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MARKET COMPETITIVENESS AND CONSUMER ACCEPTABILITY OF POLISH MANUFACTUREDAND AGRICULTURAL EXPORTS TO AFRICAN COUNTRIES: A COMPARATIVE ANALYSIS

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ABSTRACT

Over time, Africa has been regarded as a major destination for manufactured (industrial) goods from the United States and Europe, thus creating huge competition for Polish export goods in the African markets. But, there is the need to know the level of competitiveness, the comparative advantages and the import parity prices of these export goods in the African markets so that their performance and acceptance could be measured, especially, among the consumers. Consumer acceptability of goods is often hinged on the perception of quality, price competitiveness, and derived satisfaction from their consumption, among other factors. Specifically, the objectives of this study were to determine the level of market competitiveness for the selected Polish manufactured and agricultural exports in African markets. It also examined the level of

comparative advantage and consumer (market) acceptability of Polish goods exported to African markets. Twenty–year secondary data on Africa's major manufactured and agricultural imports (2005-2022) was used and trade competitiveness index measurements, Revealed Comparative Advantage (RCA) index, Import Parity Price (IPP) Analysis and descriptive statistics were used. Findings showed that there was a strong competitiveness for agricultural exports from Poland to Ghana while Egypt had strong export trade competitiveness in mineral fuels, lubricants, boilers, machinery and appliances, vehicles, aircraft parts and vessels with Warsaw. The Revealed Comparative Advantage indices indicated that Poland had the highest export trade relations with Nigeria in live animals and animal products and least in foodstuffs and beverages. Overall, Poland had the best bilateral trade relations with the Republic of South Africa and the worst with Kenya. Similarly, foodstuffs and beverages, with the highest total value of $353,498.0 were exported by Poland to the Egyptian market while the least quantity of the items, valued at $14,550.4 million, were exported to the Kenyan market within the same period. Nigeria had impressive import parity prices (IPP) in maize, frozen chicken, turkey, and commercial boiler while South Africa and Egypt had better IPP in rye, and frozen turkey respectively. Generally, all the six African trade partners were favoured in the commercial boilers exchange with Warsaw. In conclusion, the Polish government has realized that the African markets are veritable business destinations for its products in recent times. To fully maximize and reap the benefits of these markets therefore, there is the need to minimize the artificial trade barriers, and bureaucracies in trading, and ensure the provision of moderate grants to support African governments' export drives with Warsaw. It therefore recommended that Poland should invest more in the export of live animals and animal products to Nigeria. Such investment could be extended to commercial animal ranching under an intensive management system with a modern agribusiness management touch and supply value chain which can create huge job opportunities and increased household incomes in Nigeria and thus jack up the foreign exchange earnings of Poland.

Keywords:
African markets; Consumer Acceptability; Import Parity Price; Export trade; Comparative Advantage; Trade Competitiveness; Poland.

1. INTRODUCTION

Market competitiveness and consumer acceptability are important concepts in economic theory. The market price of a good is said to be competitive if its price is equal (or almost at par) with those of close substitute goods while maintaining the same properties desired by the consumer such that the consumer's choice and level of satisfaction are further widened. The quantum of market competitiveness of countries and industries on the world markets is the basis for the theory of international trade and economic growth. Krugman and Obstfeld (2005) however noted that international competitiveness is the degree to which a country can, under free and fair market conditions, meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its citizens. Fagerberg (1996) and Cantwell (2005) observed that the concept of market competitiveness is a rather complex one. Thus, according to them, the complexity of the issues relating to competitiveness requires a variety of methods for assessment. Balassa (1979) hinted that one popular measure for international trade competitiveness is the "Revealed Comparative Advantage" (RCA).

Consumer acceptability, on the other hand, is a measure of how suitable the consumer considers a product on the market to be. It refers to the extent to which a consumer finds a product or service acceptable based on their preferences and expectations. It also describes the acceptance by the customer that the products and services were delivered as specified in the Service Order and that the customer accepts the terms and conditions of this agreement and the Service Order. Quite often, the consumer's assessment is based on the desirable qualities of the good (or service) such as the quality, price, period of transaction, and other terms and conditions that are attached. Overall, the level of consumer acceptability of a particular product on the market is measured by the amount of money the consumer is ready to part with to acquire such a product. Thus, the level of acceptability varies with individual consumers and other prevailing market conditions at the time of transaction. Culture of the people, regions of the world, happenings/occurrences and moods of the nations are also important determinants of the level of acceptability (or otherwise) of products on the market. Generally, a product that meets the required standard or specifications as stated by the regulatory agencies of the government is recommended for acceptability by the consumer. With this, the consumer's safety and confidence are assured. Poland is a key player in global trade especially given her contributions to the European Union, Baltic region, African markets, and other regions of the world in the past three decades (Stanislaw and Mariola,2020).

The economy of Poland is an industrialized, mixed economy with a developed market that serves as the sixth-largest in the European Union by nominal Gross Domestic Product (GDP) and fifth-largest by GDP. As of 2019, the Polish economy had grown steadily for 28 years, a record high in the EU. Poland's major exports include machinery and equipment, metal and metal products, mineral fuels and lubricants, chemicals, agricultural products and textiles, among others. Poland's exports to Africa amounted to 145,000 tonnes of meat and meat products (with an estimated value of 445.6 million Zloty) to the whole of Africa in 2018 alone. Despite the restrictions and devastations on global businesses as a result of the COVID-19 pandemic, these exports' values increased further by about 2.1 per cent towards the end of 2021.

To further expand the market space and buoy national revenue through international trade and cooperation, Poland is pushing further on her export profile to major African markets such as South Africa, Kenya, Morocco, Egypt, Nigeria and Ghana, among others. Some of the traded manufactured goods are machinery, electronics, vehicles and spare parts, furniture and plastics, among others. Poland also exports foodgrains such as rye, wheat, barley and oats, cattle beef, and poultry products to the African markets. But amidst all these international trade transactions, there have been contentious issues on whether Poland enjoys competitive market prices, especially because the African markets have always been regarded and operated as dumping grounds, especially by the developed nations of Europe and America thus creating a rather stiff market competition for the Polish exports in African markets.

Again, there is the need to know whether Polish exports witness rather handsomely rewarding consumer acceptability at the (destination) African markets. It is also important to know if there is import parity pricing for the traded goods between Poland and the African markets, etc. No doubt, additional information on the level of market competitiveness and consumer acceptability of the Polish manufactured and agricultural exports in the African markets will add to the existing literature on the subject matter. Thus, conducting this study is hereby justified. Specifically, the objectives of this study are to determine the level of market competitiveness of the selected Polish manufactured and agricultural exports to the African markets. The study also assessed the trade comparative advantages and consumer acceptability of the Polish manufactured and agricultural goods in the African markets. The levels of import parity pricing of these goods in the African markets were also assessed. Finally, the challenges that confront the Polish export trades with the African markets are discussed here.

2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Definitions and Interpretations of Competitiveness

Competitiveness means the ability to compete successfully with other companies, countries, organizations and so on. For a good or service, to remain competitive, for instance, it has to be able to vie (or contest) in the markets based on its price and quality. A company is adjudged to be competitive if it can make goods or provide services more quickly, creatively, and cheaply than its rivals, thus giving it an edge.

According to the World Economic Forum (2004) the word "Competitiveness" is defined as the set of institutions, policies and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the sustainable level of prosperity that can be earned by an economy. In other words, more competitive economies tend to be able to produce higher levels of income for their citizens. The productivity level also determines the rates of return obtained by investments in an economy. Given that the rates of return are the fundamental determinants of the aggregate growth rates of the economy, a more competitive economy is likely to grow at larger rates over the medium to long run.

However, Szymanik (2012) noted that there was no universally accepted definition for the term 'competitiveness' in literature as the term may mean either the ability to participate in a

competition or ex-post evaluation of its results. So, Szymanik (2012) added that competitiveness could be interpreted to incorporate both a dynamic component, which relates to the analysis of the factors forming the long-term ability to compete, and a static one, which is expressed in the evaluation of such ability at a particular moment. But, according to Atkinson (2013), the true definition of competitiveness is the ability of a region to export more in value-added terms than it imports when including "terms of trade" to reflect all government "discounts" and import barriers. Under this definition, a nation may run a large trade surplus. Still, if it does so by providing large "discounts" to its exporters or erecting sizable import barriers, it would not be truly competitive. So, the argument on the generally acceptable definition of 'competitiveness' continues. For this study however, the term trade 'competitiveness' is viewed in the context of how the export price of a good or service in a particular country can keenly contest with the price of the same or similar good or service from other countries in the international market without compromising on quality and values. Knowledge of the export trade competitiveness normally guides a country on where to export its products and at what prices.

Factors Influencing International Trade Competitiveness

The concept of international competitiveness is often used in analyzing countries' macroeconomic performance. It compares, for a country and its trading partners, several economic features that can help explain international trade trends. It helps to ensure that goods and services are produced at a lower cost and that consumers have access to lower prices so that they have a greater level of satisfaction through increased purchasing power and a higher standard of living (Snieška and Šliburytė, 2000; Kraujalis and Snieška,2000). Despite the risks, international competitiveness is still important in the global economy. The following are some of the factors that influence international trade competitiveness: Cost factors, such as labour costs, input (raw materials, energy and others) costs often largely influence the level of competitiveness in international trade. High cost factors work against competitiveness while low costs favour trade competitiveness. Again, high product quality and continuous innovation can enhance competitiveness while the availability of infrastructure, logistics and favourable government policies also encourage competitiveness in international trade.

Consumer Acceptability in Global Markets

Generally, Consumer acceptability refers to the extent to which a consumer finds a product or service acceptable based on his preferences and expectations. Consumer acceptability is described as a measure of the level of preference the consumer (or market) displays towards the consumption of a particular good or service. It is often captured by the demand for such a good or service within a given period. For instance, Rossella et al (2007) observed that if consumers were informed that soup was prepared with organic ingredients, they would improve their acceptability scores, whatever the soup type. Factors such as the price of the good, price of the close substitute(s), derivable utility from the consumption of the item(s), taste of the consumer, period of the year (or season), business strategies (such as advertisement and sales promotions), and needs and

preferences of the consumers are some of the major determinants of the consumer (market) acceptability of good or service.

No doubt, several researchers such as Reda et al, (2020) and Fukunishi,(2004) have dealt with the concept of market competitiveness on manufactured and agricultural goods in the African markets. However, those that focused on the level of competitiveness of the Polish export goods in the African markets are not known to the current team of researchers. Hence, the findings of this study provide the missing information gaps in the literature. This additional information is expected to further expand the existing knowledge on the subject matter.

3. MATERIALS AND METHODS

In this study, sets of secondary data were used. Information was sourced from the website domains and publications of the Central Banks of some African countries. Bulletins of the Food and Agriculture Organization (FAO), quarterly releases of the World Bank and several publications of the African Economic Review were also accessed. In addition, several publications of some African government ministries and departments, World Integrated Trade Solution, Business and Economic Data for 200 countries, The GlobalEconomy.com, Agflow-Digitizing Agricultural markets, UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports, Egypt-Macrotrends.net: Tariffs Rates, Ghana Revenue Authority-Customs, Tariffs and Levies, internet facilities and other reliable sources of information were used. Emphasis was placed on the price and export regimes of Polish manufactured and agricultural exports to African countries. Polish trade partnerships with South Africa and Kenya, (South/East Africa), Morocco and Egypt (North Africa) and Nigeria and Ghana (West Africa) were purposively selected for investigation due to their strategic importance in trade relations. Specifically, the study captured manufactured goods such as commercial boilers, equipment and machinery, electronics, vehicles and spare parts, furniture, and plastics while agricultural goods such as rye, wheat, barley, oats, cattle beef, and poultry products were also investigated. The selection of the African trade partners and the goods was based on the volume of trade between Poland and her trade partners across regions over the years. The scope of the study is 18 years (2005-2022). Several analytical methods such as trade competitiveness (TC) index measurements, Revealed Comparative Advantage (RCA) index, Import Parity Analysis (IPA) and Descriptive statistics were used.

i.Export Trade competitiveness-

The competitiveness of any nation's products is rooted not only in any single outward measure but in the quality and quantity of the nation's productive resources. It also determines the relative efficiency of making different goods and consequently, a nation's comparative advantage in international trade. Here, borrowing from Grzegorzewska et al, (2020,) to measure the level of competitiveness in trade, Trade Competitiveness (TC) index was used.

