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The Commodity Market and Terms of Trade: Focus on Africa.

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INTRODUCTION

The global commodity market plays a vital role in shaping international trade and economic development. Commodities such as oil, natural gas, and gold have significant implications for the global economy, serving as key drivers of trade, energy security, and economic growth. Understanding the dynamics of these markets and their impact on individual countries is crucial for assessing economic performance and formulating effective policies.

This thesis aims to explore the concept of "Terms of Trade" and its relevance in the context of a developing country, specifically Nigeria. Moreover, one of the objectives of this thesis is to prove the existence of the so-called “Resource Curse”, a phenomenon coined by the British economist Richard Auty (1993). The concept of the Resource Curse suggests that countries relying heavily on commodity exports experience not only limited economic growth but also various negative economic and social outcomes. These include issues like corruption, political instability, and environmental degradation. In essence, the Resource Curse highlights the detrimental effects associated with a heavy dependence on commodity exports, extending beyond just economic stagnation.

Nigeria, with its rich endowment of natural resources, including oil, natural gas, and gold, provides an ideal case study suitable to analyse the economic and commercial dynamics associated with these commodities and their impact on the country's Terms of Trade. By examining Nigeria's trade patterns and its dependency on these key commodities, it is possible to gain valuable insights into its economic performance, development prospects, and vulnerabilities.

This thesis consists of four chapters, each delving deeper into the different aspects of commodity markets. The first chapter provides a comprehensive overview of the factors influencing the Terms of Trade, including commodity prices, supply and demand dynamics, international political and economic factors, domestic policies, and exchange rates.

The second chapter is focused on the specific commodities of interest, namely oil, natural gas, and gold. Their production, consumption, and trade patterns will be examined, highlighting their significance in the world’s economy.

The third chapter will take a broader perspective, analysing the African commodity market as a whole. The importance of commodity exports for the continent's economies will be assessed and the extent to which these resources shape economic growth, development strategies, and regional integration efforts will be investigated.

Finally, in the fourth chapter, the spotlight is to shift to Nigeria, where an in-depth analysis of its Terms of Trade will be conducted. By closely examining the country's dependency on the oil sector, the implications of the heavy reliance on Nigeria's economy and development prospects will be evaluated. In particular, this analysis will span the period from 2015 to 2021, covering the recent volatility in global oil prices and its impact on Nigeria's Terms of Trade.

CHAPTER I: THE CONCEPT OF TERMS OF TRADE

1.1 Introduction

The Terms of Trade (TOT) of a nation define the crucial economic metrics which measure gains of a country from international trade. It can be computed by simply dividing a country's export prices by its import prices, in order to stress its ability to finance imports based on the return of its exports. In detail, it is possible to distinguish different measures and definitions of Terms of Trade which allow a more holistic view of a nation's economic performance (Salvatore, 2013). However, most of the discussion in the economic literature has been in terms of the Net Barter Terms of Trade, often simply referred to as "the Terms of Trade".

i. The Commodity or Net Barter Terms of Trade

Being first introduced into the modern economic world by Taussig (1927) with the name of "Net Barter Terms of Trade", and later referred to as "Commodity Terms of Trade" by Jacob Viner (1952), that is the principal and most used definition of the concept. The Net Barter Terms of Trade are computed as the ratio of the price of country's exported commodity to the price of its imported commodity.

However, since the traded commodities are far more than two, the Commodity Terms of Trade are determined by using price index of exports and the price index of imports (Salvatore, 2013). Then, the ratio is usually multiplied by 100 to express the value in percentages.

$N = (P_X / P_M)\ 100$

Even though the index properly represents the purchasing power of exports in paying for imports and its use is widespread to analyse changes in countries' trade position, it suffers from some drawbacks.

Indeed, the composition of index numbers of export and import prices has several problems related to the choice of the commodities to be used and the resulting price

quotations of them, but also to the use of appropriate weights and the method for computing them.

In addition, the Net Barter Terms of Trade ignore qualitative changes in the trade position of a country because it focuses its attention just on the relative changes in prices between the current and a base period. As an example, we may refer to the fact that the ratio neglects factors which influence export and import prices. Changes in productivity, costs, wages, general business conditions and reciprocal demand in the trading countries are all determinants in trade prices.

Not only, a conclusion about the capacity of a country to import due to the improvement or worsening of the Commodity Terms of Trade cannot be drawn. Instead, this can be done appropriately by making use of the Income Terms of Trade which will be presented later.

Most importantly, the measure does not consider changes in the volume and quality of exported and imported commodities.

ii. The Gross Barter Terms of Trade

To overcome some of the deficiencies of the Net Barter Terms of Trade, Taussig (1927) introduced the concept of Gross Barter Terms of Trade. He stated that rather than relating import and export prices, we should compare quantities of imports and exports. Then, Taussig (1927) lamped together all exports of goods, services, and capital (incorporating even unilateral payments) in the index of exported quantities and did the same for the imported ones.

The Gross Barter Terms of Trade is represented by the ratio between the total physical quantities of imports (M) and the total physical quantities of exports (X) of a given country:

$G = M / X$

However, this practice of aggregating non-homogeneous quantities was really unpractical and for that reason criticized and rejected by many economists. Furthermore, just like the model Taussig (1927) was trying to improve, the Gross Barter

Terms of Trade completely ignore both the impact of changes in productivity and the changes in the quality and composition of foreign trade.

iii. The Income Terms of Trade

The Income Terms of Trade concept was developed by Dorrance (1948), who suggested to measure the changes in quantity of imports obtainable from the sale of a country's exports. That is, changes in the "real" export income of a country, measured in import terms (Dorrance, 1948).

The Income Terms of Trade are determined by weighting the Net Barter Terms of Trade by the volume of exports. Therefore, it refers to the index of the value of exports (quantity multiplied by price) divided by the price of imports.

$I = (P_X / P_M) Q_X$

As it can be noticed, a rise in the exported quantity and/or export prices, and a fall in the prices of imports (and vice versa) will increase the export-based capacity of a country to import.

This particular concept of Terms of Trade is of great importance for the less developed countries, whose development is mostly built on imported capital goods. The fact is that their capacity to import is low because of lower export prices and quantities of exported goods, whereas the prices of imports are relatively higher. For that reason, even small changes in Income Terms of Trade are relevant for those countries.

Yet, as in the case of the previous two quantities examined so far, the Income Terms of Trade is incomplete. Indeed, *"it is limited to a measure of changes in commodity income and expenditure only"* (Dorrance, 1948), and cannot provide a precise measure of the gain from trade. Indeed, it is not a fair representation of a country's total import capacity (which depends also on capital inflows and other factors), but it indicates only the capacity to import based on a country's export.

To conclude, it can be claimed that the Income Terms of Trade is not a good alternative to the Net Barter Terms of Trade since it is not thorough enough, but it turns out to be a good supplement to it.

iv. The Single Factoral Terms of Trade

The Single Factoral Terms of Trade concepts were first introduced by Jacob Viner (1937), who assumed the Net and the Gross Terms of Trade as incomplete and misleading measures of the change in trading gains of a country.

According to Viner (1937), one important factor completely ignored by the two indicators is the possibility of substantial changes in the productivity of a country's export sector. A nation's Single Factoral Terms of Trade are given by

$$S = (P_X / P_M) Z_X$$

where Z_X is a productivity index in the nation's export sector, that is the ratio of production costs used per unit of export on two different periods F_0 / F_1, where F_0 is the starting point of the comparison and F_1 a given year.

Thus, thanks to the new added value Z_x, which captures how labor inputs used in the production process change over time (combined with other factors of production), the Single Factoral Terms of Trade are able to measure the amount of imports the nation gets per unit of domestic factors of production embodied in its exports.

When investigating developing countries, where the improvement of production processes is a fundamental element for their growth, the Single Factoral Terms of Trade play a even greater role and could be considered more representative if compared to the commodity terms of trade.

Despite illusory advantages, there is no lack of criticism. The computation of the productivity index is really complicated due to the presence of non-quantifiable psychological and technical factors which cannot be captured adequately.

The Single Factoral Terms of Trade are not a reliable index of gain from trade yet. There is the possibility that the rise in the productivity index, which thanks to the subsequent cost reduction inevitably brings to an increase in the quantity exported, is likely to decrease even the export price itself (law of supply and demand), so transferring the attended gain from higher productivity and trade to the buyer country.

Ultimately, this measure underlies improvements in the productivity only in the export sector, failing to include, in the final considerations, possible changes in the productivity in the foreign countries.

v. The Double Factoral Terms of Trade

In order to overcome the last problem mentioned above, Viner (1937) developed the "Double Factoral Terms of Trade". As the definition may suggest, this measure includes, in the analysis, also changes in the productivity of the exported goods of the foreign country.

$$D = (P_X/P_M)\,(Z_X/Z_M)\,100$$

where Z_M is the import productivity index. Thus, the Double Factoral Terms of Trade measures how many units of domestic factors embodied in the nation's exports are exchanged per unit of foreign factors embodied in its imports (Salvatore, 2013).

However, just like the former measure developed by Viner, even this theory presents its limit, that is the exact quantification of productivity factors and changes with respect to both the export sectors of home country and the importing country.

For sure, the Net Barter Terms of Trade, the Income terms of trade, and the Single Factoral Terms of Trade are the most essential among the five measures here analysed.

At the same time, the last two are mainly of note for developing countries. In particular, the most favourable scenario to a developing country is the one where all those measures increase. However, a rise in *I* and *S* values is sufficient to define a situation as beneficial, even though considering a decrease in *N*.

1.2 Factors Influencing Terms of Trade

The use of TOT as an economic wealth indicator of a nation can cause analysts to make the wrong conclusions about gains of individual countries from international

trade. In fact, the change in the ratio could derive from different reasons that could draw a misleading picture of the whole scenario (Investopedia, 2022).

For example, an improvement in the Terms of Trade, in the short run, could mean more wealth, that is more can be imported for the same exports. However, it may also be the outcome of rising labour costs and therefore reflect declining competitiveness, cancelling the rise in wealth in the long term.

The complex relationship between price volatility and the TOT must be carefully analysed, and it is fundamental to specifically capture which the causes of the rise or the drop of import and export prices are. Here follow some of them:

1. Elasticity of Demand

The elasticity of demand for exports and imports of a country is one of the main factors influencing their Terms of Trade. The price elasticity of export quantifies how the export demand for a commodity reacts to a change in its price, other things unchanged. If export demand is price inelastic (that is rigid, < 1), then an increase in price of a commodity will not affect the request of it but, instead, it will increase the revenues deriving from its sale. On the other hand, an unfavourable scenario would be if the demand for imports is less elastic than the one for exports, since the country would have to pay more for the same quantity of the commodity (Cherunilam, 2008).

2. Elasticity of Supply

The same arguments can be done for the elasticity of supply. If the supply of a country's exports is more elastic than the imports, the terms of trade will tend to be favourable (Cherunilam, 2008).

3. Nature of Goods

Countries which mainly export primary goods and import manufactured goods have unfavourable Terms of Trade conditions since primary goods price are almost always lower than the manufactured ones. In addition, the income elasticity for primary products tends to be low. Thus, in the case of an increase in global income, there is a proportionately smaller percentage rise in the demand for agricultural products. Lower

rates of economic growths with respect to countries are one of the consequences deriving from such as situation (Cherunilam, 2008).

4. Economic Development

The economic development causes income to rise what consequently increase the demand for imported goods (especially if manufactured good); whereas on the supply side, the effect of the economic development is the increase in supply of import substitutes or import competing goods. The net effect on price volatility depends upon the extent of these two effects (Cherunilam, 2008).

5. Rate of Exchange

An appreciation of the domestic currency with respect to the foreign one will make exports more expensive and imports less expensive. Thus, a positive shock to the exchange rate of the domestic currency will improve the Terms of Trade of a country (Cherunilam, 2008).

6. Tariff Policy

Tariffs are used as a means of restricting imported goods and for that reason, it is likely to improve the Terms of Trade of the nation. Better to say, the effect of tariffs on the Terms of Trade will depend on how the foreign country reacts to the imposing of the tariff. Indeed, the foreign country could retaliate to the imposed restrictions, or in order to cover the increased costs, it could charge higher prices for the goods, lowering inevitably the domestic demand for them (Cherunilam, 2008).

1.3 Terms of Trade and Volatility

As it is possible to deduce from the above-mentioned factors, the Terms of Trade of a country must be considered as one of the most significant determinants of its economic growth. Not only, even though most of the economic literature defines the characteristics of a country as the dominant element of its growth performance, it is the Terms of Trade that play the key role in the development of that country.

