

1. ትኛውን የአርማታ ብረት ተጠቅመህ ስትሰራ ይቀለሀል?

ሀ) የሀገር ውስጡን ለ) የውጪውን ሐ) ሁለቱም አንድ ናቸው

የውጪው ከሆነ የየትኛው ሀገር አርማታ ብረት? _____

ለምን የውጪውን ሀገር የአርማታ ብረት መረጥክ?

_____

2. የኮንስትራክሽን ባለቤቶቹ/ኃላፊዎቹ የትኛው የአርማታ ብረት እንደሚሻል ያሚክራቹሃል?

ሀ) አዎ ለ) አያማክሩንም

የሚያማክሩህ ከሆነ የትኛውን እንዲገዙ ትመክራለህ?

ሀ) የሀገር ውስጡን ለ) የውጪውን

ለምን? _____

3. የትኛው የአርማታ ብረት ጥራት አለው ብለህ ታምናለህ?

ሀ) የሀገር ውስጥ ለ) የውጪው ሐ) አይበላለጥም

4. ስትሰራበት በቀላሉ የሚታጠፍና ለስራ ምቹ የሆነው የአርማታ ብረት የትኛው ነው?

ሀ) የሀገር ውስጥ ለ) የውጪው ሐ) ሁለቱም ጥሩ ናቸው

5. ስታጥፉ (when you bend) የሚሰነጠቀውና የሚያስቸግረው የትኛው የአርማታ ብረት ነው?

ሀ) የሀገር ውስጥ ለ) የውጪው

6. ከናንተ ጋር የሚሰሩት ሠራተኞች አብዛኛውን ጊዜ ቅሬታ የሚያቀርቡት የትኛው የአርማታ ብረት ላይ ነው?

ሀ) የሀገር ውስጡ ላይ ለ) የውጪው ላይ

ቅሬታው ምንን በተመለከተ ነው? _____

ለቃለ-መጠየቁ ስለተባበሩኝ አመሰግናለሁ !

Annex II

A. Price data from Ethiopian Trade and Consumers' Protection Authority

የ2008 የአገር ውስጥ ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መለኪረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
8	113.0588	101.3977	98.3571	92.56579	93.65	88.07143	87.56122	90.83333	95.5	95.5	93.16667	89.78125
10	157.0294	149.7273	145.571	145.7368	142.425	136.0714	135	140.0625	145.75	145.75	142.8611	138.125
12	213.6471	208.3068	204.107	197.3289	197.1	191.3333	190.5	195.1667	202.75	202.75	201.9722	198.9219
14	306.9265	290.8977	281.083	280.7632	279.3	262.7381	260	266.6667	276.25	276.25	273	269.3125
16	404.7941	391.4091	378.655	371.0395	372.75	356.4286	352.5	359.3333	368.5	368.5	366.3889	360.3906
20	619.2647	610.0568	593.393	582.1711	585.5	569.1667	565	567.5	573.75	573.75	569.8611	568.9844
24	871.1765	925	878.988	881.1184	867.75	855	855	863.3333	855.5556	880	893.3333	892.8125

የ2008 ውጭ አገር ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መለኪረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
8	119.9118	105.75	105.798	102.6053	102.3375	93.83333	96.1746	100.1667	100	100	97	93.375
10	172.4412	162.4432	160.179	166.7632	159.0375	150.369	152.625	154.9063	156	156	152	147.0781
12	231.2353	219.8068	220.119	215.0132	219.175	208.25	212.9375	217.5833	221.25	221.25	219.5833	216.5156
14	342.7353	315.75	308.393	300.4211	301.4375	281.369	285.3125	292.9167	298.75	298.75	292.6389	285.0781
16	430.5735	416.6932	408.786	400.9737	401.4375	380.7738	386.25	394.1667	400	400	397.5	381.4844
20	681.6912	655.2841	637.679	624.0132	623.375	598.6905	610	624.1667	635	635	629.7222	619.0625
24	996.2353	971.9318	970.119	973.8158	957	940.9524	922.5	956.6667	916.1111	970	1013.333	1057.656

የ2009 የአገር ውስጥ ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መለኪረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
በላ 8 በር.ጋ	103.83	100.21	95.64	92.19	92.55	90	92.13	91.75	90.5	99.92	114.13	127.08
በላ 10 በር.ጋ	146.28	145.67	143.63	139.5	141.33	138.54	145	143.5	140.5	150.92	170.13	183.5
በላ12 በር.ጋ	202.92	204.01	202.32	198.83	198.05	195.71	204.88	202.38	199.25	208.92	218.25	261.42
በላ 14 በር.ጋ	285.6	283.37	275.5	273.86	272.48	265.88	274.63	273.88	272	285.92	299.38	312.17
በላ16 በር.ጋ	384.92	378.96	368.71	365.61	365.85	354.17	360.13	356.88	353.75	372.08	390.63	402.5
በላ 20 በር.ጋ	591.58	593.5	577.68	572.5	574.38	561.17	563.25	558.13	551.25	569.58	595.63	627.92
በላ 24 በር.ጋ	842.53	812.38	804.04	837.28	869.88	884.38	992.5	959.38	923.75	866.67	928.75	971.67