Thus,

$$TC_{ij} = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \quad \ldots\ldots\ldots \quad (1)$$

Where, TCij refers to the ratio of "exports minus imports" of product j in country i to the total import and export trade of such product. Xij represents the export value of the jth product in the ith country and Mij represents the import value of the jth product in the ith country (Wei,2005). If a country imports smaller quantities of commodities than it exports, the export competitiveness of the commodities in question is considered stronger (Yulin,2021). The TCij index is normally between -1 and +1 that is $-1.0 \leq TCi \leq +1.0$. TCij were computed for each of the selected Poland's trading partners in respect of the manufactured and agricultural commodities being investigated.

ii. Revealed Comparative Advantage (RCA) index:

RCA index, according to Szymanik (2012) is often used to measure the comparative advantages of economies of individual countries in the international exchange of goods. Milica and Marija (2017) hinted that the model was developed by Bella Balassa and called it "Balassa index" in 1965 and thereafter it became the most used model for measuring the RCA.

Thus,

$$RCA = ln\left(\frac{X_i}{M_i}\right) \cdot \left(\frac{\sum X_i}{\sum M_i}\right) = lnX_i - lnM_i \quad \ldots\ldots\ldots \quad (2)$$

Where,

RCA=Revealed Comparative Advantage index in year t

Xi =Export of product i of the country j in the year t

Mi=Import of product i of the country j in the year t

∑Xi=Total export of all products of the country j in year t

∑Mi=Total import of all products of the country j in the year t

ln=Natural logarithm

In this form, X represents the value of export while M is the value of import. The index i represents a particular type of product (i.e., manufactured, or agricultural). Positive values for the RCA index show that the economy has comparative advantages in the trade of the observed products. The higher the value of the RCA index, the higher the comparative advantages of the economy. A negative RCA index shows the lack of comparative advantages. This model was used to compute the RCA indices for both the imported and exported manufactured and agricultural goods from Poland for 18 years (2005-2022) and the values are compared.

iii. Consumer (market) acceptability of Polish exports

Each African country that has established trade relations with Poland has its justifiable reasons for doing so. Thus, trade agreements vary according to nations, regions and sometimes, certain periods or circumstances. According to Trade Economics (2020), Poland's volumes of exports and imports vary across her number of trade partners. Generally, the levels of consumer (market) acceptability depend on the quality, prices of the commodity (and those of close substitutes), cost of marketing and relevant trade conditions and terms. In this study, therefore, the volume of trade between Poland and each of the six (6) selected African countries mentioned in (ii) above was examined

and analyzed using descriptive statistical methods such as mean, median, frequency tabulations, charts, and other measures of central tendencies.

iv Import Parity Price (IPP) Analysis

The IPP analysis was used to assess the import parity pricing of the Polish manufactured and agricultural export commodities in African markets. Generally, import parity is a price-setting mechanism for a commodity in which the price is set based on the cost of importing the commodity into the location. The IPP could also be used to assess the incentives to trade as well as the incentives to produce where local producers compete with producers and suppliers from outside the country or across the border (Mabiso, 2008). The import parity is calculated as the cost of the commodity in the source location, plus the cost of delivery to the destination. The IPP analysis was conducted for all imports from Poland into the African markets and the prices were compared to establish if there was any parity or not. This exercise was again used to re-confirm the basis for the competitiveness (or otherwise) of the market prices of Polish imports in the African markets and those from the United Kingdom. High parity prices indicate a high level of competitiveness while limited (or no parity prices) indicate reduced or zero competitiveness in market prices of the commodities in question. The IPP analysis was repeated for both the manufactured and agricultural commodities that are being traded between Poland and the six African countries.

v. Descriptive Statistical Analysis: This approach was used to describe the various challenges in the bilateral trade relations between Poland and the six selected African countries. Specifically, issues bordering on trade restrictions and barriers, especially at the ports, handling periods/bureaucracies in trading and the effect of the socio-political bickering within the African countries were also mentioned.

4. RESULTS AND DISCUSSION

This section presents the results and discussion of the findings of the study. This comes after the empirical analysis of the data using different analytical models to capture the market competitiveness, trade comparative advantages, consumer acceptability and import parity pricing of the Polish agricultural and manufactured commodities. The challenges to seamless trade relations between Poland and the selected African trading partners were also discussed here. It is hoped that these findings complement the existing facts on the topic of discourse.

4.1: Measurement of Export Trade Competitiveness

Generally, a market is described as competitive when the commodity prices at such a market are at par or almost at par with prices being offered for the same or identical commodity in other markets without negotiating the quality (Miguel, et al,2020). In theory, a competitive market exists because of consumer demands. A competitive market is often seen as a market structure where competition between various companies (or firms) is at its highest point. In theory, there are four types of markets: perfect competitive, monopoly, monopolistically competitive market, and oligopolistic. In this study, the level of market competitiveness for agricultural and manufactured

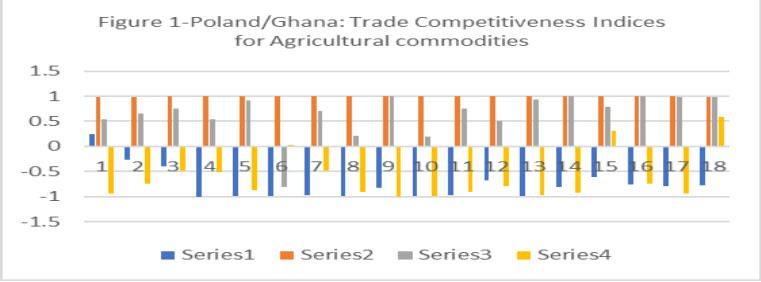
products of Polish origin that were sold in the African markets was measured. Broad groups of agricultural commodities such as foodstuffs and beverages, live animals and animal products, raw hides and skin products and animal and vegetable fats were investigated. Similarly, the selected manufactured products included plastics, rubber and related items, chemicals and allied products, boilers, machinery and appliances, vehicles, aircraft parts and vessels, mineral fuels, and lubricants. According to the World Integrated Trade Solution (2022), the export and import trade statistics for all products (combined), indicated that Nigeria had the highest total exports to Poland totalling U$624,305,930 while Kenya had total exported goods valued at US$24,795,830 in 2022 (Table 1). Similarly, The Republic of South Africa had the highest import trade volume valued at US$1,075,989,005 while Kenya still recorded the least imports valued at US$55,863,940.

Table 1: African Export –Import Trade Volumes with Poland in 2022 (US$,000)

Country	Exports (All Products)	Imports (All Products)
Nigeria	624,305.93	265,529.37
Ghana	56,107.56	105,632.45
Morocco	378,006.80	748,408.75
Egypt	332,657.25	577,352.53
South Africa	498,869.06	1,075,989.5
Kenya	24,795.83	55,863.94

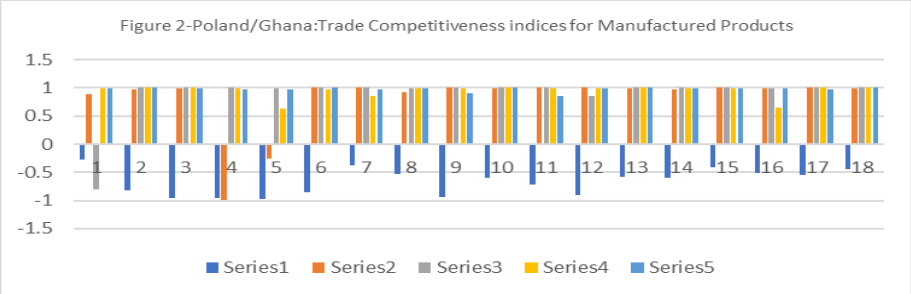
Source: World Integrated Trade Solution, (2022)

Generally, the competitiveness of a nation's products is rooted not only in any single outward measure but in the quality and quantity of the nation's productive resources (Miguel et al.2020). Thus, the result of the analysis of the level of market (trade) competitiveness for different categories of agricultural commodities that were exported from Poland to Ghana between 2005 and year 2022 indicated that the average trade competitiveness indices for foodstuffs and beverages and animals and vegetable fats were -0.7513 and -0.6241 respectively while the competitiveness indices for live animals and animal products and raw hides and skins were estimated to be 0.9969 and 0.6480 respectively. These indices thus confirmed a strong export competitiveness in the export of agricultural commodities from Poland to Ghana within the period being investigated (Figure 1).



Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animal and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animal and Vegetable Fats

For the manufactured products, the average trade competitiveness indices for the chemicals and allied products, plastics and rubber products, boilers, machinery and appliances, vehicles, aircraft parts and vessels and mineral fuels and lubricants stood at 0.80324, -0.6666,0.89000,0.9474 and 0.9790 respectively (Figure 2).



Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

This result implied that Poland, on a general note, exported more agricultural and manufactured products to Ghana than its imports, thus further confirming higher export trade competitiveness for Poland in the two broad categories of commodities being traded between the two nations. This is a good policy guideline that Poland stands a better chance of finding markets for both her manufactured and agricultural products in the Ghanaian markets. For the bilateral trade relations between Poland and Egypt, the average trade competitiveness indices for agricultural commodity exports stood at 0.7008,0.8241, -0.0905 and -0.2207 for foodstuffs and beverages, live animals and animal products, animals and vegetable fats, and raw hides and skin products respectively (Figure 3).

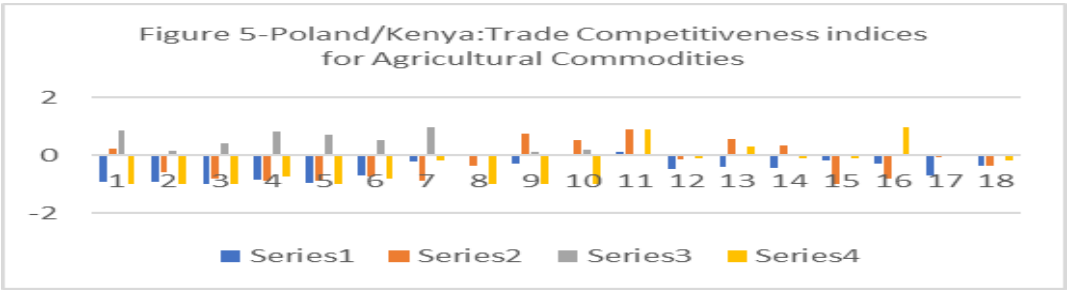
Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animal and Vegetable Fats

This implies higher export trade competitiveness for Poland in foodstuffs and beverages and live animals and animal products compared to the other two agricultural commodities. Similarly, for the manufactured products, the average export trade competitiveness indices were 0.9584,0.852,0.9250,0.7257 and -0.6557 for mineral fuels, lubricants, boilers, machinery and

appliances, vehicles, aircraft parts and vessels, chemicals and allied products and plastics, rubbers, and related items. These indices again confirmed that Poland enjoyed a higher level of export trade competitiveness between Warsaw and Cairo. This is good for the Polish economy (Figure 4). This is a good policy guideline that Poland stands a better chance of finding markets for these manufactured products in the Egyptian markets.

Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

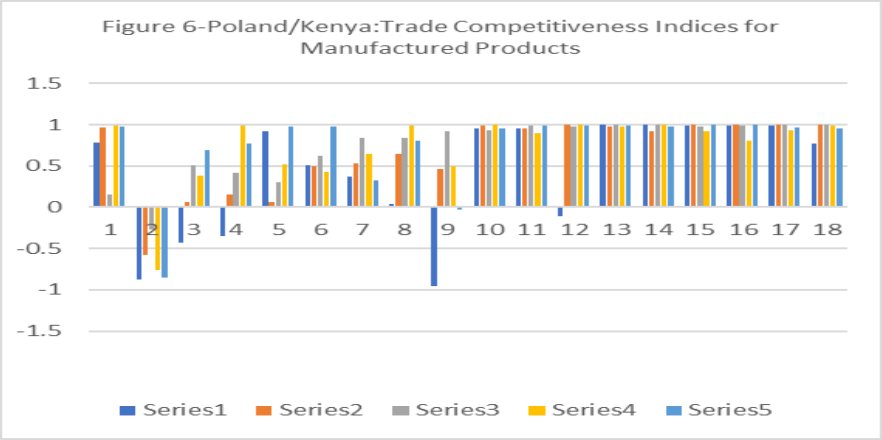
For the bilateral trade relations between Poland and Kenya, the computed average market competitiveness indices for the agricultural commodities indicated that animals and vegetable fats, raw hides and skin products, foodstuffs and beverages and live animals and animal products were -0.3838,0.27785, -0.4701 and -0.2341 (Figure 5).



Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

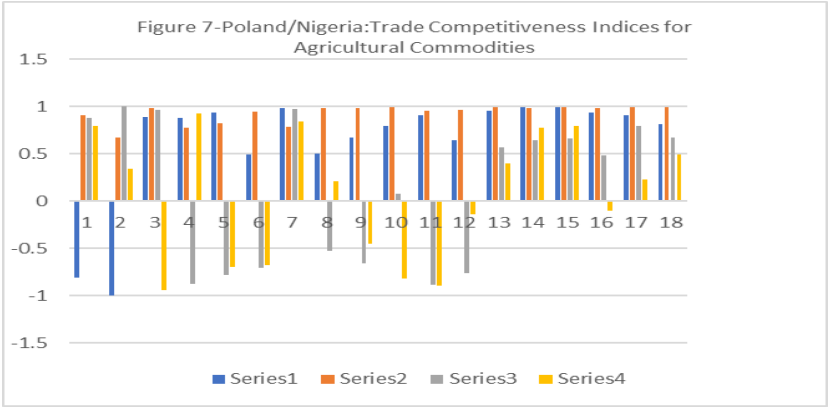
For the manufactured products, the average trade competitiveness indices stood at 0.7472,0.7316,0.7340,0.6474 and 0.4189 for mineral fuels and lubricants, commercial boilers, machinery and appliances, vehicles, aircraft parts and vessels, chemicals and allied products and plastics and rubbers respectively (Figure 6). These indices further confirmed that Kenya imported

more manufactured products from Poland than it did imported agricultural commodities within the period of the survey. This information is a useful guide for the two trade partners in making informed decisions on policies that could address economic/ trade imbalances between them. In practical terms, Poland stands a better chance of finding markets for both its manufactured and agricultural products in the Kenyan markets because it enjoys a higher level of market competitiveness in the trade.



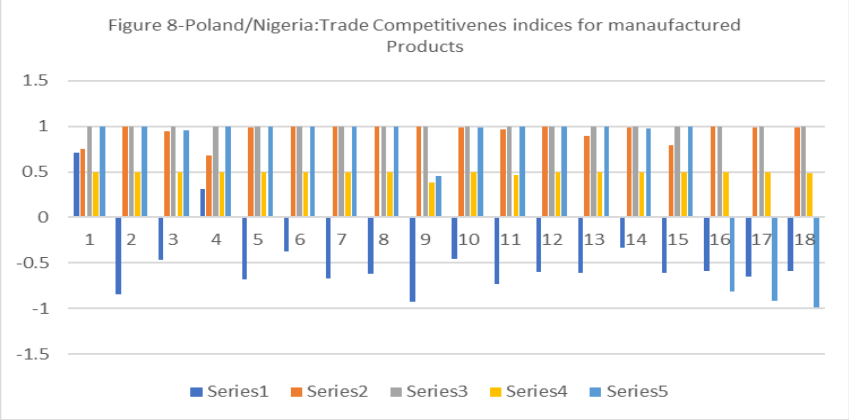
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery, and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

Again, in the bilateral trade relations between Poland and Nigeria, in the agricultural trade sub-sector, the average competitiveness indices stood at 0.6399,0.9302,0.0619 and 0.1425 respectively for foodstuffs and beverages, live animals and animal products, animals and vegetable fats and raw hides and skin products (Figure 7).



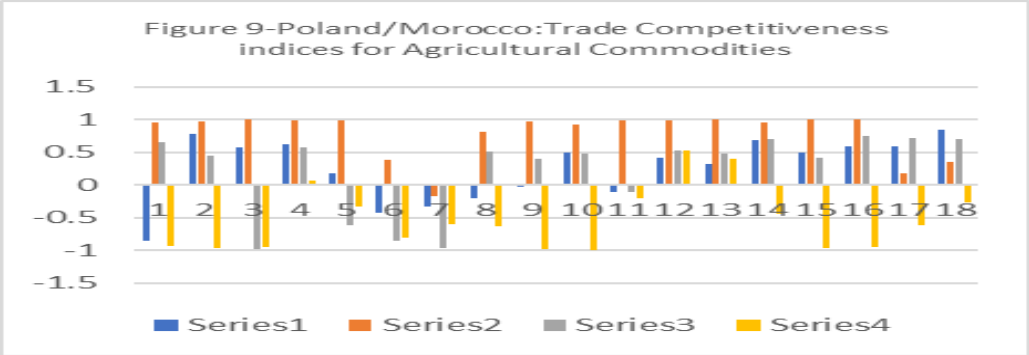
Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

Likewise, the average trade competitiveness indices for the plastics, rubber and other related items, chemicals and allied products, boilers, machinery and appliances vehicles, aircraft parts, and vessels and mineral fuels and lubricants stood at -0.4827,0.9421,0.9979,0.4893 and 0.6466 respectively. These indices represented a moderate level of trade competitiveness, both in the agricultural and manufactured products, between Warsaw and Abuja. This could be attributed to the fact that Nigeria is a common destination for most of these products, especially from the US, the UK and Germany. To remain competitive, therefore, Poland needs to study Nigeria's market very well to be able to hit the market at such a time it can make good deals and remain competitive. However, it was clear that more foodstuff and beverages, live animals and animal products, rubber and other related items, chemicals and allied products were exported to Nigeria from Poland within the last 18 years (Figure 8).



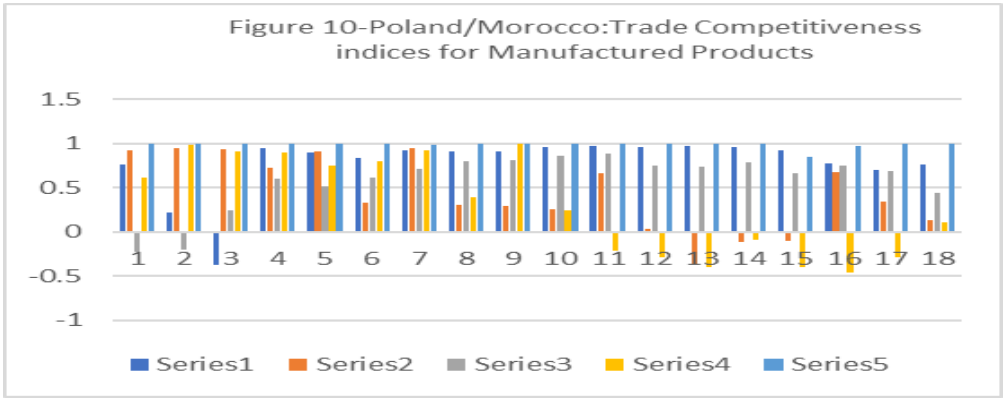
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc; Series 5=Mineral fuels, lubricants etc.

In addition, the results showed that, between Poland and Morocco, the average trade competitiveness indices for agricultural commodities were 0.2588, 0.7958, -0.5357, and 0.2130 for foodstuffs and beverages, live animals and animal products, animals and vegetable fats and raw hides and skin products respectively (Figure 9). This indicates the highest competitiveness (0.7958) for live animals and animal products in the bilateral trade relations between the two countries.



Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

For the manufactured products, the average competitiveness indices indicated that chemicals and allied products, mineral fuels and lubricants, plastics and rubber items, boilers, machinery and appliances and vehicles, aircraft parts and vessels respectively stood at 0.4339,0.9856,0.7773,0.5778 and 0. 3043 (Figure 10).



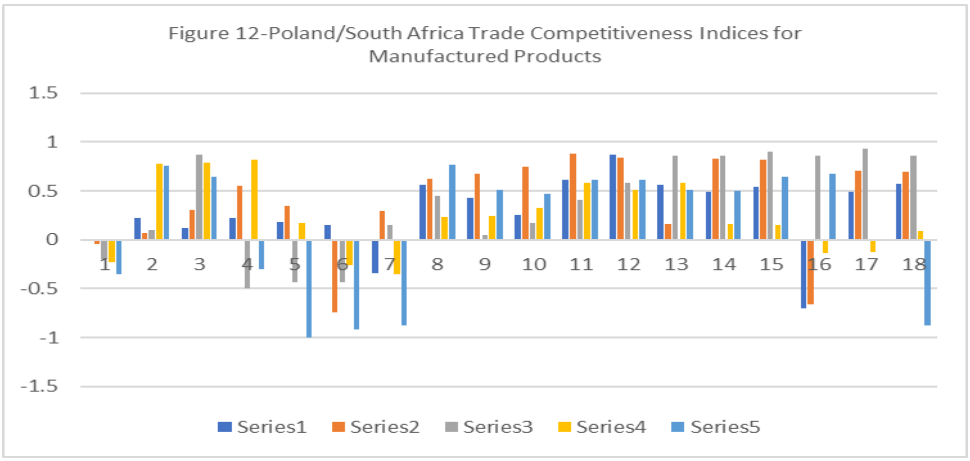
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

These indices indicated higher levels of exportation of manufactured products from Poland to the Moroccan markets compared to agricultural commodities. This may be attributable to the stable domestic supply of foodstuffs and beverages and raw hides and skin products within the Moroccan economy. Similarly, the Poland/South African bilateral trade indicated that the average trade competitiveness indices are 0.2043, 0.5792, -0.9568, and -0.6358 for foodstuffs and beverages, live animals and animal products, raw hides and skin products, and animals and vegetable fats respectively (Figure 11). These indices, again, revealed that there was a moderate level of export of agricultural commodities from Poland to South Africa within the period under review. Largest

export quantities were recorded for live animals and animal products while Poland imported a chunk of hides and skin products from the Republic of South Africa as well.

Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

For the manufactured products, the average trade competitiveness indices stood at 0.3599,0.2409,0.2917,0.3934 and 0.1336 for the commercial boilers, machinery and appliances, vehicles, aircraft, parts and vessels, plastics, rubbers, and other similar items, chemicals and allied products, and mineral fuels, and lubricants respectively (Figure 12).

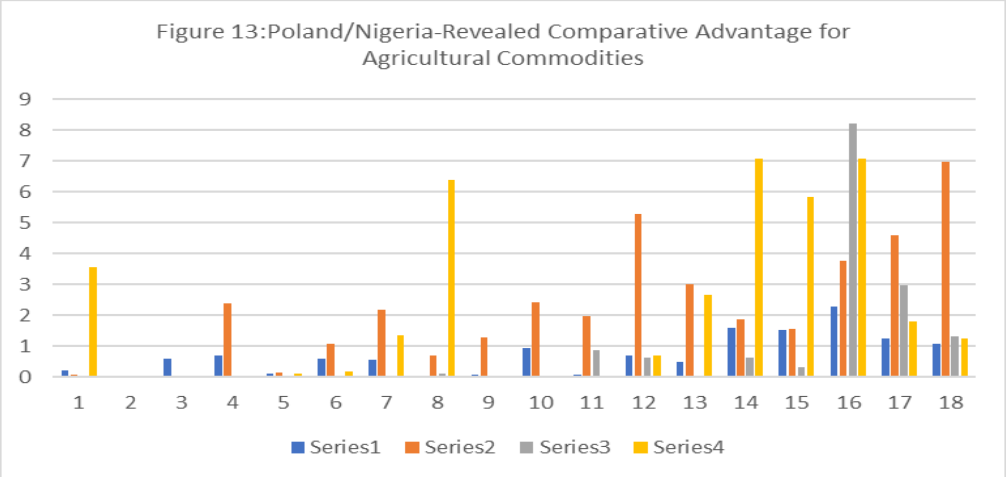


Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

These indices revealed a slightly low level of export of manufactured products from Poland to the Republic of South Africa compared to the quantity of export of agricultural commodities. This implies that there is a relatively higher level of trade competitiveness for Poland's agricultural exports in South African markets. This is a good basis for appropriate policy formulation on trade balancing between the two countries. Therefore, Poland should export its agricultural goods to South Africa because the market may be ready to offer good and competitive prices for them.