Indeed, the close relationship between growth and Terms of Trade shocks has been investigated by several empirical analyses over the years. Easterly et al. (1993), in their paper entitled "Good policy or good luck? Country growth performance and temporary shocks", analysed long-run growth differentials in a large panel of countries concluding that Terms-of-Trade changes are highly correlated with growth. On the other hand, economic policies and country's characteristics contribute just a little to explain the observed lack of persistence in growth performance.

Furthermore, it is proven that growth rates are highly unstable over time, whereas country's characteristics are highly persistent.

Mendoza (1997) confirmed these results in his work "Terms-of-trade uncertainty and economic growth" (1997) where, using a sample of 40 developed and developing countries, he found out that economic growth is negatively impacted by high Terms of Trade volatility. In detail, he argued that changing in savings is the main way through which terms of trade influence growth.

The Terms of Trade have a marked impact especially on the economies of developing countries and the main problem is that fluctuations in their terms of trade are much higher than in developed countries. The Terms of Trade fluctuations in developing countries are even twice larger than in developed countries, according to a recent analysis (Baxter, 2000). The main cause is the strong dependence of developing countries on commodity exports, whose prices are more volatile than those of manufactured goods. Moreover, it is possible to notice sharp swings in the terms of trade affecting a large segment of their economies since developing countries generally have a high degree of openness to foreign trade.

Similarly, according to the economists Prebisch and Singer (1950), the Commodity Terms of Trade of developing nations tend to deteriorate over time and empirical analyses do provide support to their hypothesis.

The Prebisch-Singer Theory (1950) suggests that the prices of primary goods (such as raw materials and agricultural products) tend to decline relative to the prices of manufactured goods over time. This relative falling in the price of commodities has negative repercussions on developing countries which base a significant portion of their economies on the export of primary goods (Prebisch, 1950). The result is the deterioration of the Terms of Trade and it is primarily due to the much higher income

elasticity of demand for manufactured goods than for agricultural commodities and raw materials. Indeed, the demand for commodities increases less rapidly than the demand for manufactured goods. Furthermore, primary products have also a low-price elasticity of demand, so a decline in their prices tends to reduce revenue rather than increase it.

Another important reason to the falling of the Terms of Trade is the extremely distinct reaction to productivity increases in developed and developing nations. In fact, the response to productivity shocks is directly related to the widely differing conditions in the internal labor markets of the countries: in developed nations, given the scarcity of labor, most of the benefits deriving from an increment in productivity fall on their workers in the form of higher wages and income. Inevitably, costs of production and the prices of the manufactured goods exported by developed countries also increases (Rodney, 2002).

From the perspective of developing nations, where there is a surplus labor and large unemployment, productivity increases are reflected in lower production costs and, accordingly, in order to sell the "new" production in excess, in lower prices for their primary goods (Rodney, 2002).

All these facts together suggest that, because of their specialization in primary commodities, developing countries may obtain little benefit from industrial technical progress, either directly through higher productivity, or indirectly through improved Terms of Trade (Rodney, 2002).

1.4 Commodity Price Volatility

Changes in commodity prices can have a significant impact on a country's growth, especially if the country is heavily dependent on exports of commodities such as oil, minerals, or agricultural products.

Uncertainty, defined as a lack of knowledge about future events or outcomes, can have a relevant negative effect on trade flows and investment decisions (Novy et al., 2020). Indeed, global commodity price uncertainty plays a meaningful role on the macroeconomic activity of both advanced and emerging countries: a global commodity uncertainty shock leads to a thoroughly adverse impact on economic activity as

measured by investment, exports, consumption, or GDP, for both short and long horizons (Ferrara et al., 2022).

When commodity prices rise, countries that are net exporters of those goods can experience increased revenues from exports, leading to increased economic growth. This is because the higher prices for commodities translate into increased export earnings, which can then be used to finance investment, create jobs, and boost consumption. On the other hand, when commodity prices fall, countries that are net exporters of those goods may experience reduced revenues from exports, leading to lower economic growth. This can result in reduced investment, job losses, and decreased consumption.

Additionally, changes in commodity prices can also affect a country's terms of trade. If a country's terms of trade deteriorate due to falling commodity prices, the country will have to pay more for its imports relative to its export earnings. This can lead to a decline in the country's standard of living and economic growth.

Another fundamental point is that commodity price uncertainty is highly co-moving across countries, which shocks to commodity prices in one country are likely to affect prices in other countries (Ferrara et al., 2022). The phenomenon of excess co-movement of commodity prices, as the tendency of prices of different commodities to move together more than it would be expected based on their fundamentals, was already introduced by Pindyck et al. (1990). The excess co-movement arises because commodities prices are affected not just by the supply and demand factors of the commodities themselves, but also by factors that all of them commonly share. Meaningfully, current and expected future values of macroeconomic variables such as inflation, industrial production and interest rates affect current and expected future demands (and possibly supplies) of all commodities, and hence affect all their current prices (Pindyck et al., 1990). To add to this, supply shocks such as natural disasters, political instability, and regulatory changes can also have a significant impact on commodity prices.

Using statistical analysis and econometric techniques, Pindyck maintains that excess co-movement is a pervasive and persistent feature of commodity markets. He highlights the need to understand the underlying factors that drive commodity prices,

and to be cautious about assuming that prices of different commodities will always move independently.

Even the financialization of commodity markets brings about increased volatility in commodity prices, particularly in the short term, with investors using commodities as a hedge against inflation or as a speculative investment.

Moreover, the negative impact of commodity price fluctuation is magnified in developing countries which heavily rely on commodity exports and, as a consequence, have low levels of export diversification (Dehn et al., 2000).

For sure commodity export price volatility can provide a great impulse to economic growth in the short-term, but it can also have negative repercussions on long-term growth prospects if not properly managed. In fact, fluctuations in commodity prices can lead to significant volatility in a government's revenues and investment levels, and the negative effects can be particularly pronounced in countries with weak institutions and limited diversification (Collier et al., 2012). For this reason, countries with high levels of commodity dependence should aim to diversify their economies and reduce their reliance on commodity exports. Not only. These countries should consider implementing policies to reduce their exposure to commodity price volatility, such as hedging programmes or commodity stabilization funds (Dehn et al., 2000) and should also start funding for institutional development in order to reduce vulnerability to commodity price fluctuations (Collier et al., 2012).

In conclusion, the impact of changes in commodity prices on a country's growth depends on the country's level of dependence on commodity exports, the size and volatility of its commodity markets, and the ability of its economy to adapt to changes in commodity prices.

1.5 Commodity Prices and Inflation

Inflation is the increase in the prices of goods and services over time and cannot be measured by an increase in the cost of one product or service, or even of several products or services. Rather, inflation is a general increase in the overall price level of the goods and services in the economy (FED, 2016).

Commodity prices properly represent a direct channel for foreign shocks to impact domestic inflation, given that they are influenced by global demand and supply conditions. Firstly, to the extent that rising commodity prices reflect accelerating global demand for final goods, they may feed domestic inflationary pressures which also depend on the openness of the economy. Secondly, commodities are essential inputs into production. Because of that, if commodity price sharpening is sufficiently persistent to influence inflation expectations, agents may pass through rising input costs in the form of higher final-goods inflation (Cheung, 2009).

Therefore, higher commodity prices can have a significant impact on inflation, as they are a key input for many goods and services in the economy. When commodity prices rise, they may cause the cost of production to increase for companies, which could consequently lead to higher prices for consumers. As an example, energy is a critical input in the production process of many goods and services, so an increase in energy prices can get to a rise in the cost of producing these items. In such a case, transportation costs for goods are likely to increase if fuel prices go up, what can lead to an increase in the cost of living for consumers, as they may need to pay more for goods and services that require energy to be produced or transported**.** Thus, the result is that higher costs are passed to consumers in the form of higher prices.

Similarly, higher prices provoked by any reason for agricultural commodities like wheat, corn, and soybeans can increase the cost of food production, leading to higher prices for food products. Furthermore, higher commodity prices can lead to higher import prices, which can increase the cost of goods and services that are imported into a country. This can head to higher prices for consumers, as well as higher inflation rates.

The recent commodity prices fluctuations have driven inflation higher worldwide. Commodity prices are argued to be central indicators of inflation through two basic channels. The former is that they react in a quicker manner to general economic shocks, such as an increase in demand, and the latter is that some changes in commodity prices reflect idiosyncratic shocks (Ingenito, 1996). An example of an idiosyncratic shock could be an extreme weather event which decimates the supply of certain agricultural products and it is therefore reflected on overall products prices. Indeed, thanks to commodity prices flexibility and their capacity to respond to shocks

faster than the prices of other goods and services, eventual prices rise could signal a more general inflationary pressure (Cecchetti, 2008).

Overall, high and volatile commodity prices pose significant risks to the global economy. The effects will be felt on both inflation and growth, and will fall unevenly across countries, depending on whether they are exporters or importers of affected commodities and how higher prices affect household and corporate income. Higher commodity prices are likely to erode growth and lift inflation in the short term. (Deniz Igan et al., 2022). For instance, commodity price increases would generate completely inverse effects on the terms of trade of commodity importers versus commodity exporters, resulting in dampening income effects on the domestic economy of commodity importers, but stimulating effects for commodity exporters (Cheung, 2009).

Another essential thing to distinguish is the difference between temporary and persistent changes in commodity prices, and consequently taking into account the impact of these changes on the broader economy (Boughton, 1988). Indeed, governments and central banks have to carefully consider the nature of the change in the commodity price and take policy decisions accordingly, valuing their impact on the real economy (De Gregorio, 2012).

To conclude, the impact of higher commodity prices on inflation can vary as it depends on a range of factors, including the level of competition in the market, the ability of companies to absorb higher costs, and the response of central banks and policymakers to changes in inflation rates.

CHAPTER II: THE GLOBAL COMMMODITY MARKET

2.1 Introduction

Over the last century, the commodity market underwent notable transformations, driven by advancements in technology, changes in global economic policies and shifts in consumer demand. During that time, commodities such as oil, gold, and agricultural products played a crucial role in shaping the world economy, influencing trade relationships among nations and consequently impacting geopolitical dynamics (Dannreuther, 2013).

The 20th century witnessed even major shifts in commodity prices due to events such as the Great Depression, the World War II, and the OPEC oil embargo[1]. The post-World War II (WWII) economic expansion and, more recently, the rise of Emerging Markets and Developing Economies as important actors in the global economy, have increased commodity demand, especially for energy commodities, metals, and minerals (IEA, 2022). On the energy front, crude oil has become the most important commodity, replacing coal. Metal production has become more efficient thanks to innovations and productivity improvements. Food production, instead, has increased faster than population, so that nowadays most of the world's consumers have a larger access to adequate food supplies than they used to have a century ago.

In addition, the strengthening of emerging markets and increased globalization has brought new players into the commodity market, while innovations such as commodity derivatives and electronic trading have further revolutionized the way commodities are bought and sold.

[1] In October 1973, the first oil crisis took place when the Organization of Arab Petroleum Exporting Countries (OAPEC) imposed an oil embargo on nations that aided assistance to Israel during the Yom Kippur War. The embargo lasted until March 1974, and during this period the price of oil surged by almost 300%, rising from $3 per barrel ($19/m3) to almost $12 per barrel ($75/m3) worldwide, with prices in the US being even higher. The consequences of this embargo were significant and long-lasting, with many political and economic consequences, resulting in a global oil crisis (Hamilton, 2011).

Over the years, commodity prices have undergone significant fluctuations, driven by various factors such as changes in global supply and demand, geopolitical events, technological advancements, and weather-related disruptions.

As above stated, one of the most significant events that impacted commodity prices during the last century was the Great Depression of the 1930s. This economic downturn led to a sharp decline in commodity prices, including agricultural products, metals, and oil as demand contracted, and global trade was severely disrupted (Romer, 2003).

Later, during the post-World War II era, commodity prices experienced a period of relative stability as global economic growth and technological advancements fuelled demand for raw materials such as oil, steel, and copper.

In the 1970s, the OPEC oil embargo caused a significant spike in oil prices, leading to widespread inflation and economic disruption. This event led to a greater focus on improvements in energy efficiency and investments in alternative sources of energy, such as nuclear and renewable energy, since governments and businesses sought to reduce their dependence on oil and protect themselves against potential future price shocks (Ross, 2013).

Starting from 1980s, emerging market growth and increased globalization have further impacted commodity prices. China's rapid economic growth, for example, has led to a surge in demand for commodities such as oil, metals, and agricultural products, while also driving up prices.

More recently, the COVID-19 pandemic has led to significant disruptions in global supply chains, causing sharp fluctuations in commodity prices. For example, the pandemic led to a drop in demand for oil and gas, causing prices to plummet, while food prices spiked due to disruptions in supply chains and panic buying.