የ2009 ውጭ አገር ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መስከረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
በላ 8 በር.ጋ	109.8	105.13	104.21	102.69	102.53	99.29	103	102.88	102.75	109.5	124.13	139.5
በላ 10 በር.ጋ	162.02	158.74	159.18	159.92	159.93	156.71	161.75	161.5	161.75	168.5	185	205.83
በላ12 በር.ጋ	223.83	217.88	223.55	224.64	227	231.08	260	256.75	253.5	258.33	271.25	285.33
በላ 14 በር.ጋ	321.95	309.33	307.57	305.03	305.8	299.17	316.75	319.5	320.75	348.33	374.75	401.67
በላ16 በር.ጋ	410	408.63	405.77	404.19	405.3	400.13	416.75	417.75	419	444.17	475.38	501.25
በላ 20 በር.ጋ	655.5	648.36	648.52	650.67	652.25	666.46	727.5	723.75	722.5	724.08	733.75	742.5
በላ 24 በር.ጋ	957.43	881.71	985.34	996.75	982	982.92	1040	1021.88	992.5	1018.33	1041.88	1083.33

የ2010 የአገር ውስጥ ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መስከረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
በላ 8 በር.ጋ	133.95	148.65			223.5			233.5		230	217.5	209.85
በላ 10 በር.ጋ	191.2	223.6			324.6			371.5		360	335	321.45
በላ12 በር.ጋ	241.9	302.15			431.65			493.5		480	443.8	442.4
በላ 14 በር.ጋ	337.6	408.75			613.35			666.5		655	640.6	627.9
በላ16 በር.ጋ	431.25	515.15			729.15			872.5		855	820	750.95
በላ 20 በር.ጋ	676.25	793.8			567.1			1457.5		1400	1356.3	1281.25
በላ 24 በር.ጋ	970.65	1187.8			-			2200		-	2026.3	1865.85

ያልተሞሉት ወራት በዘመቻ ስራ ምክንያት ያልተሰበሰቡ ወራት ቢሆኑናቸው ነው

የ2010 ውጭ አገር ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መስከረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
በላ 8 በር.ጋ	146.75	172.3			260			258.5		245	224.2	217
በላ 10 በር.ጋ	236.3	299.15			403.75			412.5		380	355	338.45
በላ12 በር.ጋ	301.2	360.5			498.75			551		-	497.5	471.65
በላ 14 በር.ጋ	436.85	498.5			661.25			712.5		705	677.5	652.3
በላ16 በር.ጋ	536.85	608.75			830			915		905	875	825.2
በላ 20 በር.ጋ	764.6	888.25			737.5			1735		1680	1559.4	1430
በላ 24 በር.ጋ	1096.9	1287.8			-			2350		-	2101.3	2028.5

የ2011 የአገር ውስጥ ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መስከረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
በላ 8 በር.ጋ	205	200	197.5	191.5	198.5	185.1667	185.5833	204.4167	227.5	203.75	201	
በላ 10 በር.ጋ	312.375	306.5	304.37	300.437	296.25	289.625	289	309.75	337.5	313.75	320	
በላ12 በር.ጋ	437.5	428.75	429.6875	426.375	422.875	411.2083	414.5	433.9583	462.5	447.5	440	
በላ 14 በር.ጋ	603.75	598.75	592.625	585	578.5	564.5833	575	591.2917	640	611.25	607.5	
በላ16 በር.ጋ	798.75	785	778.75	771.5625	768.125	749.7917	760	773.3333	832.5	810	797.5	
በላ 20 በር.ጋ	1228.75	1215	1204.625	1193.125	1188.75	1157.083	1152.5	1188.75	1292.5	1278.75	1323	
በላ 24 በር.ጋ	1925	1837.5	-	1700	1776.25	1776.25	-	1850	1800	1800	-	