4.2: Measurement of Revealed Comparative Advantage (RCA) Index

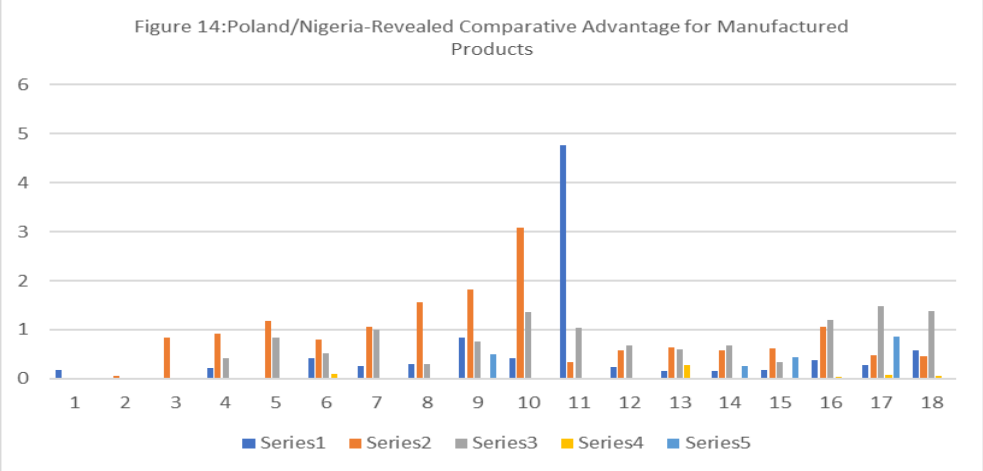
The concept of comparative advantage in classical trade theories is determined by the pre-trade relative prices. Thus, a country is said to have a comparative advantage in a particular good if the relative price of domestic goods is below its relative price in the world market. These pre-trade prices often depend on the relative cost of production. But Balassa (1965;1979) stated that when data on the cost of production are not available, the Revealed Comparative Advantage indices could be used as alternative indicators of the measures of the comparative advantages in trade relations between countries. Similarly, Jagdambe (2016) stated that the RCA index showed how a product is competitive in a country's exports compared to the product's share in another country or group of countries and that a product with a high RCA is competitive and can be exported to countries with a low RCA index. Countries with similar RCA profiles are likely to have high bilateral trade intensities unless intra-industry trade is involved (Chandran, 2010). Under the assumption that the commodity pattern of trade reflects inter-country differences in relative costs as well as non-price factors, the index is assumed to "reveal the comparative advantage of the trading countries (Shinoj and Mathur, 2008). Thus, in this study, findings showed that in the bilateral trade relations between Poland and Nigeria, the estimated average Revealed Comparative Advantage (RCA) indices for animals and vegetable fats, foodstuffs and beverages, live animals and animal products and raw hides and skin products were 2.12,0.7161,2.1867 and 0.8372 respectively (Figure 13).



Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

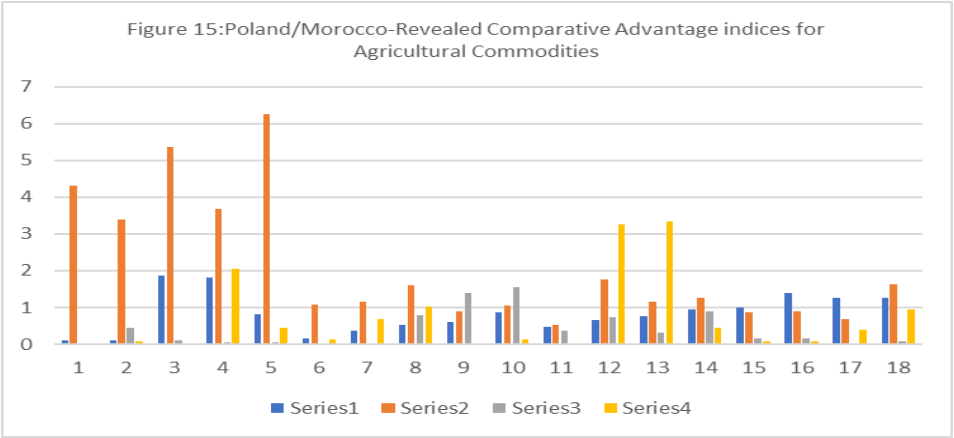
These indices indicated that Poland enjoyed the highest export trade relations with Nigeria in live animals and animal products and least in foodstuffs and beverages. Comparatively, the estimated average RCA indices for the traded manufactured goods between the two countries indicated that plastics, rubber and related items, chemicals and applied products, commercial boilers, machinery

and electrical appliances, vessels, aircraft, parts and vessels and mineral fuels and lubricants were 0.5189,0.8922,0.6983,0.0356 and 0.1139 respectively (Figure 14).



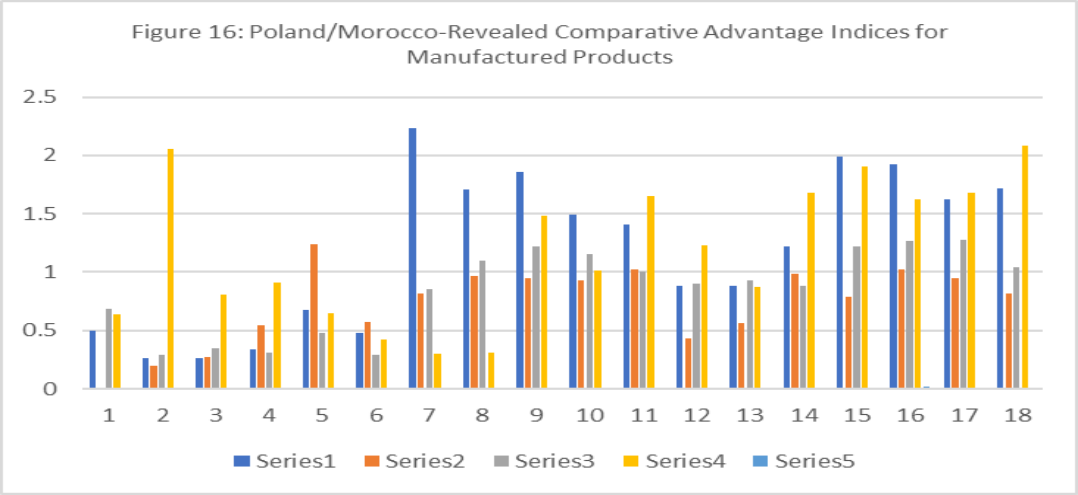
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machineries and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

This indicated fair export trade relations in chemicals and allied products between Warsaw and Abuja within the period of study. However, the picture of the bilateral trade relations between the two countries can be brighter if Poland can invest in Nigeria's upstream oil industry as it did, according to Gospodarki (2011b), with the establishment of the PKN Orlen in the petroleum processing sub-sector in Mazeikiu, Lithuania, and in the production of glass, rubber and plastic materials, insurance, financial mediation, trade, transport, and food industry in that country. Similarly, for agricultural trade relations between Poland and Morocco, the highest estimated average RCA index (2.0867) was recorded for live animals and animal products and the lowest index value (0.4006) was recorded for raw hides and skin products (Figure 15).



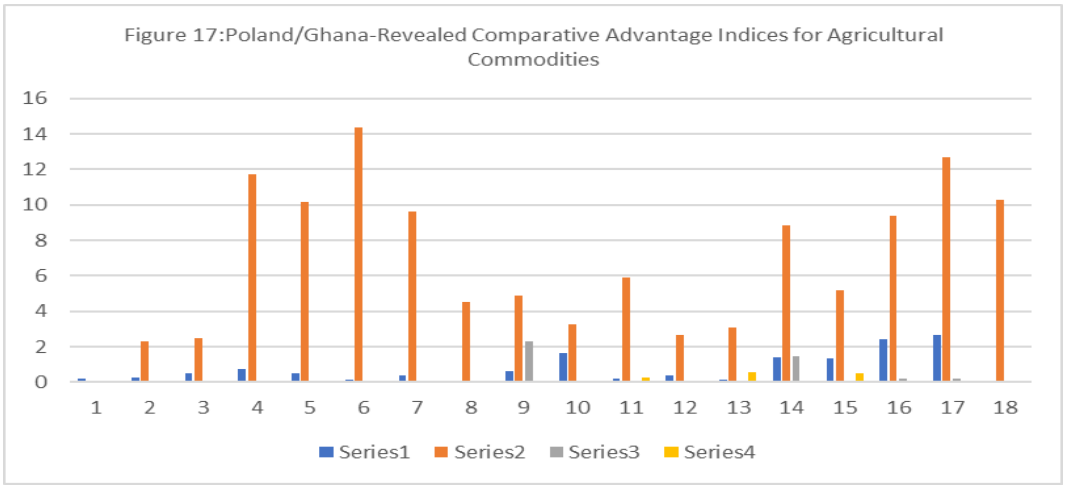
Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

This indicated that Poland's agricultural export trade with Morocco was best in the former category of agricultural export products. For the manufactured products, the estimated average RCA index was highest for plastics and rubber products (1.1917) and least for mineral fuels and lubricants (0.0011) (Figure 16).



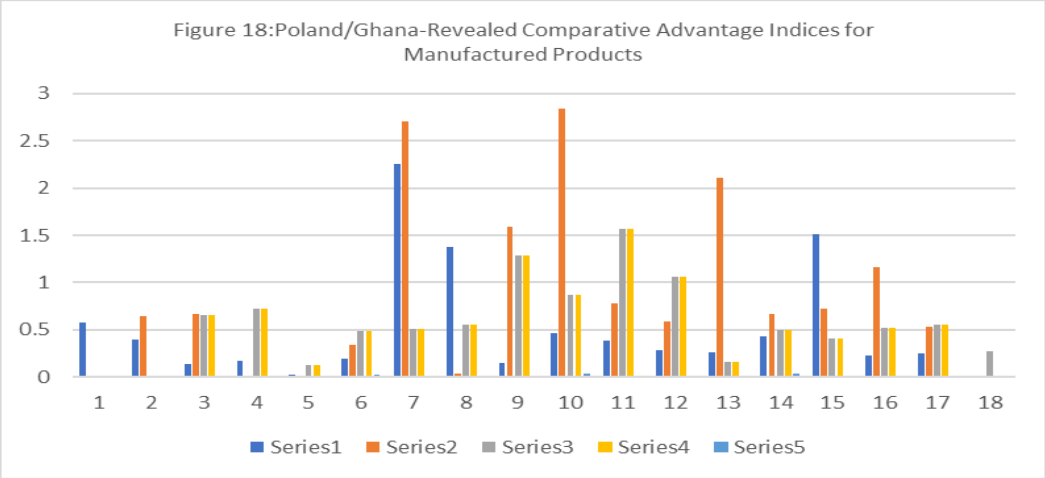
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

In the same vein, the bilateral trade relations in the agricultural sub-sector between Poland and Ghana indicated the highest average RCA index of 6.745 for live animals and animal products and the lowest index value of 0.0756 for the animals and vegetable products thus indicating a better export trade relation in the former group of commodities (Figure 17).