Overall, commodity prices have undergone significant fluctuations over the last decades, reflecting evolution in global economic trends and technological advancements, as well as geopolitical events and weather-related disruptions. Notwithstanding the many changes that have taken place, the commodity market continues to be an important driver of economic growth and development around the world. Indeed, commodity markets are a fundamental division of the global economy,

and developments in these markets have major effects on it. In turn, changes in the global economy materially affect commodity markets.

Over the course of the next thirty years, the growth of global demand for commodities is likely to decelerate as population growth slows, with many developing economies maturing and shifting their demand mix more toward consumption and services. The energy transition is likely to bring a major boost to metal-producing economies because technologies related to renewable energy tend to be more metals-intensive (IEA, 2022).

Thus, the ongoing transformation of global commodity markets will have profound implications for countries that depend on commodity production for economic growth, exports and fiscal revenues (IEA, 2022).

2.2 The Current Commodity and Energy Crisis: Some Context

The world is facing a global energy crisis of unprecedented depth and complexity, in which Europe is the main theatre, and natural gas is centre stage.

Even if the trigger of the crisis was Russia's invasion of Ukraine, tension on markets was already noticeable before the beginning of the conflict due to the speed of the economic rebound from the pandemic-induced fall in 2020. Indeed, while at the start of the pandemic the majority of commodities lost most of their values (since the reduced global demand), they quickly recovered amid rebounding economic activity and an array of supply disruptions (World Bank 2021). Overall, Russia's invasion of Ukraine has created significant uncertainty in the global commodity markets, which has led to increased volatility and higher prices for some commodities. In 2022, as a result of the invasion, the prices of natural gas, coal, wheat, barley, various seed oils, some types of fertilizer, copper, and tin reached their highest levels since 1960 and contributed to raise other energy and food prices to their highest levels in 15 years (Baffes, 2022).

The main fact is that Russia is a fundamental player in the global commodity market, as it is one of the world's largest producers and exporters of a wide range of commodities and, given its significant role in the production and export of those

commodities, any disruptions to its supply can have a significant global impact on the commodity market. Namely, Russia is the world's largest exporter of natural gas, and a profound portion of Europe's natural gas supply comes from Russia via pipelines that run through Ukraine. For instance, Russia's share of European gas demand rose from 30% on average in 2005-10 up to 40% in 2015-20 (Baffes, 2022). Europe's energy dependency on Russia differs from country to country and on types of energy needed, Overall, this dependence is significant and it can be considered as a strategic weakness. Approximately one-third of the European Union's (EU) natural gas supplies come from Russia, and some countries are even more heavily reliant on Russian gas. Natural gas prices in Europe reached all-time highs in August 2022 due to aggressive actions by several countries to rebuild their inventories as well as reduced flows of gas from Russia (World Bank, 2022).

The conflict has also affected agricultural commodities, particularly wheat. Ukraine is a major exporter of wheat, and the conflict has led to concerns about potential disruptions in wheat exports from the country.

However, the most visible consequence of the crisis, as already anticipated above, was a sharp increase in energy prices. High fuel prices were the main reason for constant stress on global electricity prices and the high cost of natural gas-fired power – typically the marginal source of generation – was the main factor behind a huge increment in EU wholesale electricity prices (Baffes, 2022). Wholesale electricity prices in the European Union tripled in the 2022, well above the 40% increase in the underlying average costs of generation.

As a result of higher natural gas prices in Europe, one of the most immediate was a sharp increase in European demand for liquefied natural gas (LND) imports: in the first eight months of 2022, net LNG imports in Europe rose by two-thirds (by 45 billion cubic metres) compared with the same period a year earlier (Baffes, 2022).

The current energy crisis has had significant impacts on consumers, particularly those in developing countries who are more vulnerable to energy price increase and, around the world, the consequences have varied according to the type of economy of the countries involved. Unfortunately, those consequences are clearly negative in

overall terms. Indeed, global growth is projected to fall from an estimated 3.4 percent in 2022 to 2.9 percent in 2023, then it is expected to be rising to 3.1 percent in 2024, well below the historical (2000–19) average of 3.8 percent (WEO, 2023).

The slowing down of global growth is primary due to the increasing of inflationary pressure and the resulting tighter monetary conditions caused by the current critical situation. Indeed, inflation has been significantly impacted by the global energy disaster, and policymakers need to consider these effects when formulating their economic policies. Central banks and governments responded to an energy crisis by adjusting their monetary and fiscal policies. Central banks raised interest rates to slow down spending and reduce inflation expectations. On the other hand, governments also implemented policies to promote energy conservation or invest in alternative energy sources to reduce dependence on expensive energy imports.

Overall, while short-term policy responses to the crisis have been focused on affordability and security of supply, most of the new policy initiatives aim to accelerate the structural transformation of the energy sector. The world's energy crisis has shown that the transition to renewable energy has been too slow, and strong efforts are needed to speed up the transition away from fossil fuels toward renewables (Hosseini et al., 2022). According to many research papers, a more rapid transition to clean energy sources and technologies would have helped to protect consumers and mitigate, at least, some of the upward pressure on energy prices. In recent years, the total amount of renewable energy has grown very fast; however, the development of renewables is lower than the increase in global energy demand overall. The transition from fossil fuels will occur someday, but currently, renewables are not keeping pace with increasing energy demand. Therefore, the non-renewable energy supply is still growing (Hosseini et al., 2022).

It can be easily pointed out that the current energy shock has already had a huge effect, which is not just an economic one. The crisis we are facing has provided us a vivid reminder – if one was needed – of the importance of energy security and energy diversification. In so doing, it has highlighted the fragility and unsustainability of many aspects of our current energy system and the wider risks that this poses for our economies and well-being (Baffes, 2022).

2.3 The Global Commodity Market: Overview

The world commodity market is a complex and dynamic system that involves the trading of various raw materials and products from around the world. Commodities are typically divided into two main categories, according to the way they are obtained: hard and soft commodities (Investopedia, 2021.). Hard commodities consist of natural resources that require extraction or mining, such as gold, oil, and rubber, while soft commodities are comprised of agricultural products, such as corn, wheat, coffee, sugar, soybeans, or livestock. Alternatively, the global commodity market can provide further categorizations for commodities, as it is segmented into various broad classifications determined by the nature of the commodities traded within it (Investopedia, 2021). Exchange-traded commodities can be conveniently grouped into three sectors:

1) Energy. The energy market is dominated by oil, natural gas and coal.
2) Metals. The metal market includes precious metals such as gold and silver, as well as industrial metals such as copper, aluminium and nickel. Precious metals are often used as a store of value.
3) Agriculture. This includes grains, as well as livestock products.

The largest share of the global commodity market is represented by the energy market, which is estimated to be approximately 55% of the global commodity market in 2021 (World Bank, 2022). The second in importance, instead, is the market of primary commodities and livestock representing approximately 18% of the global commodity market. On the other hand, metals represent the 14% of the global commodity market (World Bank, 2022). The remaining market share consists of precious metals, industrial materials, and others. It is crucial to note that these percentages can vary from year to year and may also be affected by factors such as supply and demand, global events, and changes in technology and industry. In fact, each commodity has its own market dynamics and price fluctuations, which are also influenced by agents such as weather conditions, geopolitical events, and government policies. As a result, commodity prices can be highly volatile and have a relevant impact on the global economy.

Here follow three kinds of commodities from a global current perspective: oil, natural gas, and gold. The choice of those three commodities is due to their relevance in the current world-wide economic context. Indeed, oil and natural gas markets are among the largest and most important commodity markets in the world, with significant implications for global trade, energy security, and economic growth. They also are closely linked to geopolitics, with energy resources being often a key factor in global power relations and conflict. In addition, even gold has also played a similar important role in geopolitics throughout history, and its status as a valuable and portable commodity has often made it a source of political power and influence. Thus, both oil and natural gas, as well as gold, are strongly linked to today's macroeconomic situation and it may be crucial to analyse them to gain a better understanding of their economic impact and importance.

Oil

Crude oil and petroleum fossil fuels are composed of hydrocarbons that originated from the remains of prehistoric marine animals and plants, such as diatoms, which thrived millions of years ago. These organic remains underwent a transformative process over several geological epochs as they were gradually buried under layers of sedimentary deposits consisting of sand, silt, and rock. The ensuing heat and pressure exerted by these layers facilitated the conversion of the organic matter into the liquid substance known as crude oil or petroleum. The term petroleum itself denotes "rock oil" or "oil from the earth" (McLeroy, 2023). Following the extraction of crude oil from the earth, it undergoes a refining process wherein its diverse constituents are segregated into distinct and practical petroleum products (EIA, 2022). In essence, petroleum (or just oil) encompasses both crude oil and its derivatives, whereas crude oil solely refers to the unrefined and untreated form of oil.

Oil is the most produced energy commodity in the world (crude oil and condensates), according to the International Energy Agency. The top oil-producing countries in the world are the United States of America, Russia, and Saudi Arabia, which collectively produce over one-third of the world's total oil supply. Other significant producers include China, Canada, Iran, Iraq and the United Arab Emirates. In the Euro-

zone, instead, the main oil producers are respectively Norway, United Kingdom, Italy and Denmark (EIA, 2022).

The Organization of the Petroleum Exporting Countries (OPEC[2]), which is an organization that includes some above-mentioned countries, also plays an important role in shaping global energy policies and has a significant impact on global oil prices. OPEC was established in 1960 and its 13 current member states hold more than 80% of the world's proven oil reserves (WEF, 2022). OPEC produces about 40% of the world's crude oil and its members' exports make up around 60% of global petroleum trade (WEF, 2022). OPEC's declared aim is to harmonise petroleum policies among member countries, in order to secure fair and stable prices for petroleum producers, an efficient, economic and regular supply of oil to consuming nations, and a fair return on capital to those investing in the industry (OPEC, 2023.). In late 2016, further 10 major oil producing countries including Russia aligned with the group to form an alliance known as OPEC+[3]. The creation of OPEC+ can be partly attributed to the challenge posed by the production capacity of non-member countries, which may potentially undermine OPEC's efforts to manage the supply and pricing of oil. It is noteworthy that OPEC+ wields an even greater level of influence over the global economy compared to OPEC (Bromberg, 2022). In fact, as economic and geopolitical conditions continue to evolve rapidly, these groups modify their oil production capacities, leading to fluctuations in oil supply levels and consequent volatility in oil prices.

Roughly 43% of the world's oil production came from just three countries in 2021—the U.S., Saudi Arabia, and Russia. Together, these three countries produced more oil than the rest of the top 10 combined. According to the International Energy Agency's Oil Market Report (February 2022), the total global oil production in 2021 was estimated to be around 96.6 million barrels per day (b/d). Of those 96.6 million b/d in 2021, about 73.7 million b/d were estimated to be of crude oil. It is worth noting that

[2] Current OPEC members are Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia, the United Arab Emirates and Venezuela (OPEC, 2023).

[3] Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan are among the OPEC plus nations (OPEC, 2023).

this amount represents a decline from the pre-pandemic levels of global oil production, which were closer to 100 million b/d in 2019.

On the other hand, as regard oil consumption, global oil demand was of 91.6 million b/d during the Covid-19 crisis in 2020, and then slightly increased to 97.1 million b/d in 2021 (EIA, 2023). Its use is concentrated in the energy sector, mostly in the transportation one that accounts for around 70 percent of global oil demand, followed by the industry sector and other non-energy use (IEA, 2022). Oil consumption growth started to slow over that year mainly because of COVID-19 lockdowns in China and kept on decreasing as a consequence of the outbreak of the Russia-Ukraine war in the next year, thus weakening demand. However, oil demand was more resilient in more advanced economies, thanks to government support through gasoline tax cuts and the use of fuel subsidies (WBO, 2022). Consumption forecasts are positive, indicating a possible increase to 100.9 million b/d in 2023, according to EIA's Short-term Energy Outlook, published in March 2023.