የ2011 ውጭ አገር ወራዊ አማካይ የብረት ዋጋ

የብረት ዓይነት	መስከረም	ጥቅምት	ህዳር	ታህሳስ	ጥር	የካቲት	መጋቢት	ሚያዝያ	ግንቦት	ሰኔ	ሐምሌ	ነሐሴ
በላ 8 በር.ጋ	213.75	206.26	204.1696	201.4375	201.875	193.75	191.125	226.25	235	215	207.5	
በላ 10 በር.ጋ	326.25	322.5	311.912	308.5	308.75	300.833	300.75	331.875	342.5	337.5	337.5	
በላ12 በር.ጋ	454.375	452.5	443.8125	441.875	441.625	430.2083	428.75	468.75	511	482.5	480	
በላ 14 በር.ጋ	639.375	627.5	608.875	605.75	603.75	597.875	594.25	670	705	685	677.5	
በላ16 በር.ጋ	840	828.75	805.625	798.4375	793.75	780.2083	772.5	823.33	905	883.75	862.5	
በላ 20 በር.ጋ	1332.5	1275	1254.188	1242.813	1215.625	1197.292	1192.5	1235.833	1397.5	1313.75	1335	

B. Quality test result from Ethiopian Conformity Assessment Enterprise

ECAE Certification 2017

No.	Diameter (mm)	Rm (mpa)	ReH (mpa)	Rm/Reh	Elongation (%)	M/L (kg/m)
1	12	642	516	1.24	25.0	0.876
2	14	644	529	1.22	18.6	1.194
3	16	609	478	1.27	22.5	1.559
4	20	662	548	1.21	25.0	2.399
5	12	568	427	1.33	33.3	0.836
6	14	608	468	1.30	35.7	1.191
7	16	588	426	1.38	31.3	1.545
8	20	551	424	1.30	22.0	2.373
9	12	621	531	1.17	33.3	0.846
10	14	646	543	1.19	30.0	1.166
11	16	635	538	1.18	22.5	1.510
12	20	671	581	1.15	22.0	2.338
13	12	750	674	1.11	20.0	0.843
14	14	761	666	1.14	21.4	1.226
15	16	713	619	1.15	18.8	1.574
16	20	625	512	1.22	25.0	2.386
17	12	685	584	1.17	22.0	0.861
18	14	589	450	1.31	23.5	1.174
19	16	720	602	1.20	18.3	1.527
20	20	696	590	1.18	21.0	2.412

ECAE Certification 2018

No.	Diameter (mm)	Rm (mpa)	ReH (mpa)	Rm/Reh	Elongation (%)	M/L (kg/m)
1	12	751	629	1.19	22.0	0.849
2	14	757	622	1.22	20.0	1.185
3	16	730	608	1.20	18.8	1.452
4	20	653	545	1.20	20.0	2.417
5	12	696	508	1.37	25.0	0.867
6	14	748	670	1.12	20.0	1.207
7	16	635	562	1.13	21.3	1.515
8	20	678	556	1.22	20.0	2.373
9	12	709	567	1.25	26.7	0.867
10	14	746	583	1.28	21.4	1.156
11	16	694	551	1.26	23.8	1.549
12	20	715	572	1.25	25.0	2.394
13	12	649	454	1.43	28.3	0.843
14	14	668	467	1.43	37.1	1.156
15	16	650	464	1.40	16.3	1.528
16	20	579	463	1.25	26.0	2.398
17	12	749	629	1.19	22.0	0.849
18	14	672	560	1.20	18.6	1.187
19	16	730	608	1.20	18.8	1.452
20	20	678	556	1.22	20.0	2.373

Ministry of trade 2017

No.	Diameter (mm)	Rm (mpa)	ReH (mpa)	Rm/Reh	Elongation (%)	M/L (kg/m)
1	12	750	665	1.13	20.0	0.871
2	14	705	601	1.17	21.4	1.182
3	16	736	637	1.16	20.0	1.575
4	20	687	592	1.16	23.0	2.398
5	12	710	627	1.13	25.0	0.838
6	14	663	500	1.33	25.7	1.160
7	16	702	578	1.21	25.0	1.561
8	20	689	589	1.17	21.0	2.431
9	12	698	595	1.17	21.7	0.864
10	14	665	558	1.19	21.4	1.198
11	16	711	598	1.19	21.3	1.555
12	20	676	589	1.15	20.0	2.412
13	12	757	657	1.15	20.0	0.888
14	14	678	583	1.16	22.9	1.174
15	16	694	572	1.21	18.8	1.537
16	20	707	567	1.25	20.0	2.427
17	12	675	578	1.17	28.3	0.874
18	14	726	619	1.17	21.4	1.198
19	16	632	531	1.19	25.0	1.549
20	20	668	574	1.16	22.0	2.420