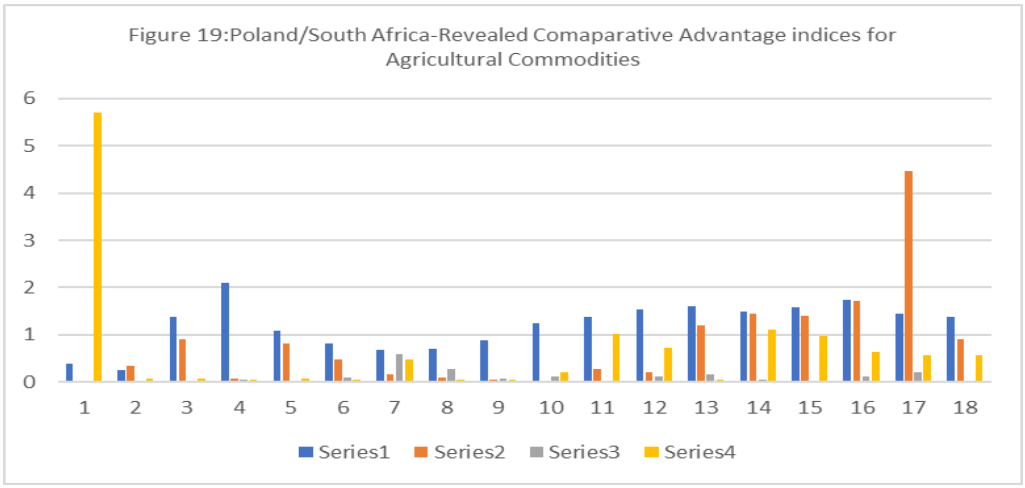
Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

In comparison, the highest average RCA index of 0.8550 for the chemicals and allied products and the lowest index of 0.0094 showed the best export trade relations in the former group of manufactured products between Poland and Ghana (Figure 18).



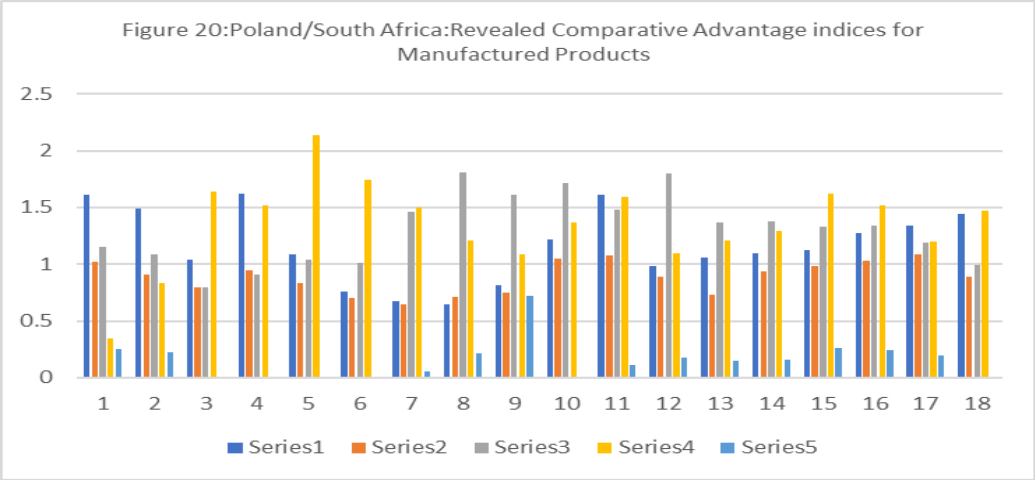
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

Again, the results of the analysis of the export trade relations between Poland and South Africa indicated the best export performance in the foodstuffs and beverages sub-sector with the average RCA index of 1.2061 while the lowest performance was recorded in the raw hides and skin sub-sector which had the average RCA of 0.1144 (Figure 19).



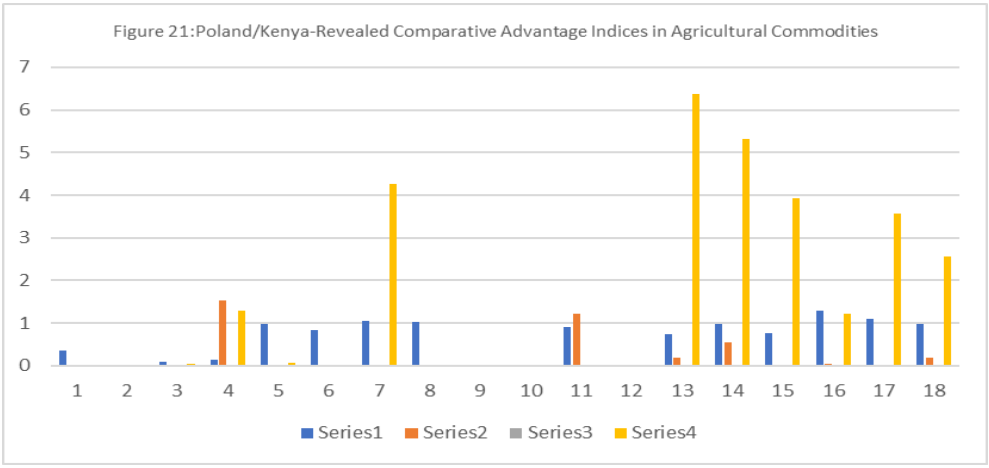
Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

In comparison, the export trade performance between the two countries was best in the chemical and allied products of the manufactured products sub-sector with an average RCA index of 6.499 while the mineral fuels and lubricants recorded the lowest performance level (Figure 20).



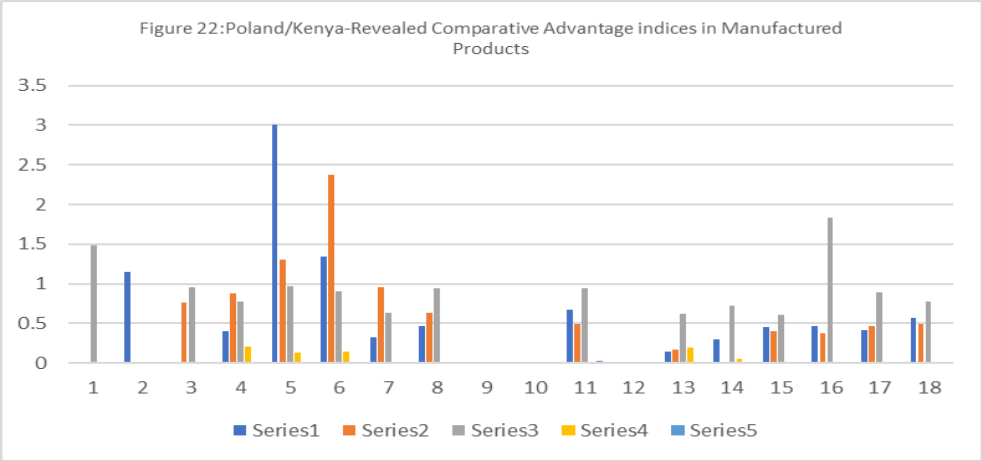
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

The export trade relations between Warsaw (Poland) and Nairobi (Kenya) were generally feeble as exemplified by the rather small estimated average RCA indices for the agricultural commodities which ranged between 1.5084 (for animals and vegetable fats) and 0.005 for raw hides and skin products (Figure 21).



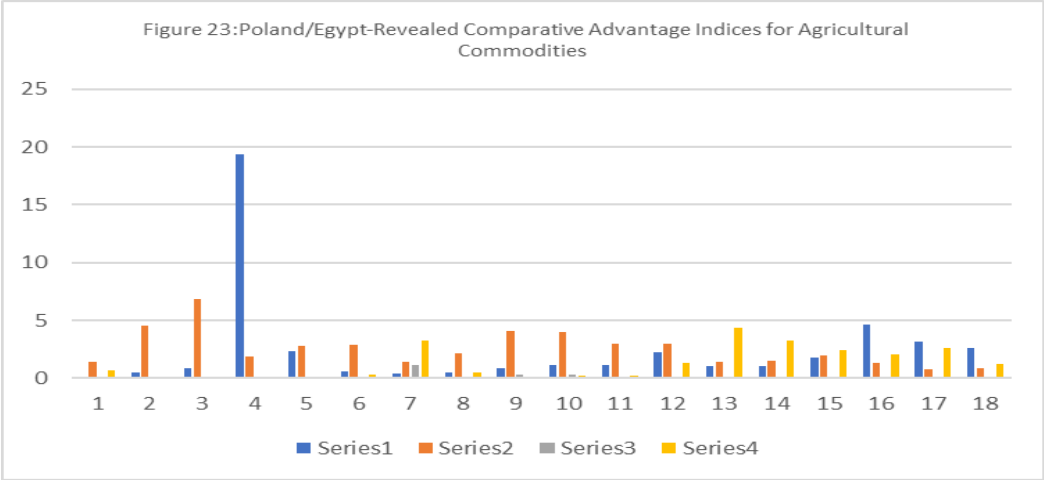
Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

For the manufactured (industrial products), the frail export trade relations were again confirmed with the estimated average RCA indices which stood between 0.7256 for the commercial boilers, machinery, and electrical appliances and 0.0061 for the mineral fuels and lubricants. Thus, these figures further confirmed that Poland does not have a robust comparative advantage in the export of both agricultural and industrial (manufactured) products to Kenya (Figure 22).



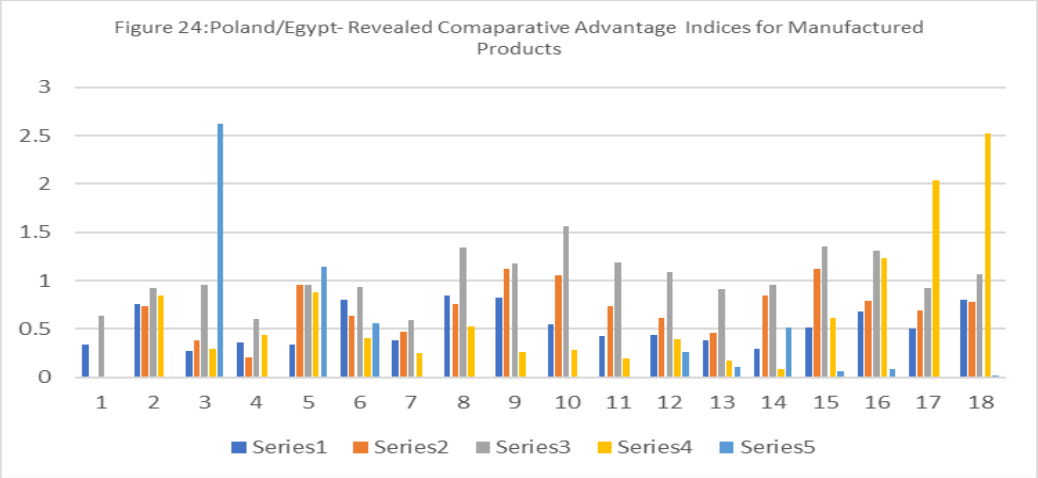
Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles. Aircraft parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

This finding is considered useful in the formulation of export trade policies between the two countries. Finally, the findings indicated that the export trade relations between Poland, and Egypt were relatively stable, and hopeful compared to other bilateral trade records in Africa. Specifically, in the agricultural sub-sector, the estimated average RCA index was highest in live animals and animal products (2.5478) and least for raw hides and skin products (0.1289) (Figure 23).



Legend:
Series 1=Foodstuffs and Beverages; Series 2=Live Animals and Animal Products; Series 3=Raw Hides and Skin Products; Series 4=Animals and Vegetable Fats

In comparison, the estimated average for the manufactured products stood between 1.0256, for the commercial boilers, machineries, and electrical appliances and 0.2978 for the mineral fuels, lubricants, and other related oils (Figure 24).



Legend:
Series1=Plastics, rubber, and related items; Series 2=Chemicals and Allied products; Series 3=Boilers, machinery and appliances; Series 4 = Vehicles, aircrafts, parts and vessels etc.; Series 5=Mineral fuels, lubricants etc.