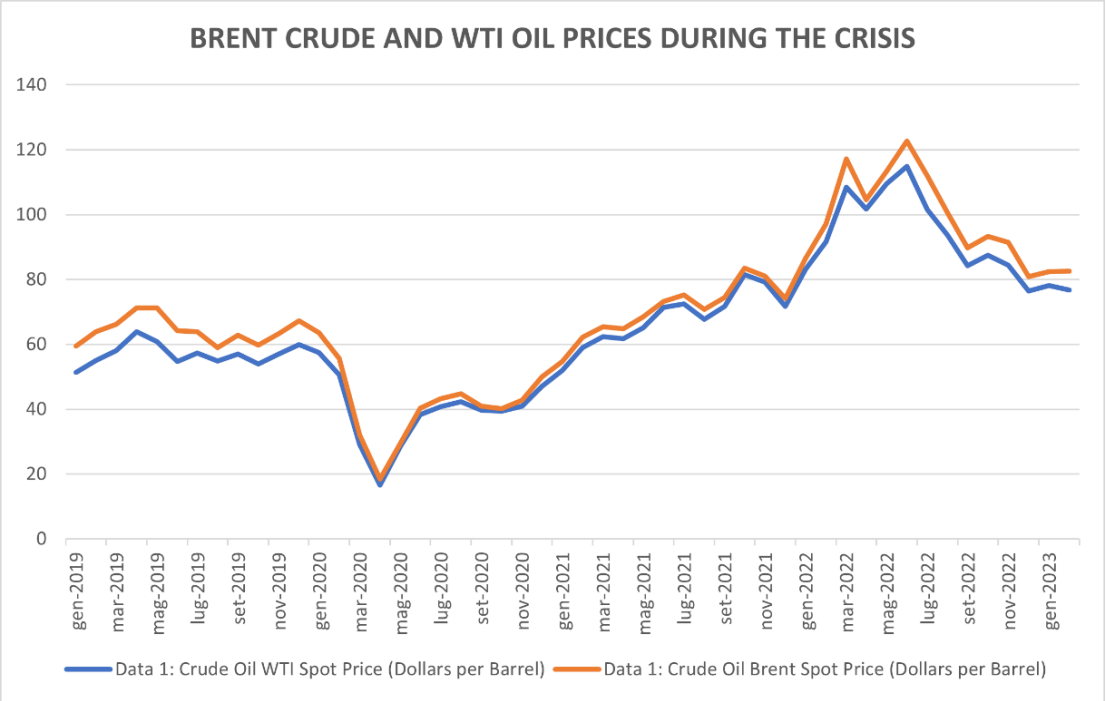
In general, global oil prices are particularly volatile because of constant uncertainty about the future development of the oil market. Normally oil prices, as well as other energy commodities prices, are more volatile than prices of other commodities due to the absence of direct substitute goods. Essentially, both demand and supply for oil are relatively inelastic with respect to price changes. As a consequence of the limited responsiveness of both the supply and demand of oil to fluctuations in price, alterations in oil prices tend to exhibit considerable volatility (Caldara et al., 2019). The effects of shifts in oil prices frequently permeate throughout the broader economy because of the absence of substitute goods for consumers and the complexity for oil producers, at least in the short-term, to convert their specialized investments needed to extract oil into other type of production. In addition, oil is a strategic commodity that plays a relevant role in global politics: any instability or conflict in oil-producing countries can cause disruptions in the supply chain and leads to a sudden spike in oil prices (Caldara et al., 2019).

Moreover, unlike many other commodities, the price of oil is set through a global benchmark, such as Brent or West Texas Intermediate (WTI). This means that changes

in the price of oil in one region can quickly spread to other regions, leading to global price movements. The two most important benchmarks in the world crude oil markets are Brent and WTI (Investopedia 2021). Brent Crude, which is the most widely used global crude oil benchmark, includes four separate crude streams that are produced in the North Sea, and it is mainly exploited for the light oil market in Europe, Africa, and the Middle East. On the other hand, West Texas Intermediate (WTI) is produced, priced and used as reference for pricing of various domestic and imported oils in the US. Differences in the prices of the two benchmarks are mainly due to differences in transportation costs, market demand, and supply dynamics. Even the quality between the two types of oil is distinct: WTI is a light, sweet crude oil with low sulphur content, whereas Brent crude oil is a slightly heavier, sour crude with higher sulphur content, requiring different refining processes to turn these two types of crude oil into usable products (Investopedia, 2021). This also can impact the prices of the crude oil.

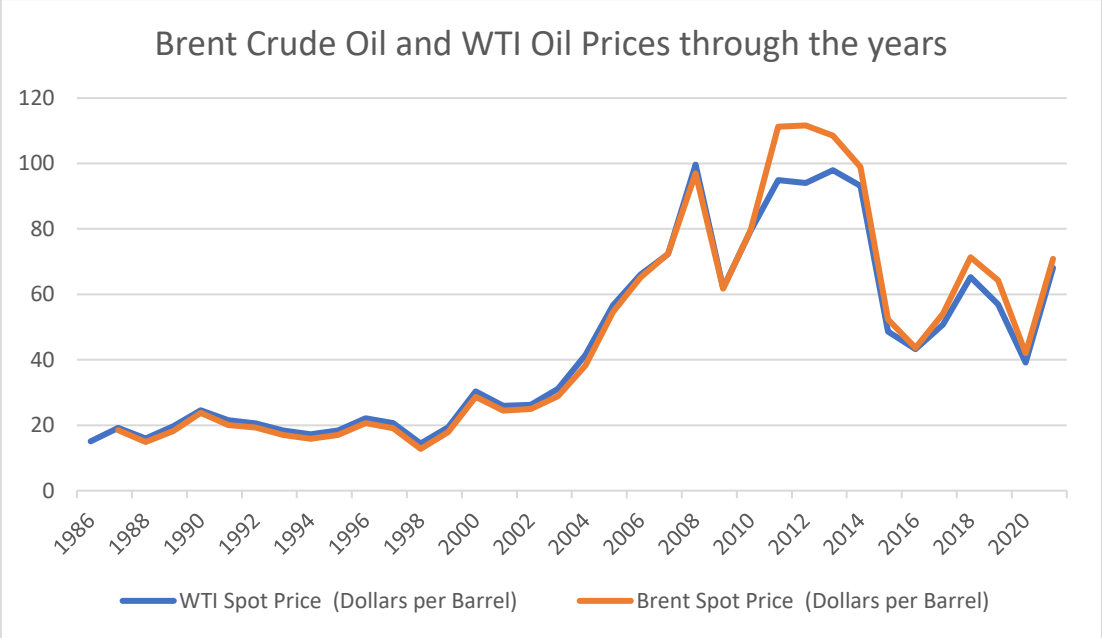
The recent fall in oil prices during 2020 (*see* Graph 2.1) reflected a confluence of factors: the outbreak of the pandemic and, consequently, the slowing global growth and increasing concerns about an impending global crisis (WBO, 2022). The lowest price visible in that year was of 18.38 dollar per barrel in Brent Crude and 16.55 dollar per barrel in WTI. Then, starting from the third quarter of 2020, the strong economic recovery from the pandemic and the subsequent global acceleration of the use of crude oil and its by-products has outpaced production, leading to reduced inventory levels and increasing prices of crude oil. In June 2022, oil prices reached their peak, registering 114.84 dollar per barrel according to the WTI benchmark and 122.71 dollar per barrel according to Brent Crude.

GRAPH 2.1: BRENT CRUDE AND WTI OIL PRICES DURING THE CRISIS



Source: EIA, 2023

GRAPH 2.2: BRENT CRUDE AND WTI OIL PRICES THROUGH THE YEARS



Source: EIA, 2023

While U.S. crude oil production experienced a decline from 1985 to 2008, there was a consistent yearly increase in production from 2009 to 2018, culminating in a record high production level at 12.23 million b/d in 2019 (EIA, 2022). Indeed, the United States, with even 32 oil producing Federal States, had become the world's top crude oil producer in 2018 and maintained the lead position through the following years. In 2021, the total US petroleum production averaged about 18.662 million b/d, among which crude oil production amounted at 11.254 million b/d, representing 17 percent of the overall global output (EIA, 2022).

In the same year, the United States exported about 8.54 million b/d of petroleum to 176 countries, of which about 2.96 million b/d were of crude oil, accounting for 35% of total U.S. gross petroleum exports (EIA, 2022). As regarding the imported quantities, they were about 8.47 million b/d of petroleum in 2021. Crude oil imports made up around 72% of the United States' total gross petroleum imports, which amounted to approximately 6.11 million b/d. The remaining 28% of gross petroleum imports were composed of non-crude oil petroleum. Overall, the United States was a net petroleum exporter in 2021, since the resulting total net petroleum imports (imports minus exports) were about -0.06 million b/d.

With a consumption of 20.31 percent of the world's oil and average daily consumption of 19.7 million b/d, the United States resulted to be also the largest oil consumer in the world in 2021. This was an increase in consumption of about 1.6 million b/d over consumption in the previous year, thanks to the economy recovering from the coronavirus (COVID-19) pandemic. Of those quantities, only a small amount was directly consumed in the United States. Actually, almost all of the crude oil that entered the country, whether it was domestically produced or imported, went through a refining process to produce petroleum products like heating oil, diesel fuel, jet fuel, and gasoline.

The second-largest petroleum producer in the world, after the United States, is Saudi Arabia (*see* Graph 2.3). The oil industry is a meaningful part of the country's economy, making Saudi Arabia the largest crude oil producer in OPEC countries and, of course, one of the most important players in the oil economy. With the world's largest

spare crude oil capacity[4], Saudi Arabia can impact global oil markets by rapidly adjusting its oil production levels. For instance, as one of the key members of OPEC+ agreement, Saudi Arabia aimed at lessening oil production during 2020, in order to restore balance to the global oil market, mitigate the high levels of oil inventories, and stabilize the volatile crude oil prices, which were affected by the economic downturn and restrictions imposed in response to the COVID-19 pandemic (EIA, 2021).

In 2021 Saudi Arabia's oil production levels were around 10.84 million b/d, accounting for 11 percent of the world oil production (EIA, 2022). The production was and still is largely controlled by the state-owned company Saudi Aramco, the world's largest oil producing firm, which helps the Arabian kingdom to become the biggest exporter of crude oil. Saudi Aramco has notable oil production and refining capacity, and it operates a vast network of pipelines and terminals to transport oil to customers around the world. Indeed, total crude oil exports had a value of 161.7 billion U.S. dollars in 2021, representing the highest amount made by any crude oil exporting country that year and the 16.5 percent share of global crude exports based on value (Aizarani, 2023). Thus, around 53 percent of the Saudi government's revenue were oil-based (IMF, 2021). Another important feature to be underlined is that, at the end of 2020, the Arabian country had the world's second-largest proved oil reserves estimated to be around 297.5 billion barrels, preceded only by Venezuela which has, still nowadays, the largest amount of oil reserves in the world with more than 300 billion barrels in reserve (OPEC, 2021). Notwithstanding the largest oil reserves in the world, Venezuela's oil is mainly located offshore or deep underground and is considered dense, what makes it quite costly to extract. As a result, despite having abundant oil reserves, Venezuela's oil sector is less profitable. In contrast, Saudi Arabia's oil reserves are located on land and closer to the surface, making it much easier to extract and thus more cost-effective. This accessibility of Saudi Arabia's oil reserves has significantly contributed to the country's larger economy, which is twice the size of Venezuela's.

[4] EIA defines "spare capacity" as the volume of production that can be brought on within 30 days and sustained for at least 90 days.

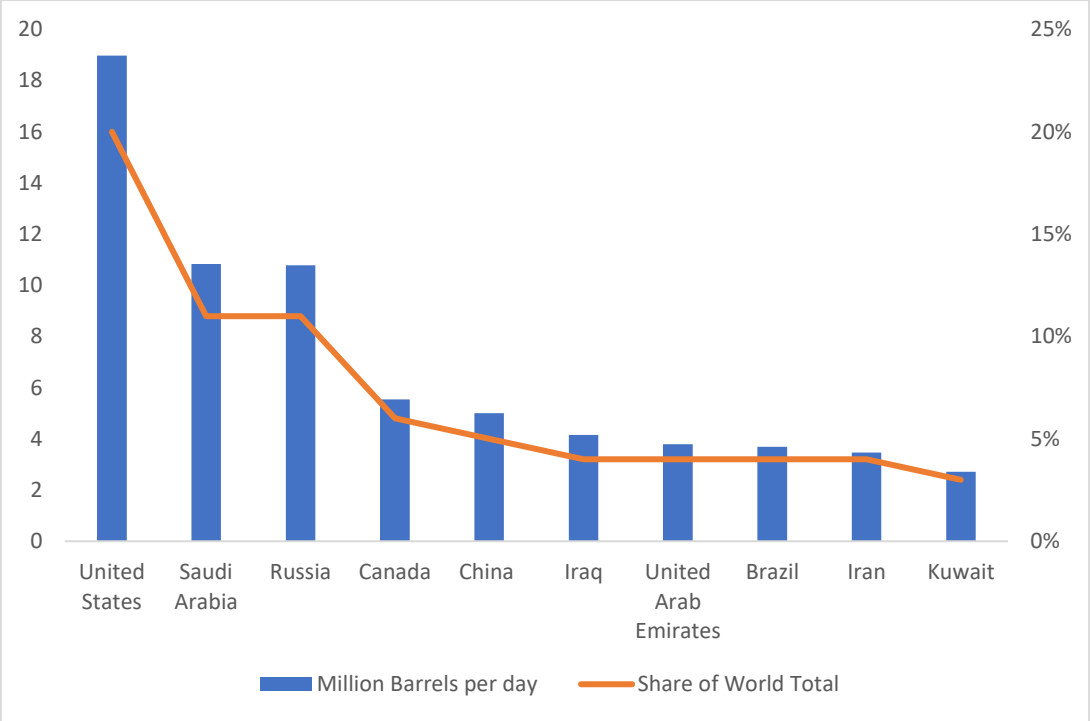
Although it is in the first places for oil production, the same cannot be said about its consumption. Saudi Arabia, in fact, consumed an average of 3.5 million b/d in 2021, placing itself in the sixth place in the global ranking for oil consumption.