Ministry of trade 2018

No.	Diameter (mm)	Rm (mpa)	ReH (mpa)	Rm/Reh	Elongation (%)	M/L (kg/m)
1	12	702	595	1.18	19.2	0.853
2	14	698	604	1.16	18.3	1.212
3	16	725	608	1.19	19.4	1.574
4	20	667	588	1.13	20.0	2.428
5	12	721	636	1.13	20.0	0.866
6	14	742	642	1.16	18.6	1.177
7	16	670	563	1.20	18.8	1.535
8	20	688	588	1.17	20.0	2.401
9	12	709	612	1.16	20.8	0.858
10	14	714	618	1.16	18.6	1.173
11	16	703	615	1.14	18.8	1.532
12	20	717	604	1.19	21.0	2.417
13	12	691	601	1.15	20.3	0.858
14	14	705	606	1.16	19.3	1.162
15	16	657	557	1.18	19.8	1.531
16	20	662	554	1.19	20.0	2.355
17	12	698	599	1.17	20.3	0.890
18	14	684	587	1.17	18.6	1.161
19	16	671	568	1.18	19.8	1.571
20	20	683	574	1.19	19.5	2.467

C. Iron ore occurrences in Ethiopia

No	Locality	Status	Estimated Reserve(Mt)	Fe%	Ore Type
1	Aira (Wollega)	Mineral Occurrence	<10		Hematite Magnetite
2	Bikilal (Wollega)	Industrial project	57	41	Magnetite
3	Billa (Wollega)	Mineral Occurrence	No data		Hematite Magnetite-Hematite
4	Chago (Wollega)	Mineral Occurrence	0.20	64	Magnetite-Hematite, Limonite-Hematite
5	Wollega (Tsole)	Deposit or Prospect	4.48		Magnetite-Hematite
6	Worakalu (Wollega)	Mineral Occurrence	0.05	62	Magnetite-Hematite
7	Belowtuist (Wollega)	Mineral Occurrence	2.5	65-68	Magnetite, Hematite, Limonite
8	Gimbi-Daleti (Wollega)	Prospect or deposit	No data		Magnetite
9	Yubdo (Wollega)	Small Scale	0.05	71	Magnetite
10	Gordona Korree (Wollega)	Deposit	0.27	63	Magnetite-Hematite, Magnetite
11	Katta Valley (Wollega)	Mineral Occurrence	0.10	69	Magnetite, Martite
12	Dimma (Wollega)	Mineral Occurrence	0.05	65	Hematite; Magnetite,Limonite-Hematite Magnetite-Hematite
13	Gambela-Dembidolo (Wollega)	Prospect or deposit	No data		Magnetite
14	Wabera- kiltu (Wollega)	Prospect (upstream)	No data		
15	Gambo (Wollega)	Mineral Occurrence	No data		Magnetite

No	Locality	Status	Estimated Reserve(Mt)	Fe%	Ore Type
16	Gamalucho (Kaffa)	Deposit or prospect	12.5		Magnetite
17	Garo (Kaffa)	Mineral Occurrence	12.5		Hematite; Limonite
18	Melka Sedi (Kaffa)	Deposit or prospect	12.5 or 0.065		Hematite, Magnetite
19	Gato (Mai Gudo) (Kaffa)	Mineral Occurrence	0.12	40	Hematite, Limonite
20	Dombowa (Kaffa)	Prospect /inferred	0.025		Limonite
21	Ghimira basin (Kaffa)	Mineral Occurrence	No data		Hematite, Limonite
22	Kurkure Valley (Kaffa)	Mineral Occurrence	No data		Hematite, Limonite
23	Like (Kaffa)	Mineral Occurrence	No data		Hematite, Magnetite
24	Melka Arba (Sidamo)	Prospect	111	69	Hematite, Magnetite, Limonite
25	Kenticha (Sidamo)	Mineral Occurrence	No data		Magnetite
26	Shakisso (Sidamo)	Mineral Occurrence	No data		Magnetite
27	Shire (Tigray)	Deposit	192	22-37	Goethite/Limonite
28	Adua+Axum+Enticho (Tigray)	Mineral Occurrence	5 (low grade)		Magnetite, Limonite
29	Assale (Tigray)	Mineral Occurrence	<10Mt		Magnetite
30	Enticho (Tigray)	Mineral Occurrence	14.23		Limonite
31	Chilachikin (Tigray)	Mineral Occurrence	No data		Hematite

No	Locality	Status	Estimated Reserve(Mt)	Fe%	Ore Type
32	Beligal (Tigray)	Mineral Occurrence	No data		Magnetite, Limonite
33	Adi Berbere (Tigray)	Mineral Occurrence	No data		Magnetite
34	Bissidimo (Harar)	Mineral Occurrence	No data		Hematite, Limonite
35	Galetti (Harar)	Mineral Occurrence	No data		Hematite, Magnetite, Martite
36	Kunni (Harar)	Mineral Occurrence	No data		Hematite, Magnetite
37	Ujau (Harar)	Mineral Occurrence	No data		Hematite, Magnetite
38	Werferdo		0.012		Magnetite

Source: FDRE, Policy Study and Research Center, 2017