The estimated average RCA indices for the traded commodities between Poland and the six countries were generally low. This indicated rather lean trade relations between Warsaw and the selected African countries. Overall, the findings confirmed that Poland had the best bilateral trade relations with the Republic of South Africa and the worst with Kenya in the export of agricultural and manufactured (industrial) products within the period. In a similar study, Jagdambe (2016), observed that the Revealed Comparative Advantage index for India's agriculture sector concerning the world at the four-digit level between 2001 to 2013, was such that India had a comparative advantage in the export of 7 out of 26 live animal products, and 18 out of 58 vegetable products. It was added that in animal/ vegetable fats and prepared foodstuffs, India enjoyed the RCA in 3 out of 16 and 8 out of 49 products respectively.

4.3: Assessment of the Level of Acceptability of Polish Export Products in African Markets

The bulk of Poland's exports are aimed at developed nations, and less than 10% goes to developing countries (Grzegorczyk, 2015). Specifically, about 80 per cent of Polish exports are marketed in Europe and Asia. A stagnant European Union and growing geopolitical problems in Russia are forcing Poland to look further afield for export markets, with some successes. This position was again corroborated by Szymanik (2012) who stated that Poland's biggest neighbours were her natural trade partners: Baltic States. It was reported (Grzegorczyk,2015) that the Polish government's *GoAfrica* programme has boosted trade with Africa by 25 per cent. Grzegorczyk (2015) added that the countries in which the Polish government gets more involved were chosen rather haphazardly. This often results from the presence of Polish companies in each market or the

favourable political climate based on personal relations or good experience. The economic potential of the country is also important as well as the opportunity for Polish companies to be awarded contracts, such as public procurement contracts in the sector considered so critical and relevant. Each African country that has established trade relations with Poland has its justifiable reasons for doing so. Thus, trade agreements vary according to nations, regions and sometimes, certain periods or circumstances. According to the trade statistics, Poland's volumes of exports and imports vary across her number of trade partners. Generally, the levels of consumer (market) acceptability depend on the quality, prices of the commodity (and those of close substitutes), cost of marketing and relevant trade conditions and terms. In this study, therefore, the volume of export trade between Poland and each of the six (6) selected African countries was analyzed. In theory, the degree of consumer/market acceptability of a product is usually reflected in the quantity demanded of such a product. Thus, a high market (or consumer) acceptability is normally confirmed by a high demand for the product and vice versa.

The demand for the four categories of agricultural commodities and five manufactured products that were exported from Poland to selected African countries were assessed. The four categories of traded agricultural commodities were foodstuff and beverages, live animals and animal products, raw hides and skin products and animal and vegetable fats. Findings indicated that foodstuffs and beverages with the highest total value of $353,498.0 were exported by Poland to the Egyptian market between 2005 and 2022. South Africa had the second highest value of $303,285.4, while Kenya accessed the least of the Polish foodstuffs and beverages exports with a total value of $14,550.4 million. For the same period, the highest quantity of live animals and animal products worth $241828.1 million were exported from Poland to Egypt while $131,169.0 million and $2054.7 million worth of the same items were exported to Ghana and Kenya respectively. The largest volume of the Polish export of raw hides and skin products valued at $13,550.0 million was received by Morocco while Egypt had the least export quantity valued at $1204 million. Similarly, Poland exported $642,838.8 million and $320,935.1 million worth of animal and vegetable fats to Egypt and South Africa respectively during the period.

For the manufactured goods, the largest Polish exports of plastics, rubber and related items valued at $379,793.3 million were purchased by South Africa while Morocco and Ghana accessed $292,123.2 and $8,800.10 worth of the same items respectively. Again, South Africa, Egypt and Kenya purchased chemicals and allied products which worth $842,863.2 million, $344,892.5 million, and $373, 16.9 million respectively from Poland within the period of study. Similarly, for the commercial boilers, machinery and electrical appliances, and vehicles, aircraft, parts and vessels, South Africa still led Poland's exports chart by accessing $2,441,684.0 million and $1,353,143.0 million worth of articles respectively within the 18 years. Morocco came second on Poland's export chart by accessing $917,619.0 million and $ 521,043.3 million worth of the same groups of products for its market. For mineral fuels, lubricants and related oils, Egypt topped Poland's exports chart by accessing $316,389.6 million worth of items. South Africa and Morocco came second and third respectively by accessing $232,716.6 million and $7422.0 million worth of the products during the period under investigation. On the whole, it is believed that the size of the

human population, market stability, the existing state of processing technology, attractive socio-political environment coupled with the relatively impressive goodwill of the African local investors and governments determined the quantum of export of Poland's products to the African markets. Currently, there is a widespread recession in the European markets, the Russia-Ukraine war is still raging on, and the Polish domestic market is saturated. All these occurrences have severe implications on the traditional markets for Polish exports, especially within the last ten years. This is therefore the right time for the Polish government to further strengthen its bilateral trade relations by exploring the potential in the African markets more than ever before. This, if done, might bridge Poland's export imbalance which was occasioned by the trade deficit, jack up the GDP and improve her economy.

4.4: Import Parity Price Analysis

In the literal sense, the word, "parity" means being equal or equivalent to. Parity pricing is making the price of a commodity equal to or equivalent to a reference price for the same commodity in another location. For instance, the price of one tonne of wheat in Warsaw, Poland, is equivalent to the price of an identical tonne of wheat in Rabat, Morocco. Hence, parity pricing could be seen as a way of accounting for differences in prices of a particular commodity in two different locations. Thus, parity pricing helps to explain why the price of a commodity in market "A" for instance, is different, for the same commodity, from that of market "B". By attributing the difference in prices to costs like transport, taxes, insurance, warehousing, and so forth, it indicates that the prices are at par – thus implying that the prices balance (not equal) after considering all relevant adjustments. Import and export parity prices are often used to assess the incentives to trade as well as incentives to produce where local producers compete with the producers and suppliers from outside the country and across borders. Thus, Mabiso (2008) noted that parity price analysis is an important tool for food security and early warning analysis in that it can be used to determine the incentives to produce food and the potential for a profitable importation of goods and services through primary ports of entry or across borders. More specifically, import parity price is the value of a unit of product bought from a foreign country, valued at a particular location of interest in the importing country. For instance, if thirty tonnes of cocoa beans are imported to Al Ahram Beverages, Egypt from Apapa Wharf, Lagos, Nigeria, the import parity price for the cocoa beans at the Al Ahram Beverages, Egypt, will be the price of the thirty tonnes of cocoa beans at the Apapa Wharf, Lagos, Nigeria plus the transport cost (i.e. freight charges) paid for the shipment of the cocoa beans to the Suez port in Egypt, plus insurance costs and handling charges, plus tariffs/excise duty charges, plus the inland transport costs paid to move the cocoa beans from the Suez port to the factory (Al Ahram Beverages, Egypt) where the beans will be utilized for the manufacturing processes. Generally, most importers are concerned about the import parity price (IPP) of commodities because it helps them to determine the profitability (or otherwise) of importing and reselling goods in the domestic markets. Knowledge of the IPP also enables the importers to assess the potential market competition from locals and foreigners who may want to sell in the domestic market. An accurate estimation of the IPP normally requires adequate

knowledge of the freight rates and the costs of imported goods. Freight rates and costs refer to the total amount paid to deliver a shipment from origin to destination. They are also called freight charges. International freight quotes typically consist of several freight fees and surcharges on average, including carrier transportation costs and other costs of moving freight before and during transit, and after arrival at the destination port. Usually, freight costs depend on the type of goods shipped, such as dry, liquid, or fragile cargo and the mode of transportation: ocean, rail, road, air, or any combination thereof. Other considerations include the cargo weight and dimensions, and the distance between origin and delivery locations. However, freight costs may still vary over time due to factors such as fuel costs, government regulations, customer demand patterns, port congestion, and equipment availability, among others. In this study, therefore, trade relations between Poland and six African countries were investigated in terms of import parity pricing. The six African countries include Nigeria, South Africa, Egypt, Morocco, Kenya and Ghana and the commodities that were investigated include wheat, rye, maize, barley, oats, fresh (chilled) chicken, frozen (chilled) chicken and frozen turkey. Others include commercial boilers, laptops, automobiles, and television sets. According to the UN Trade Statistics (2022), the four (4) major seaports in Poland are Gdansk Port, Gdynia Port, Szczecin Port and Swinoujscie Port with the Port of Gdansk being the largest of them all.

Data were obtained on these imported items' free-on-board (FOB) prices, at the ports of shipment in Poland, freight (transportation) charges, insurance charges, unloading costs, storage/handling costs at the ports, inland transportation charges, tariffs, and subsidy payments at the destination countries, among others. For this study, different tariff regimes, as obtained from official quarters, were used for the computation of the import parity prices of the trade commodities for different countries. All essential items like food grains attracted between 5% and 12.5% as tariffs while consumers (or finished goods) were charged between 15% and 20% across the board. Findings indicated that, for Nigeria, out of the twelve traded goods with Poland, only maize, frozen chicken, turkey, and commercial boiler had import parity prices that were less than their respective home prices hence bilateral trade relations should be stepped up on these four commodities (Table 2). Similarly, South Africa (Table 3) and Egypt (Table 4) had better import parity prices in the rye, and frozen turkey respectively. Morocco (Table 5), Kenya (Table 6), and Ghana (Table 7) also had robust import parity prices for oats, while Kenya and Ghana are both favoured in the bilateral barley trade with Poland. On a general note, however, all six African countries were favoured in the commercial boilers trade with Warsaw as they all recorded impressive import parity prices (Table 2 to Table 7)

Table 2: Import Parity Prices for Nigeria's Goods Imported from Poland ($)

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland transport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Naira,	Current Home Prices(₦) as at year 2022	Import Advice
Wheat	350	87.5	28	10.5	24.5	10.5	17.5	528.5	N200888.12	422.3=N160520.45	Do not Import
Rye	260	65	20.8	7.8	18.2	7.8	13	392.6	N149231.19	385=N146342.35	Do not Import
Maize	323	80.75	25.84	9.69	22.61	9.69	16.15	487.73	N185391.05	540=205259.4	Import
Barley	305	76.25	24.4	9.15	21.35	9.15	15.25	460.55	N175059.66	276.9=N105252.46	Do not Import
Oat	300	75	24	9	21	9	15	453	N172189.83	321=N122015.31	Do not Import
Fresh Chicken	3953.6	988.4	316.29	118.61	276.75	118.61	296.52	6068.78	N2306803.97	2181=N829019.91	Do not Import
Frozen Chicken	807	201.75	64.56	24.21	56.49	24.21	60.53	1238.75	N470861.26	2391.1=N908881.02	Import
Frozen Turkey	1046.5	261.63	83.72	31.4	73.26	31.4	78.49	1606.4	N610608.70	1740.8=N661695.49	Import
Commercial Boiler	60000	15000	4800	1800	4200	1800	3000	90600	N34437966	98000=N37250780	Import
Laptop	700	175	56	21	49	21	35	1057	N401776.27	477.2=N181388.49	Do not Import
Automobile	60000	15000	4800	1800	4200	1800	4500	92100	N35008131	11000=	Do not

										N418121 0	Impo rt
Televisi on Set	600	150	48	18	42	18	30	906	11000= N418121 0	615= N23376 7.65	Do not Impo rt

Legend:

*The Nigerian Government does not provide subsidies for imported goods from Poland.

Sources: i. World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) Agflow-Digitizing Agricultural markets. v) UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports vi) Nigeria's Revenue Authority-Customs, Tariffs and Levies.