The last place on the oil production podium, instead, is occupied by Russia. In 2021 oil production was about 10.78 million b/d, accounting for over 11 percent of global crude oil production, just as Saudi Arabia. Thanks to its richness in natural resources, the volume of oil supplied by Russia continuously increased until 2019, making it the world's third-largest oil producer. Following the dissolution of the Soviet Union, the oil industry underwent privatization, even if it subsequently shifted towards government control again during the mid-2000s. As regarding oil export, Russia is the second largest exporter behind Saudi Arabia. Namely, Russia exported over 8.2 million barrels of oil per day in 2022, up from approximately 7.8 million barrels daily recorded in the previous year, whereas the highest oil export volume had been recorded in 2017 at almost 9 million b/d (Statista, 2023).

The destination of a significant proportion of Russia's oil exports, approximately 60 percent, is towards the member states of the Organization for Economic Cooperation and Development (OECD[5]) located in Europe, while roughly 20 percent of the exports are sent to China (IEA, 2022). As it is possible to understand, Russian oil industry is the major contributor to the nation's exports and the country's economy is strongly dependent on them, also making the country vulnerable to the shortening of oil prices.

[5] Working with over 100 countries, the OECD is a global policy forum that promotes policies to improve the economic and social well-being of people around the world. It was founded in 1961 by 18 European countries, the United States, and Canada. Since then, the organization has expanded to include 38 member countries, including many from outside of Europe and North America (OECD, 2023).

GRAPH 2.3: THE 10 LARGEST OIL PRODUCERS IN 2021



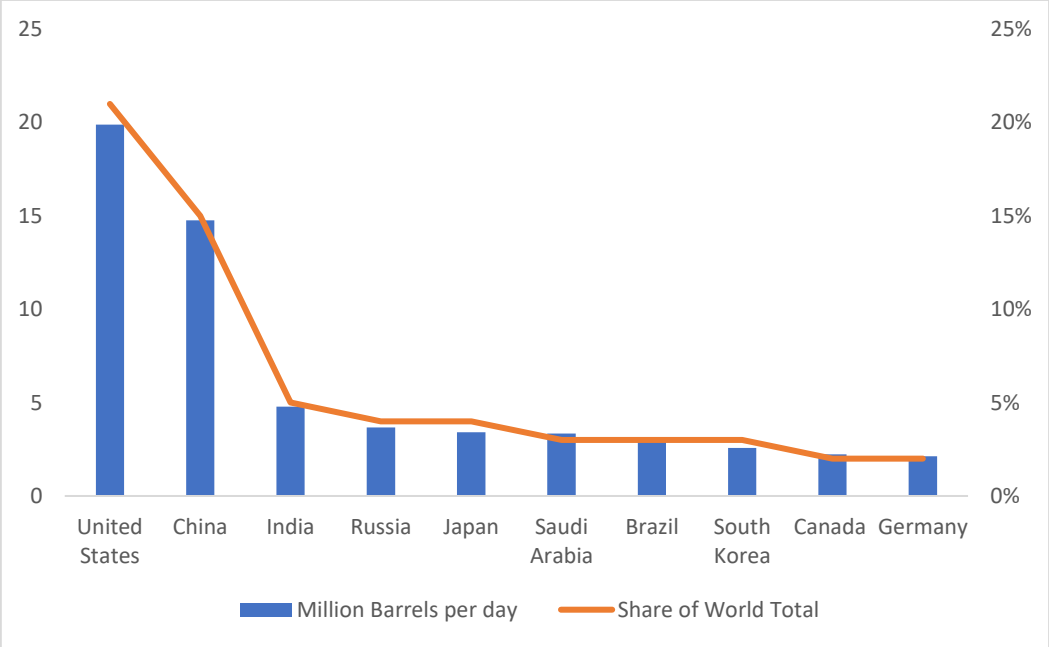
Source: EIA, 2022

The higher oil consumption forecast is primarily driven by upward revisions to global economic growth, and about half of the growth in global liquid fuels consumption in 2023 is expected to be represented by China (EIA, 2023). Precisely, China consumes close to 15 percent of the world's oil production, which makes it the second largest consumer in the world (*see* Graph 2.4), with an average daily consumption of 14.76 million b/d (EIA, 2022). The rise in the oil consumption by China has been exponential: oil consumption was just 2.33 million b/d in 1990, and then 4.69 million b/d by 2000, reaching 2021 levels (Statista, 2022).

Another important country that will play an important role in oil consumption is, for sure, India. As a result of dynamic economic growth, rapid population expansion, and modernization, India's energy needs have continued to rise in recent years. In 2021, with a daily consumption of 4.44 million barrels, India was the third largest oil consumer in the world (BP, 2022). Being domestic production of only approximately 0.89 million b/d,

the country heavily depends on imports to fulfil its energy demands. For this reason, India's government is trying to attract more investment and reduce India's oil imports by enhancing the contractual conditions for foreign and private companies. Additionally, the government is encouraging national oil companies to invest more in upstream development.

GRAPH 2.4: THE 10 LARGEST OIL CONSUMERS IN 2021



Source: EIA, 2022

Natural Gas

Natural gas is an energy source which plays a crucial role around the world, accounting for about 24 percent of the world's energy supply in 2021 (IEA, 2022). Natural gas is a fossil fuel that is formed over millions of years from the remains of ancient plants and animals buried under the Earth's surface. Its production involves extracting it from underground reservoirs using various drilling and extraction techniques (such as vertical drilling, horizontal drilling and hydraulic fracturing).

In order to feed the world's demand for natural gas, gas needs to be transferred around the world and for this reason, Liquified Natural Gas (LNG) is created. In particular LNG is produced by cooling natural gas to -160ºC, obtaining a clear and non-toxic liquid, six-hundred times smaller in volume than natural gas. Once at destination, the LNG is warmed and converted back into its gaseous form, ready at last to be used for residential, commercial and industrial purposes. Natural gas is able to respond to both seasonal and short-term demand fluctuations, especially thanks to its advantage of being stored for considerable time without loss of usability, its liquid physical features that make it possible to deliver it either through pipelines or by ship. To add to this, the gas-fired power plants can be easily turned on and off quickly (IEA, 2022).

Notwithstanding natural gas is a fossil fuel, its combustion releases less climate-polluting greenhouse gases than coal (about half of the average carbon emissions of coal), making natural gas a more attractive option of energy with a lower carbon footprint. This is why compared to other fossil fuels, natural gas and liquefied natural gas have long been identified as top contenders in the transition to renewable energy. From this perspective, both of them can be seen as a possible transitional source of energy which accompanies humans to a fully clean and renewable energy world (Safari, 2019). However, current crisis severity has brought uncertainty about the future cost and availability of natural gas, damaging the confidence in its reliability (WEO, 2022). Indeed, while the use of natural gas rapidly grew in the past decade (2010-2020), accounting for almost one-third of total energy demand growth (more than any other fossil fuel), the era of rapid global growth in natural gas demand might end. World Bank Outlook 2021's prediction about natural gas demand forecasts that it will rise less than 5 percent between 2022 and 2030, compared to the late 20-percent rise between 2011 and 2020. Nevertheless, the global demand for natural gas is expected to continue to grow in the coming years due to its relatively low cost. In 2021, global natural gas consumption amounted to roughly 4.04 trillion cubic meters (Statista, 2023).

As for the industry sector, it drives total natural gas demand growth and it is expected to account for 90 percent of overall natural gas demand growth between 2021 and 2030 (WEO, 2022). According to the World Economic Outlook 2022, the adoption of heat pumps and their continuous improvements in efficiency will cause natural gas

demand to reduce by at least 65 billion cubic meters (bcm) in advanced economies between 2021 and 2030. However, the increases in emerging market and developing economies partially counterbalance these reductions.

According to the estimates of the World Energy Outlook 2022, the power generation sector instead, which is the second largest consuming sector of natural gas, will see the demand decline slightly depending on the different countries' economy development situation. Overall, there is a geographical redistribution of natural gas demand around the world, with developing countries acquiring a large share of the market. In advanced economies, gas use in the power sector is expected to fall over 100 bcm in a year, while in emerging markets and developing economies it could yearly grow by about 65 bcm (WEO, 2022).

The transport sector, which accounted for 3.5 percent of global natural gas demand in 2021, is set to increase by 12 bcm by 2030, thanks to the rising demand in shipping.

With regard to the supply side of natural gas, according to the International Energy Agency (IEA), global natural gas production in 2021 was approximately 4,255 bcm.

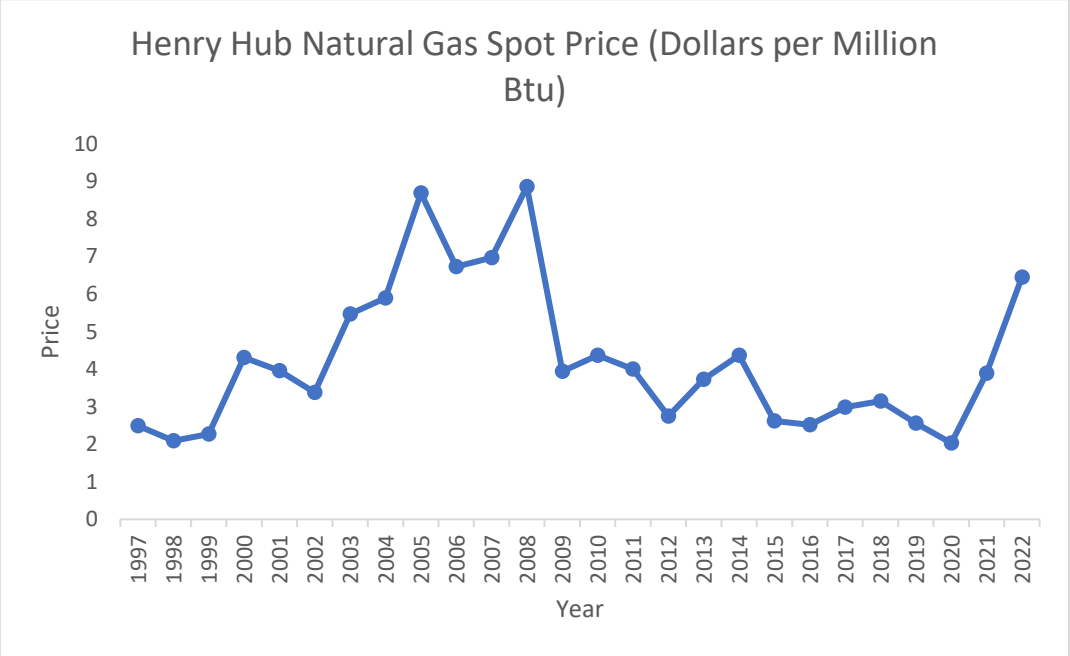
The pricing of natural gas is primarily determined by the interaction of market supply and demand (the top three natural gas-producing countries in the world are the United States, Russia, and Iran, WEO, 2022). Even small fluctuations in supply and demand can lead to significant price variations due to the limited presence, at least in the short-term, of alternatives to natural gas as a fuel for heating and electricity generation during periods of high demand. The principal natural gas price benchmark in the world is the Henry Hub, which is used as a benchmark for the entire North American natural gas market and parts of the global liquid natural gas (LNG) market.

As it is possible to see from Graph 2.5, the benchmark has widely fluctuated through the years, reaching its peak in 2008 with 8.86 dollars per Million British thermal unit (Btu)[6]. Because of the COVID-19 pandemic, in 2020, the index was priced at 2.03

[6] A British thermal unit is a measure of the heat content of fuels or energy sources.

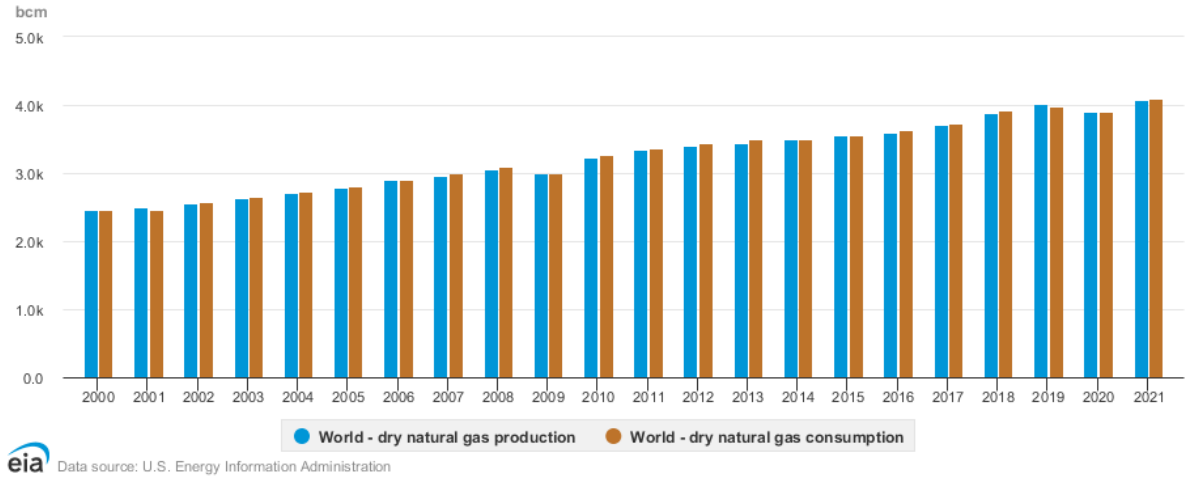
dollars per million btu and slightly increased to 3.89 in 2021, thanks to the beginning of the economic recovery. On the other hand, in 2022 natural gas prices reached the quote of 6.45 dollars per million btu on the Henry Hub (EIA, 2023). The concept of market-clearing pricing is crucially tied to the Henry Hub because it is directly determined by the supply and demand dynamics of natural gas as a stand-alone commodity (Statista,2022). In contrast, other natural gas markets such as those in Europe are characterized by a fragmented pricing system that is often linked to the price of crude oil. This poses a challenge, as crude oil is subject to its own set of supply and demand factors that can greatly differ from those affecting natural gas. Although efforts have been made to establish European hub pricing points in countries like the Netherlands (TTF) and the UK (NBP), competition from national hubs has hindered progress in this direction so far (Statista, 2022). Notwithstanding, thanks to its strategic location and interconnectivity with pipelines transporting natural gas to various parts of Europe, the TTF gas hub has emerged as an important hub for the trading of natural gas in the European area, setting the standard reference price (published by the leading company Independent Commodity Intelligence Service Heren) for natural gas in Europe,(Enel, 2022).

GRAPH 2.5: HENRY HUB NATURAL GAS SPOT PRICE VOLATILITY



Source: EIA, 2022

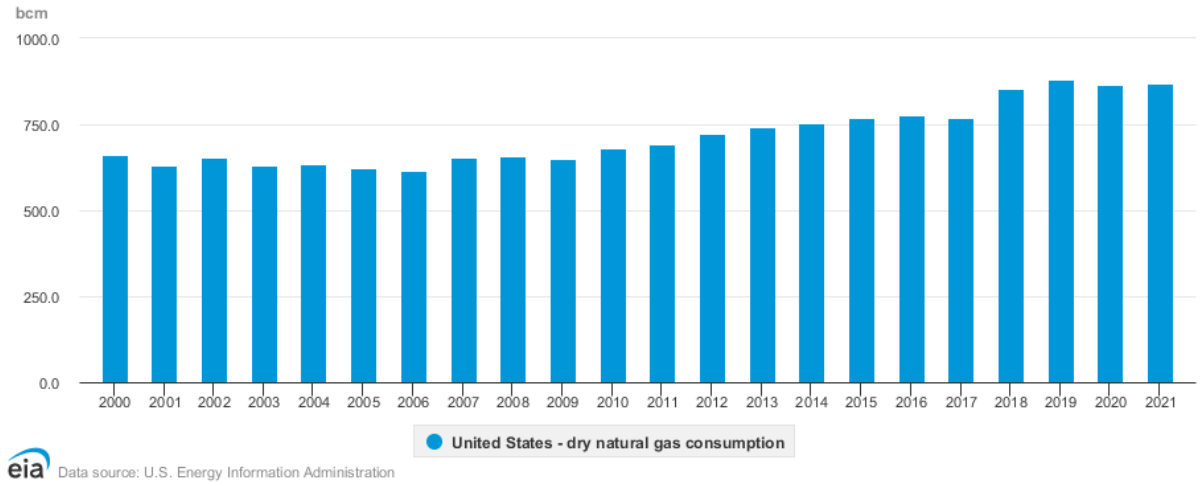
GRAPH 2.6: GLOBAL NATURAL GAS PRODUCTION AND CONSUMPTION



Source: EIA, 2022

In 2021, the world's largest consumer of natural gas was and still is the United States, which consumed nearly 827 billion cubic meters, that means 32 percent of U.S. total energy consumption (Statista, 2023). The dominant consuming sector was the electric one, which uses natural gas as a fuel in different power systems (above all to generate electricity) and as a raw material in various manufacturing process. The electric sector accounted for about 37 percent of total U.S. natural gas consumption in 2021. Following a period of stability between 1995 and 2008, natural gas consumption of the United States showed a steady rise through the next years (*see* Graph 2.6). Indeed, while crude oil prices reached their peak soon after the financial crisis in 2008, the price of natural gas experienced a significant drop, making it a formidable rival to both coal and petroleum. For instance, between 1998 and 2021, natural gas consumption in the U.S. increased by almost 200 billion cubic meters, peaking in 2019 at some 850.7 billion cubic meters (Statista, 2023).

GRAPH 2.7: GROWTH IN NATURAL GAS CONSUMPTION IN U.S.



Source: EIA, 2022

In 2021, the transportation sector accounted for about 4 percent of total U.S. natural gas consumption and was the energy source of about 5 percent of the U.S. transportation sector. Almost all the use of natural gas in this sector is to running compressors that move natural gas through pipelines (EIA, 2022).

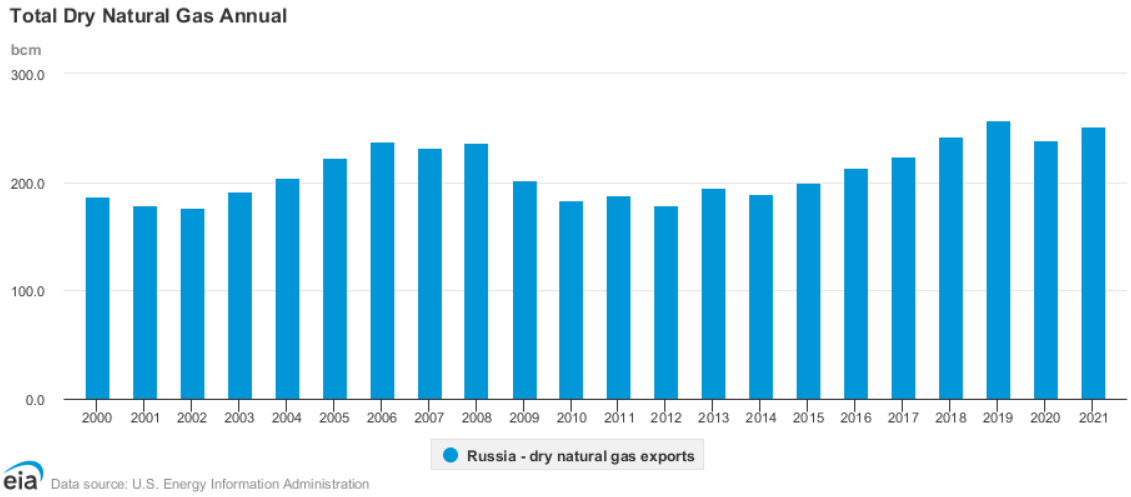
In addition to being the largest natural gas consumer in the world, in 2021 the U.S. was also the biggest producer of the fuel by far and represented nearly a quarter of the total global natural gas production, reaching 934 billion cubic meters in that year. Over the last few years, there has been a consistent rise in the production of natural gas in the United States, largely thanks to advances in technology, such as horizontal drilling and hydraulic fracturing, that have made it possible to extract gas from previously inaccessible shale formations (Melissa, 2023). For example, in 2018 the natural gas production amounted at 840 bcm per year, then increased to 928 bcm in 2019. Obviously, the production bended down in 2020 due to the pandemic, while maintaining a modest level of about 916 bcm per year (BP, 2021).

The growth in natural gas production in the United States has played a significant role in reducing the country's reliance on imports. Starting in 2017 and continuing through 2021, U.S. natural gas production surpassed domestic consumption, leading to a decrease in imports and to a consequent increase in exports. In fact, the rise in the

domestic natural gas production helped to lower the prices of natural gas and improved U.S. competitiveness in the global markets. As a result, the United States have been a net exporter of natural gas during this period and the second largest natural gas exporter in the world (EIA, 2022). Indeed, notwithstanding U.S. imports of natural gas strongly increased from the 1990s (around 4.4 million cubic meters -mcm- per year) and peaked in the mid-2000s (123 mcm per year), they have drastically been falling since 2005. Precisely, in 2021 U.S. natural gas exports reached a record high of 188 bcm, whereas total annual U.S. natural gas imports were about 79.5 mcm (EIA, 2022).

The world's leading exporter of natural gas, instead, is Russia. Natural gas exports accounted for 250 bcm via pipelines in 2021 (*see* Graph 2.7), and around 40 bcm of liquefied natural gas (LNG) (EIA, 2023). Before the invasion of Ukraine, Russia approximately supplied 50 percent of the total gas demand in Europe. Since the beginning of the invasion in February 2022, the share of Russian gas gradually decreased, while the market share of alternative gas suppliers began to rise. This trend was especially accelerated in the second half of that year: in November 2022, the export of Russian natural gas to Europe was drastically fallen to 12.9 percent (European Council).

GRAPH 2.8: RUSSIA'S TOTAL NATURAL GAS EXPORTS THROUGH THE YEARS



Source: EIA, 2022

Russia is the second largest producer of natural gas, accounting for a production of 702 billion cubic meters in 2021 (IEA, 2022). Having increased the volume by approximately 64 bcm compared to the previous year, Russia confirmed its natural gas production growth trend. Indeed, Russia's production has steadily risen in the last 10 years: in 2014 the production amounted at 608 bcm, up to 678 bcm in 2019 and then finally at the above-said levels in 2021 (EIA, 2022). As for 2021, the Russian state-owned energy group Gazprom held the title of the largest producing company of natural gas both globally and in Russia, having produced 515.6 bcm.

Russia is also among the largest consumers of this resource. In fact, natural gas accounts for a significant portion of the country's energy consumption. According to the Energy Information Administration, Russia consumed around 500 bcm of natural gas in 2021, making it the world's third-largest consumer of this resource after the United States and China. Natural gas consumption in Russia has been steadily increasing over the past decade, largely driven by demand from the power and the industrial sectors, which have been accounting for more than half of the country's gas consumption. An amount around 200 bcm per year has been consumed in that sector. In addition, natural gas is also widely used in the residential sectors in Russia, consuming around 200 bcm in 2021 as well (IEA, 2022). The country's harsh climate and vast geography make natural gas an attractive fuel source for heating homes and buildings in many parts of the country, particularly in the colder regions.

As the largest exporter and the second largest producer of natural gas on the planet at the same time, Russia also holds the biggest-known natural gas reserves in the world. The reserve amounted at 48 trillion cubic meters in 2021, meaning about 18 percent share of the world reserves. It is the Russian energy group Gazprom that had the largest share of it, which is 16.3 percent of global natural gas reserves (EIA, 2022).

However, Gazprom, which dominated the European market for decades and has monopoly over Russia's pipeline gas, has lost most of its natural gas market share because of Russia's military invasion in Ukraine in February 2022. Indeed, the invasion and the sanctions carried out by European States have reduced the capitalisation of Russian energy companies, such as Gazprom, in the market and significantly shrunk their cooperation with foreign partners, as illustrated by their withdrawal from strategic

Russian energy projects (Kardàs, 2022). A drastic reduction to the sources of financing and to the access to new technologies necessary for the development of gas projects in Russia (particularly in the LNG industry) could be the possible drawbacks of this notable settlement by EU (Kardàs, 2022).

The ongoing conflict between Russia and Ukraine is causing a transformation in the energy sector, particularly in the natural gas market. It is leading to the emergence of a global and interconnected market for natural gas, where events and dynamics beyond its conventional physical boundaries are exerting significant influence. This shift bears resemblance, to some degree, to the historical role that oil played for many decades. The European gas market, previously characterized by isolation and dependence on pipeline flows between Russia and Norway, is experiencing a significant transformation. It is now susceptible to global influences, where various factors from around the world can impact prices (S&P Global, 2022). This accelerating globalization of the gas market has led analysts and market participants to refer to it as the "new oil", in a way to highlight the new geopolitical aspect of gas trading (S&P Global, 2022). Following the invasion of Ukraine, the European Union announced and immediately started to decrease its reliance on Russian gas by two-thirds, in order to achieve energy independence from Russian energy sources by 2030. Essentially, the conflict has accelerated efforts by European countries to reduce their dependence on Russian gas, leading to increased investments in alternative energy sources, such as renewables and LNG, as well as the development of interconnectors and infrastructure to facilitate diversification of gas supplies (Kardàs, 2022).