Table 3: Import Parity Prices for South Africa's Goods Imported from Poland ($)

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland transport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Rand	Current Home Price as at year 2022	Import Advice
Wheat	350	87.5	28	10.5	24.5	10.5	35	546	9009	303= 4999.5	Do not Import
Rye	260	65	20.8	7.8	18.2	7.8	26	405.6	6692.4	426= 7029	Import
Maize	323	80.75	25.84	9.69	22.61	9.69	32.3	503.8 8	8314.02	305.4= 5039.1=	Do not Import
Barley	305	76.25	24.4	9.15	21.35	9.15	30.5	475.8	7850.7	251.9= 4156.35	Do not Import
Oat	300	75	24	9	21	9	30	459	7573.5	240.4= 3966.6	Do not Import
Fresh Chicken	395 3.6	988.4	316.29	118.61	276.7 5	118.6 1	395	6167. 26	101759.7 9	776.8= 12817.2	Do not Import
Frozen Chicken	807	201.7 5	64.56	24.21	56.49	24.21	81	1259. 22	20777.13	823.7= 13591.05	Do not Import

Frozen Turkey	1046.5	261.63	83.72	31.4	73.26	31.4	105	1632.91	26943.02	1004.9=16580.85	Do not Import
Commercial Boiler	60000	15000	4800	1800	4200	1800	3000	90600	1494900	98850=1631025	Import
Laptop	700	175	56	21	49	21	35	1057	17440.5	672.4=11094.6	Do not Import
Automobile	65000	16250	5200	1950	4550	1950	3250	98150	1619475	9000=148500	Do not Import
Television Set	600	150	48	18	42	18	30	888	14652	53.2=877.8	Do not Import

Note: All transactions were assumed to be done in US Dollars ($)

Legend:

*The South African Government does not provide subsidies for imported goods from Poland.

Sources: i. World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) Agflow-Digitizing Agricultural markets. v) UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports vi) South Africa's Revenue Authority-Customs, Tariffs and Levies

Table 4: Import Parity Prices for Egypt's Goods Imported from Poland ($)

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland ransport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Egyptian Pounds	Current Home Prices(~~₦~~) as at year 2022	Import Advice
Wheat	350	87.5	28	10.5	24.5	10.5	43.75	554.75	8709.58	512.3=8043.11	Do not Import
Rye	260	65	20.8	7.8	18.2	7.8	32.5	412.1	6469.97	327=5133.9	Do not Import

Maize	323	80.75	25.84	9.69	22.61	9.69	40.48	512.06	8039.34	430.8=6763.56	Do not Import
Barley	305	76.25	24.4	9.15	21.35	9.15	38.13	483.43	7589.85	113.8=1786.66	Do not Import
Oat	300	75	24	9	21	9	37.5	475.5	7465.35	440.8=7077.56	Do not Import
Fresh Chicken	3953.6	988.4	316.29	118.61	276.75	118.61	494.2	6266.46	98383.42	2279.3=35785.01	Do not Import
Frozen Chicken	807	201.75	64.56	24.21	56.49	24.21	100.88	1279.1	20081.87	1175.4=18453.78	Do not Import
Frozen Turkey	1046.5	261.63	83.72	31.4	73.26	31.4	130.81	1658.72	26041.9	2599.7=40815.29	Import
Commercial Boiler	60000	15000	4800	1800	4200	1800	9000	96600	151662 0	113500=1781950	Import
Laptop	700	175	56	21	49	21	105	1127	17693.9	436.4=6851	Do not Import
Automobile	60000	15000	4800	1800	4200	1800	9000	88500	138945 0	22800=357960	Do not Import
Television Set	600	150	48	18	42	18	90	966	15166.2	65.1=1022.07	Do not Import

Legend:

*The Egyptian Government does not provide subsidies for imported goods from Poland.

Sources: i.World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) Agflow-Digitizing Agricultural markets. V)UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports vi) Egypt-Macrotrends.net: Tariffs Rates.

Morocco (Table 5), Kenya (Table 6), and Ghana (Table 7) also had robust import parity prices for oats, while Kenya and Ghana are both favoured in the bilateral barley trade with Poland.

Table 5: Import Parity Prices for Morocco's Goods Imported from Poland ($)

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland transport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Moroccan Dirham	Current Home Prices as at year 2022	Import Advice
Wheat	350	87.5	28	10.5	24.5	10.5	52.5	563.5	5353.25	312.6= 2969.7	Do not Import
Rye	260	65	20.8	7.8	18.2	7.8	39	418.6	3976.7	328.5= 3120.75	Do not Import
Maize	323	80.75	25.84	9.69	22.61	9.69	48.45	520.03	4940.29	222.9= 2117.55	Do not Import
Barley	305	76.25	24.4	9.15	21.35	9.15	45.75	491.05	4664.98	267.3= 2539.35	Do not Import
Oat	300	75	24	9	21	9	45	483	4588.5	491.5= 4669.25	Import
Fresh Chicken	3953.6	988.4	316.29	118.61	276.75	118.61	593.04	6365.3	60470.35	1908.6= 18131.7	Do not Import
Frozen Chicken	807	201.75	64.56	24.21	56.49	24.21	121.05	1299.27	12343.07	1956.3= 18584.85	Import
Frozen Turkey	1046.5	261.63	83.72	31.4	73.26	31.4	156.98	1684.89	16006.46	911.9= 8663.05	Do not Import
Commercial Boiler	60000	15000	4800	1800	4200	1800	12000	99600	945200	108300= 1028850	Import
Laptop	700	175	56	21	49	21	140	1162	11039	688.7= 6542.65	Do not Import

Automobile	60000	15000	4800	1800	4200	1800	12000	99600	945200	6171.5=58629.25	Do not Import
Television Set	600	150	48	18	42	18	120	996	9462	92.1=874.95	Do not Import

Note: All transactions were assumed to be done in US Dollars ($)

Legend:

*Moroccan Government does not provide subsidies for imported goods from Poland.

Sources: i.World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) *Agflow*-Digitizing Agricultural markets. V) UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports vii) Morocco's Revenue Authority-Customs, Tariffs and Levies

Table 6: Import Parity Prices for Kenya's Goods Imported from Poland ($)

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland transport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Kenyan Shilling	Current Home Prices as at year 2022	Import Advice
Wheat	350	87.5	28	10.5	24.5	10.5	35	546	58149	271.7=28936.05	Do not Import
Rye	260	65	20.8	7.8	18.2	7.8	26	405.6	43196.4	1321.8 = 140771.7	Do not Import
Maize	323	80.75	25.84	9.69	22.61	9.69	32.3	503.88	53663.22	458.3=48808.95	Do not Import
Barley	305	76.25	24.4	9.15	21.35	9.15	30.5	475.8	50672.7	539.6=57467.4	Import
Oat	300	75	24	9	21	9	30	468	49842	488.5=52025.25	Import
Fresh Chicken	3953.6	988.4	316.29	118.61	276.75	118.61	395.4	6167.66	656855.79	2395.9 = 255163.35	Do not Import
Frozen Chicken	807	201.75	64.56	24.21	56.49	24.21	80.7	1258.92	134074.98	2411.2 =	Import

										256792.8	
Frozen Turkey	1046.5	261.63	83.72	31.4	73.26	31.4	104.7	1632.61	173872.97	2873.6 = 306038.4	Import
Commercial Boiler	60000	15000	4800	1800	4200	1800	15000	102600	10926900	125000 = 13312500	Import
Laptop	700	175	56	21	49	21	70	1092	116298	357.3= 38052.45	Do not Import
Automobile	60000	15000	4800	1800	4200	1800	15000	102600	10926900	65300= 6954450	Do not Import
Television Set	600	150	48	18	42	18	30	906	96489	540.6= 57573.9	Do not Import

Note: All transactions were assumed to be done in US Dollars ($)

Legend:

*Kenyan Government does not provide subsidies for imported goods from Poland.

Sources: i.World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) *Agflow*-Digitizing Agricultural markets. V) UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports. vi) Kenyan Revenue Authority-Customs, Tariffs and Levies

Table 7: Import Parity Prices for Ghana's Goods Imported from Poland ($)

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland transport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Ghanaian Cedi	Current Home Prices as at year 2022	Import Advice
Wheat	350	87.5	28	10.5	24.5	10.5	17.5	528.5	2959.6	242.8= 1359.68	Do not Import
Rye	260	65	20.8	7.8	18.2	7.8	3.1	382.7	2143.12	120.9= 677.04	Do not

											Import
Maize	323	80.75	25.84	9.69	22.61	9.69	16.15	487.73	2731.29	335.1=1876.56	Do not Import
Barley	305	76.25	24.4	9.15	21.35	9.15	15.25	460.55	2579.08	547.8=3067.68	Import
Oat	300	75	24	9	21	9	15	453	2536.8	537.5=3010	Import
Fresh Chicken	3953.6	988.4	316.29	118.61	276.75	118.61	197.68	5969.94	33431.66	1084.3=6072.08	Do not Import
Frozen Chicken	807	201.75	64.56	24.21	56.49	24.21	40.35	1218.55	6823.88	1081.8=6058.08	Do not Import
Frozen Turkey	1046.5	261.63	83.72	31.4	73.26	31.4	52.33	1580.24	8849.34	1049.5=5877.2	Do not Import
Commercial Boiler	60000	15000	4800	1800	4200	1800	12000	99600	557760	106000=593600	Import
Laptop	700	175	56	21	49	21	140	1162	6507.2	443.9=2385.84	Do not Import
Automobile	65000	16250	5200	1950	4550	1950	13000	107900	604240	3293.9=18445.84	Do not Import
Television Set	600	150	48	18	42	18	120	996	5577.6	102.4=573.44	Do not Import

Note: All transactions were assumed to be done in US Dollars ($)

Legend:

*Ghanaian Government does not provide subsidies for imported goods from Poland.

Sources: i.World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) *Agflow*-Digitizing Agricultural markets. V)UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports vi) Ghana Revenue Authority-Customs, Tariffs and Levies

The reason for this might not be unconnected with the fact that, presently, there is a limited supply of the goods in the African markets and Poland can further explore this opportunity to export more

of the items to further buoy its foreign trade relations with African countries. The estimation of the import parity prices was used to further re-confirm the basis for the competitiveness (or otherwise) of the market prices of the Polish imports in the African markets and those from the United Kingdom as a major alternative market for many African countries. High parity prices normally indicate high level of competitiveness while limited (or no parity prices) indicate reduced or zero competitiveness in market prices of the commodities in question. Findings of the study also confirmed that Poland had a better market competitive advantage over the United Kingdom in the bilateral trade of frozen chicken, frozen turkey, and commercial boilers because it can supply the Nigerian markets at relatively higher import parity prices ($1238.75, $1606.4, and $90600) compared to those of the United Kingdom (Table 8). However, the United Kingdom enjoys a better market competitive advantage in the supply of dry maize to the Nigerian market compared to Poland. This may be due to lesser cost of freight and other charges.

Table 8: Import Parity Prices for Nigeria's Imported Goods from the United Kingdom 2022

Price/Ton/ Unit	FOB Price	Freight Charges	Insurance	Unloading Charges at the Port	Storage/ Handling charges at the port	Inland transport charges	Tariffs	IPP	IPP using official rate of $ to local currency, Naira,	Current Home Prices(₦) as at year 2022	Import Advice
Wheat	355	53.25	28.4	10.65	24.85	10.65	17.75	500.55	190264.06	422.3=N160520.45	Do not Import
Rye	238	35.7	19.04	7.14	16.66	7.14	11.9	328.44	124843.33	385=N146342.35	Import
Maize	351	52.65	28.08	10.53	24.57	10.53	17.55	494.91	188120.24	540=N205259.4	Import
Barley	277	41.55	22.16	8.31	19.39	8.31	13.85	390.57	148459.56	276.9=N105252.46	Do not Import
Oat	286	43.2	22.88	8.58	20.02	8.58	14.3	403.56	124340.87	321=N122015.31	Do not Import
Fresh Chicken	2886	432.9	230.88	86.58	202.02	86.58	144.3	4069.26	1253779.7	2181=N829019.91	Do not Import
Frozen Chicken	745	111.75	59.6	22.35	52.15	22.35	37.25	1050.45	399286.55	2391.1=	Import

										N90888 1.02	
Frozen Turkey	810	121.5	64.8	24.3	56.7	24.3	40.5	1142. 1	434123.6 3	1740.8= N66169 5.49	Impo rt
Commer cial Boiler	550 00	8250	4400	1650	3850	1650	2750	7755 0	2947753 0.5	98000= N37250 780	Impo rt
Laptop	650	97.5	52	19.5	45.5	19.5	32.5	916.5	348370.8 2	477.2= N18138 8.49	Do not Impo rt
Automo bile	584 00	8760	4672	1752	4088	1752	2920	8234 4	3129977 7.84	11000= N41812 10	Do not Impo rt
Televisi on Set	550	82.5	44	16.5	38.5	16.5	27.5	775.5	294775.3 1	615= N23376 7.65	Do not Impo rt

Note: All transactions were assumed to be done in US Dollars ($)

Legend:

*Nigerian Government does not provide subsidies for imported goods from the United Kingdom.