Russian gas pipeline flows to Europe have been falling since the second half of 2021, with total flows in the first six months of 2022 35 percent below the 2021 levels. In fact, in 2021, the EU imported 155 bcm of natural gas from Russia, accounting for about 45 percent of EU gas imports and close to 40 percent of its total gas consumption. EU's imports were then followed by Norway, Algeria, and Qatar (Eurostat, 2022). In general, EU totally imports 80 percent of its total gas needs (ACER, 2021).

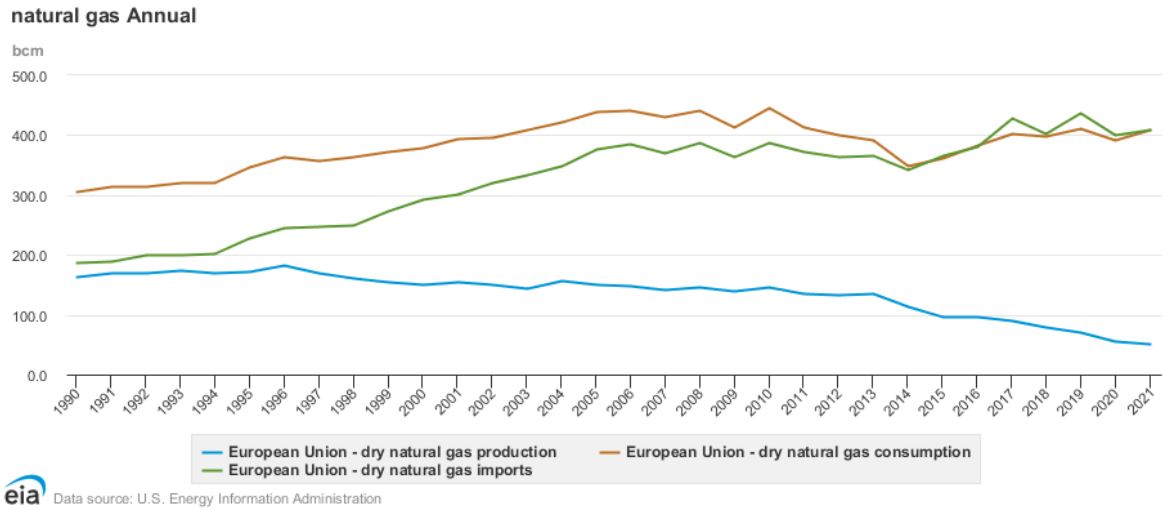
This is because of a considerable decline in the production of natural gas within the EU over the last 20 years (*see* Graph 2.8). In 1998, the production level had reached 233.5 bcm, but as for 2021, it decreased by approximately 81 percent, to around 45.87

bcm (Statista, 2023). The Netherlands has traditionally been one of the largest natural gas producers in the EU, notwithstanding that its production has been declining from 2013 when the production was even 87 bcm (EIA, 2022). In 2021, Dutch gas production amounted to 21 bcm, down by 9 percent with respect to 2020 (-2.2 bcm), and very far from its peak of 89 bcm registered in 2009 (EIA, 2022). The second largest natural gas was Romania with 9 bcm in 2021, which remained practically stable (-1%). Gas production in Poland was also stable year-on-year, around 5.6 bcm, similarly to Germany, where it reached 4.8 bcm in 2021. In Italy however, gas production amounted to 3.3 bcm, and fell by 15 percent year-on-year (EIA, 2022).

Since the beginning of the 21st century, natural gas consumption within the European Union has been volatile. After reaching its maximum level of 521 billion cubic meters in 2010, the consumption declined to approximately 397 billion cubic meters by 2021 (Statista, 2023). The sector which accounted the most in 2021 was the residential one, covering 40 percent of the overall gas demand. Then, it was followed by industry and power generation sectors. However, whereas gas utilization for power generation has risen by 15 percent since 2000, industry consumption of it has dropped by 20 percent (ACER, 2021). These trends are because of the economic transition from industry to energy services and structural changes in the energy-intensive industry. Despite the overall decline, the consumption of natural gas still exceeded that of other energy sources, except for oil. The largest natural gas consuming countries in EU are Germany, Italy, and Netherlands. Gas consumption in Germany amounted to 94 bcm in 2021, reflecting a 5-percent increase compared to 2020. At the same time Italy's gas consumption reached 76 bcm, 5 bcm higher than the previous year. Then, gas consumption in the Netherlands was 42 bcm and the fourth place was occupied by France with 41 bcm, followed by Spain up by 1.8 bcm with respect to 2020, thanks to its 34 bcm (EIA, 2022). Besides demand side factors, the share of gas was influenced by changes in the local power generation mixes in each country. For example, in the Netherlands, the drop in gas-fired generation was mainly compensated by increasing coal-fired generation and renewables, whereas the increasing gas-fired generation in

Italy, along with abundant wind, resulted in higher overall electricity generation, even amid falling hydro availability (EU Commission, 2022).

GRAPH 2.9: EU NATURAL GAS CONSUMPTION, PRODUCTION, IMPORTS FROM 1990 TO 2021

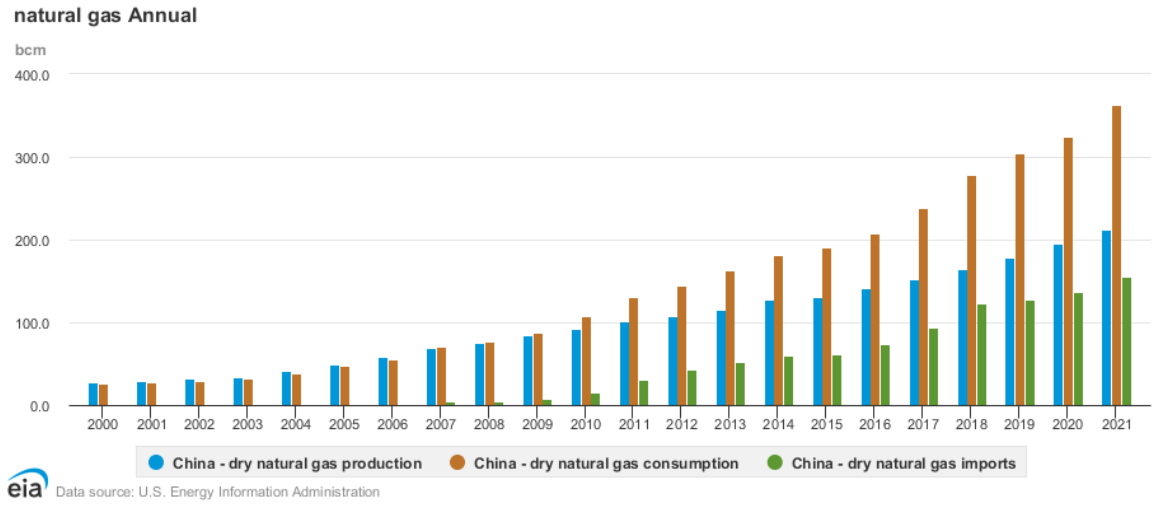


Source: EIA, 2022

Another important global consumer of natural gas is China, with demand for the fuel growing rapidly in recent years (*see* Graph 2.9). The average annual growth rate in natural gas consumption is estimated to be of 16 percent over the past two decades reaching 363 bcm in 2021 (more than in any previous time) and accounted for around 28 percent of global natural gas consumption that year (EIA, 2022). China is currently undergoing a significant shift in its energy scenario. A variety of factors have driven the growth in natural gas demand, but the most important ones are the effort to reduce air pollution, the increase of energy security, and the shifting-away from coal as a primary energy source. China has set ambitious targets for improving air quality, which has led to increased use of natural gas in industries such as power generation, heating, and transportation (CGEP, 2018). As it is easily seen in the Graph 2.9, natural gas consumption has exponentially grown through the years, just as the production and the imports themselves. China has also heavily been investing in natural gas infrastructure, including pipelines and liquefied natural gas (LNG) terminals, in order to increase the

supply of gas brought by the growing demand. In 2021, China's natural gas production amounted to 212 bcm whereas the imports rise from 0.9 bcm to 156 bcm in 2021 (EIA, 2022).

GRAPH 2.10: CHINA'S PRODUCTION, CONSUMPTION AND IMPORTS



Source: EIA, 2022

Gold

Gold is one of the most expensive and traded metals around the whole world. Valued and craved for thousands of years, gold is a commodity that has been used as a form of currency, jewellery, and investment.

As a result of its rarity, gold is considered to be extremely valuable. Indeed, the total amount of gold available in the Earth is limited because of the difficulty to mine it and the consequently exorbitant costs associated with the mining procedure. Additionally, gold is resistant to corrosion, which means that it does not tarnish or rust over time, making it a durable and long-lasting material.

Back to the obtaining process, mining the ore is just one step of the extended and complex journey necessary to extract any gold. Long before that, in order to accurately determine the size of the mineral deposit, as well as how to extract and process the ore in an efficient and safely way, decisive exploration and development of

the territory need to take place. Even from ten to twenty years can pass after the discovery of a gold mine before it is ready to produce material to be later redefined into bullion. Gold mine exploration requires significant time, financial resources and expertise in many disciplines, such as geography, geology, chemistry and engineering. The likelihood of finding a mine that will be exploited is very low. Indeed, less than 0.1 percent of prospected sites will lead to a productive mine and only 10 percent of global gold deposits contain sufficient gold to justify further development of them (World Gold Council, 2023).

The history of gold has always been connected with money, so that it was also used as a form of currency and as a store of value long before the modern monetary system was established. However, gold gave up this role in developed economies years after the end of the Second World War. In particular, in 1971, the US unilaterally ended the so-called Bretton Woods monetary system[7], an improved gold standard system which linked the value of the dollar to the amount of gold present in the American reserves, whereas all the other countries' currencies had fixed, even though adjustable, exchange rates to the dollar (Dooley, 2003).

When talking about gold production, the main focus is on gold mining, which refers to identifying the countries that extract the largest amount of gold ore from their domestic mines. The gold output being measured is confined to the national production and excludes any involvement in foreign countries through multinational corporations. In the second half of the 20th century, gold mining production grew enormously: about 50 percent of all the gold ever produced has been mined since 1967 (Rothenberger, 2003). According to the World Gold Council, mines around all over the world produce about 2,500 and 3,000 tons a year. This means that, without some significant new discovery, gold supply from mining will probably begin to run out in the next 20 years.

[7] The Bretton Woods system was a global monetary system established in 1944 after World War II. Under the Bretton Woods system, the US dollar was set as the world's reserve currency, and other countries agreed to peg their currencies to the US dollar. The US dollar was then backed by gold at a fixed rate of $35 per ounce. This system helped to stabilize international trade and investment by ensuring that exchange rates among different currencies remained relatively stable (Dooley, 2003).

The price of gold has significantly fluctuated over its history, and its value has always been influenced by several factors, such as global economic conditions, geopolitical tensions, and monetary policies. For instance, until the beginning of the 1970s, the price of gold was relatively stable at around $35 per ounce. However, the abandonment of the gold standard by U.S. government (already cited before) led to a crucial increase in the price of gold, which significantly soared to nearly $200 per ounce by the end of the decade (*see* Graph 2.11).

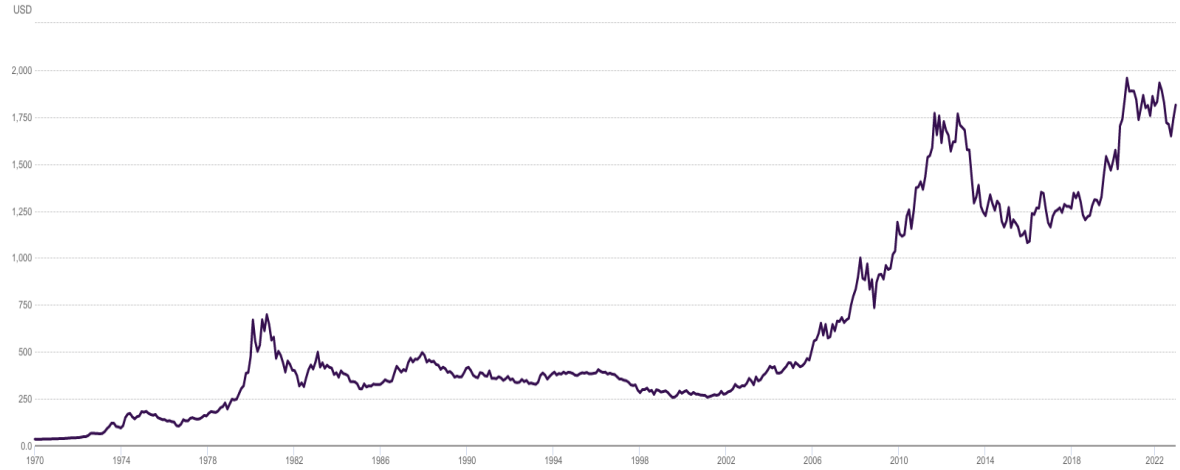
The price of gold reached a new all-time high of $850 per ounce in 1980, due to a severe global recession caused by the disruption of the global oil supply and the consequently acute increase in the price of oil. Then, it is easy to note from Graph 2.10 that gold price remained relatively stable during the 1990s, primarily thanks to a period characterized by low inflation rates, economic growth, and a quite stable geopolitical environment.