Sources: i.World Integrated Trade Solution ii) Business and Economic Data for 200 countries iii) The GlobalEconomy.com iv) *Agflow*-Digitizing Agricultural markets. v)UNCTAD Trains for most favoured Nations and Applied Tariffs on Imports vi) Egypt-Macrotrends.net: Tariffs Rates vii) Ghana Revenue Authority-Customs, Tariffs and Levies.

4.5: Challenges to the Polish trading activities with African countries

Bilateral trade relations between Poland and African countries have different dimensions. These dimensions are determined by the socio-economic variables that prevail in many of these African economies. Oftentimes, the challenges relating to the logistics at the ports, inadequate storage/warehouse facilities, poor distribution network and low-value addition are familiar encumbrances in international trades involving African countries and countries belonging to other regions of the world (NEPC,2012). Today, the Polish trade with African countries is noted to amount to a meager 1 per cent of the total trade (UN Trade Statistics,2022). But there is the potential to increase it to 3 per cent shortly. Hence, the government of Poland, through its foreign missions in Africa and the Polish Information and Foreign Investment Agency (PAIIZ), is now working hard, more than ever before, to step up on foreign trade relations and investments with many African countries. According to Grzegorczyk (2015), the following are some of the challenges to sustainable Poland's export trade to African countries.

Conventional Trade Barriers: These are the official barriers often put in place by the instrument of government concerning international trading activities. They are the formally recognized inhibitions to free trade across nations. These barriers include tariffs (or duties), customs procedures, administrative burdens, import licensing, standards, and conformity assessments,

labelling and packaging requirements, among others. Many African countries often find it difficult to meet the basic requirements of many of these barriers hence they find it difficult to successfully go into trade relations with Poland.

Handling Periods and Bureaucracy in Trading across Borders: As a central European country, Poland is situated in a far distant location from many African countries. Thus, the long distances between the two blocs often cause some delay in the handling/ processing of export and import documents. Specifically, it takes some 17 days to export and 16 days to import in Poland. This is significantly higher than the average period for the same activities among members of the Organization of Economic Co-operation and Development (OECD) in Europe. Poland-African trades are expected to thrive better if the handling periods and bureaucracy are reduced.

Low-level Business Operations by the Polish and African Business Organizations: The rather small-level business operations and limited financial capabilities of many Polish companies often limit their penetration in foreign markets. Thus, they often need the support of the government for successful business deals with African countries and other parts of the world. Again, the Polish government, under Polish Government Credit Agreements, often grants loans to selected African countries to facilitate export business between Warsaw and their countries. These agreements are often concluded once trade partners from both countries have reached a consensus. Poland signed such an agreement, among others, in 2010 with Angola, for Euro60 million grants. Grzegorczyk (2015) further stated that in 2014, the government of Poland signed an agreement with Ethiopia for Euro 50 million business grants to help enhance trade relations. The Polish government can step up on such credit agreements/loan schemes if it wants to further enjoy trade relations with the African countries.

Political Crises and Civil Unrest in Africa

The unending political crises and civil unrest in many African countries constitute a hindrance to the successful export trades in the continent. Intra-state conflict, terrorism, and unconstitutional changes of government are three of the biggest security issues in Africa. In 2021 alone, nine countries in Africa—Burkina Faso, Cameroon, Chad, Democratic Republic of Congo, Mali, Mozambique, Niger, Nigeria, and Somalia—experienced conflicts with Islamic States (IS) within their territories. IS expanded into Tanzania in 2020, the first year that a state-based conflict in Tanzania appeared in the database of terrorism! This development, for instance, is a disincentive to the Polish foreign direct investment in the continent since diplomatic support is crucial to government contracts. To ensure rather robust export trade relations between Poland and the African countries, therefore, there is the need to find workable solutions to all the aforementioned challenges that hinder their smooth trade relations over time.

5. CONCLUSION

Poland is an important economic partner with many African countries, the European Union, and Asian countries. Top among those Polish exports to the African markets include machinery, electronics, vehicles and spare parts, furniture, and plastics while agricultural goods such as rye, barley, wheat, oats, and cattle beef and poultry products are also major exports to Africa.

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Grzegorczyk (2015) noted that the bulk of Poland's exports were targeted at developed nations while less than 10 per cent went to the developing countries of Africa and Asia. It was added that the Polish government's G*oAfrica* programme had boosted the Polish-African trade by 25 per cent. To make more exploits therefore, it is contingent on the country to move further afield by expanding its trade relations with more African countries, especially given the recent economic recession/social crises in Europe, the Baltic region and Russia and Ukraine which had remained, until now, the traditional Polish markets for a long time. However, these traded goods need to contest for market acceptability and economic prices that are considered consistent with the transactional costs between Warsaw and African countries to make the trading activities very competitive and rewarding especially since many developed countries of Asia, Europe and America also market their products in Africa. There is also the need to know the level of market acceptability, comparative advantage and import parity prices for these goods in the African markets. The analysis of the 20-year data (2003-2022), using various models, indicated that for the bilateral trade relations between Poland and Egypt, the average trade competitiveness indices for agricultural commodity exports stood at 0.7008,0.8241, -0.0905 and -0.2207 for foodstuffs and beverages, live animals and animal products, animals and vegetable fats, and raw hides and skin products respectively. This implies higher export trade competitiveness for Poland in foodstuffs and beverages and live animals and animal products compared to the other two agricultural commodities. Similarly, for the manufactured products, the average export trade competitiveness indices were 0.9584,0.852,0.9250,0.7257 and -0.6557 for mineral fuels, lubricants, boilers, machinery and appliances, vehicles, aircraft parts and vessels, chemicals and allied products and plastics, rubbers, and related items. Similarly, Poland-South Africa's trade relations indicate that the average trade competitiveness indices for the selected groups of agricultural commodities are 0.2043,0.5792, -0.9568, and -0.6358 for foodstuffs and beverages, live animals and animal products, raw hides and skin products, and animals and vegetable fats respectively. These indices again revealed that there was a moderate level of export of agricultural commodities from Poland to South Africa within the period under review. The largest export quantities were recorded for the live animals and animal products while Poland imported a chunk of hides and skin products from the Republic of South Africa as well. For the manufactured products, the average trade competitiveness indices stood at 0.3599,0.2409,0.2917,0.3934 and 0.1336 for the commercial boilers, machinery and appliances, vehicles, aircraft, parts and vessels, plastics, rubbers, and other similar items, chemicals and allied products, and mineral fuels, and lubricants respectively. For the bilateral trade relations between Poland and Nigeria, the estimated average Revealed Comparative Advantage (RCA) indices for animals and vegetable fats, foodstuffs and beverages, live animals and animal products and raw hides and skin products were 2.12, 0.7161, 2.1867 and 0.8372 respectively. These indices indicated that Poland enjoyed the highest export trade relations with Nigeria in live animals and animal products and least in foodstuffs and beverages. Comparatively, the estimated average RCA indices for the traded manufactured goods between the two countries indicated that plastics, rubber and related items, chemicals and applied products,

commercial boilers, machinery and electrical appliances, vessels, aircraft, parts and vessels and mineral fuels and lubricants were 0.5189,0.8922,0.6983,0.0356 and 0.1139 respectively.

Findings also indicated that foodstuffs and beverages with the highest total value of $353,498.0 were exported by Poland to the Egyptian market between 2005 and 2022. South Africa had the second highest value while Kenya accessed the least of the Polish foodstuffs and beverages exports with total values of $303,285.4 million and $14,550.4 million respectively. South Africa and Egypt had better import parity prices in the rye, and frozen turkey respectively. Morocco, Kenya, and Ghana also had robust import parity prices for oats, while Kenya and Ghana are both favoured in the bilateral barley trade with Poland. Generally, however, all six African countries were favoured in the commercial boilers trade with Warsaw as they all recorded impressive import parity prices. Thus, in the Poland-Egypt trade relations, there is higher export trade competitiveness for Poland in foodstuffs and beverages and live animals and animal products compared to raw hides and skin products and animals and vegetables. It is therefore recommended that Poland should step up on those two groups of agricultural commodities which provide her higher export trade competitiveness with Egypt. With this, her foreign export earnings, and indeed, the GDP, will soar. In Poland-South Africa trade relations, there was a moderate level of export of agricultural commodities from Poland to South Africa. The largest export quantities were recorded for the live animals and animal products while Poland imported a chunk of hides and skin products from the Republic of South Africa as well. To further strengthen the bilateral trade relations between the two countries therefore, it is recommended that Poland expends more resources on the export of live animals and animal products while South Africa needs to increase her profile on the export of hides and skin to Poland to further enhance her foreign earnings. Again, there is a need to minimize all existing trade relations between the two countries so that they can further widen the volume of trade.

The RCA indices of Poland-Nigeria trade relations indicated that Poland enjoyed the highest export trade relations with Nigeria in live animals and animal products and least in foodstuffs and beverages. Comparatively, the estimated average RCA indices for the traded manufactured goods between the two countries indicated that plastics, rubber and related items, chemicals and applied products, commercial boilers, machinery and electrical appliances, vessels, aircraft, parts and vessels and mineral fuels and lubricants were 0.5189,0.8922,0.6983,0.0356 and 0.1139 respectively. It therefore recommended that Poland should invest more in the export of live animals and animal products to Nigeria. Such investment could be extended to commercial animal ranching under an intensive management system with a modern agribusiness management touch and supply value chain which can create multiple 1000s of jobs and increase household incomes in Nigeria, thus jack up the foreign exchange earnings of Poland. It is also recommended that Poland makes more investments in chemicals and allied products where it recorded the highest average RCA index of 0.8922 if she wants to expand her foreign exchange earnings in her bilateral trade with Nigeria. Such investments may be extended to Nigeria's upstream (production) and downstream (marketing/distribution) of the petrochemical sector of Nigeria's economy. This may be like the exploit of the Polish PKN Orlen in a Lithuanian oil refinery in Mazeikiu, Lithuania.

The result of the analysis of the quantities of agricultural commodities that were traded between Poland and Egypt indicated that foodstuffs and beverages, which had the highest total value of $353,498.0, were exported by Poland to the Egyptian market between 2005 and 2022. It is thus recommended that Poland should further expand its trade with Egypt in this area since the market is assured (with an aggregate population of 102.88 million people) a stable consumer price index of 191 points and a food inflation rate of 8 per cent in 2020. South Africa and Egypt had better import parity prices in the rye, and frozen turkey respectively. Morocco, Kenya, and Ghana also had robust import parity prices for oats, while Kenya and Ghana are both favoured in the bilateral barley trade with Poland. Generally, all six African countries were favoured in the commercial boilers trade with Warsaw as they all recorded impressive import parity prices. Based on this, it is recommended that the Polish manufacturing sector should expend more resources in the manufacture of commercial boilers (different capacities), for export to the African markets since the import parity price is favourable as these items cost more in the local African markets. However, it is equally important to minimize the existing trade restrictions between Warsaw and the African markets if the ultimate aim of expanding trade volumes and accruable foreign earnings will be attained.

Limitations of the Study Requiring Future Research

i.Future studies could focus attention on the energy, forestry, and wildlife resources sectors where African markets are presently considered not competitive with imported goods from overseas due to poor production technologies and limited technical skills.

ii. Future studies could also be extended to other African countries with relatively smaller trade volumes with Poland. This will make it possible to determine the levels of comparative advantages and market competitiveness of the manufactured and agricultural goods across different zones on the African continent.

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