However, the price of gold started to rise again in the early 2000s, driven by a variety of significant events just like the dot-com bubble burst, the 9/11 terrorist attacks and, again, another global financial crisis in 2008. The price of gold reached a new all-time high of over $1,900 per ounce in 2011, reflecting concerns about inflation, currency devaluation, and economic instability.

More recently, the price of gold got to a new all-time high of about $2,000 per ounce in 2020, as the COVID-19 pandemic sparked global economic turmoil and central banks pursued unprecedented monetary stimulus.

To conclude, it can be stated that the evolution of gold price through the years has been characterized by many ups and down. In particular, the highs in the price were generally caused by notable global economic crisis and geopolitical tensions and then, as the global economy bounced back from the financial crisis, they slightly recovered and later remained more or less stable around a new price level.

GRAPH 2.11: THE EVOLUTION OF GOLD PRICE



Source: World Gold Council, 2023

The demand for gold, is driven by a variety of factors including investment demand, jewellery demand, central bank buying (gold reserves), technological and industrial application.

As a popular investment hedge, both investors and central banks will keep on sight after it. In fact, gold is considered as a safe-haven investment thanks to historically being a value-maintaining asset during times of economic uncertainty and market volatility. With over 35,000 metric tons of gold, central banks possess approximately one-fifth of the total gold mined at the end of 2021. As gold is not subject to credit or counterparty risks, it provides a trustworthy asset in any economic situation and is considered one of the most vital reserve assets globally, along with government bonds (World Gold Council, 2022).

Given the prevailing geopolitical uncertainty and high inflation rate, it is not unexpected that central banks increased their gold reserves at an accelerated rate during the past year. Furthermore, continuing a trend that commenced in 2010, emerging market central banks constituted the majority of reported demand for gold in 2021 (World Gold Council, 2023). The traditional economic powerhouses (including the

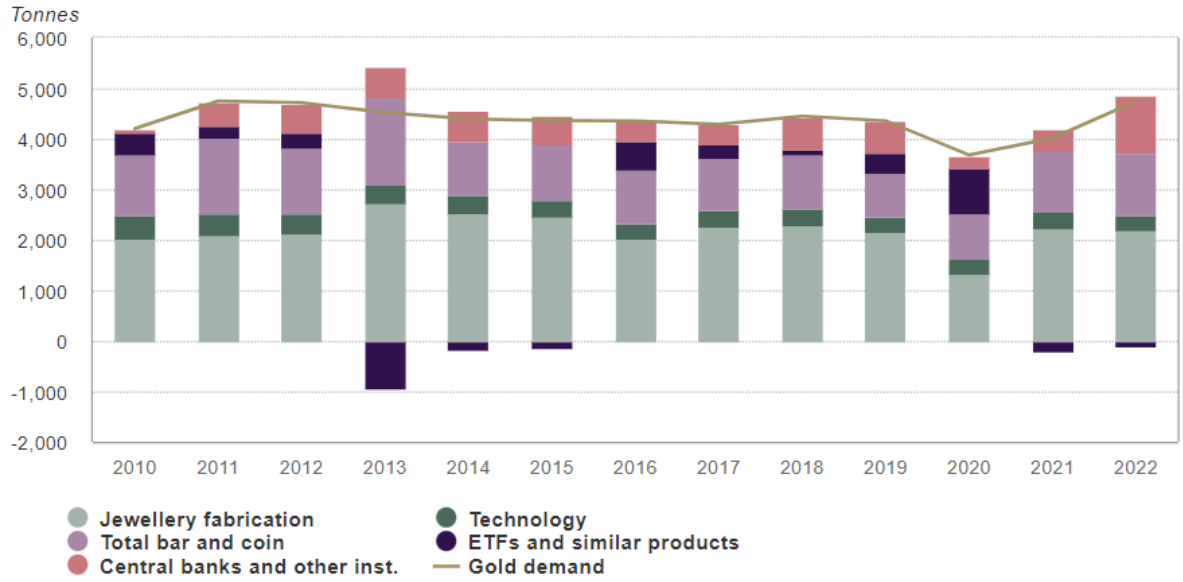
U.S., Germany, France, and Italy) have ceased buying more gold and are now focused on maintaining their significant existing holdings.

At the beginning of 2022, the U.S. had the largest gold reserves, with over 8,100 tons, representing nearly 78 percent of its total foreign reserves. This is more than twice Germany's holdings of more than 3,300 tons, which constitute approximately 74 percent of its reserves. At the same time, emerging economies such as Russia, China, Turkey, and India have taken the place of Western nations as significant purchasers of gold. However, despite buying substantial amounts of gold in the past decade, these countries still trail their Western counterparts, with Russia's gold reserves representing only 22 percent of its reserves, and China's holdings of just under 2,000 tons account for 3 percent (World Gold Council, 2022).

Gold also holds significance in emotional, cultural, and financial realms. Individuals across the world purchase it for a variety of purposes that are frequently shaped by national socio-cultural factors, regional market trends, and broader macroeconomic forces (Gold Global Demand, 2023).

In 2022, global gold demand increased to 4,740.8 metric tons from the previous year's amount of 4,012.8 metric tons. It is worth noting that, after almost more than a decade, 2020 was the first year when gold demand was below 4,000 metric tons (*see* Graph 2.12), primarily due to the impact of the COVID-19 pandemic (Statista, 2023). The last time global gold demand was under that level was in 2009 during the global financial crisis.

GRAPH 2.12: GOLD GLOBAL DEMAND BY SECTORS



Source: World Gold Council, 2022

Determining the national demand for gold is quite challenging, given the various methodologies used for measurement. However, China and India are widely acknowledged to be the largest contributors to global gold demand. In the early 1990s, China and India together accounted for just 25 percent of gold demand, but that percentage has now climbed to 50 percent (World Gold Council, 2023). This surge in demand for gold stems from the significant economic growth the two countries experienced in the past decade.

The extent of China's participation in the current worldwide gold market is vastly different from what it was three decades ago. Throughout history, gold has held significant cultural significance in China. Individuals were prohibited from purchasing and trading gold for half of the last century[8] and then, in the 1990s, constraints were gradually relaxed, leading up to the establishment of the Shanghai Gold Exchange in 2002. The complete market liberalization, in 2004, resulted in a rapid response from China's gold consumers, leading to a surge in demand for gold jewellery, bars, and coins.

[8] There was no specific "Act" that regulated the prohibition of individuals buying and trading gold in China. The ban was implemented through a series of policies and regulations issued by the government, including the "Circular on the Prohibition of Gold and Silver Trade" in 1949, which prohibited the buying and selling of gold and silver by individuals.

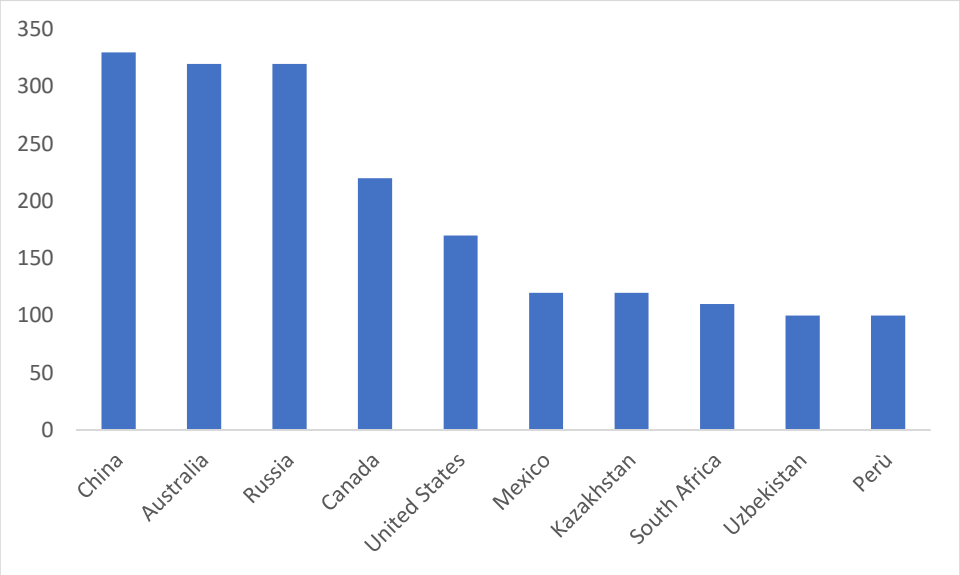
Over the course of the last few decades, China's annual gold consumption has undergone a remarkable five-fold increase, surging from just over 375 metric tons in the early 1990s to a record-breaking 1,347 metric tons in 2013. As a result, China has now established its position as the leading gold consumer on the planet, with gold consumption demand averaged around 945 metric tons annually over the past decade, a 30 percent share of the global total. In detail, around 1,001 metric tons of gold was consumed in China in 2022 (Statista, 2023).

Not only. For more than a decade, China has also emerged as the primary producer of gold worldwide, mining 330 megatons (MT) in 2022.

The Indian gold takeover, instead, began when policy changes allowed the market to prosper, growing from 340 tons in 1992 to 774 tons by the end of 2022 (World Gold Council, 2023). The cultural importance of gold in India is profound and deeply ingrained, intimately intertwined with its rich history, culture and religious beliefs. About two-thirds of India’s gold demand came from rural areas, where jewellery was and still is a traditional store of wealth. India has implemented a series of new measures to fortify its position as one of the foremost hubs for gold consumption and trading. These measures include the mandatory hallmarking for gold jewellery, which was introduced in 2021, and the establishment of the International Bullion Exchange in 2022. These latest developments are expected to bolster India's reputation and standing in the global gold market (World Gold Council, 2023).

The second place in gold production is shared by Australia and Russia (*see* Graph 2.13). Gold production in Australia had one more high-performing year in 2022, reaching 320 MT. On the other hand, Russia’s output has been rising over the past few years, increasing from 255 MT in 2017 to 320 MT in 2022 (Statista, 2023).

GRAPH 2.13: GOLD PRODUCION IN 2022



Source: Statista, 2023

CHAPTER III: AFRICA

3.1 Introduction

Africa has been considered for a long time as a continent with immense unexpressed economic potential. Despite being home to vast natural resources and a continuously growing population, African economies have struggled to unlock that potential in a way to achieve sustained and inclusive economic development. In recent years, however, there have been signs of progress, with several African countries experiencing sustained economic growth and diversification. For instance, both countries of South Africa and of North Africa, characterized by a diversified production system, can be viewed as a deviation from the idea of most of the Mother Continent's economy, which is definitely underdeveloped. Indeed, due to the abundancy of natural resources, the African economy has remained so predominantly agricultural that more than 60 percent of the population is still engaged in working the land (Fok, 2012).

Until the beginning of the past century, the harvest was mainly used for domestic contexts since the farming system was based on the exploitation of basic techniques, as well as on traditional organization of the community for its labour (Mabogunje, 2023). Poor transport and communications contributed to farming underdevelopment too and, as a consequence of all this, exchanges of products were very limited. Notwithstanding, there were also societies that had been involved in long-distance trade for many centuries and had developed craft facilities, communications, and a political infrastructure to maintain their trade routes (Mabogunje, 2023).

Africa continues to be the most underdeveloped continent in the world, with over 70 percent of the least developed countries situated within it (Bamidele, 2022). In particular, least developed countries are nations with low-income economies which face significant challenges in achieving sustainable development, notably due to structural impediments. These countries are vulnerable to economic and environmental shocks, and often have limited human resources. The least developed countries have access to specific international support measures from the more developed nations, particularly

in the areas of development assistance and trade (UNDESA, 2023). Unfortunately, many African nations still heavily rely on foreign aid, and most of them have mono-product economies (Bamidele, 2022). Moreover, a significant portion of African countries also face challenges such as corruption, ethno-religious conflicts, and civil wars, making economic and social developing almost impossible to be realized (Bamidele, 2022). To emphasize the severity of the issue, it is noteworthy that 33 out of the 47 nations on the global list of least developed countries are situated in Africa (the Committee for Development reviews the list of 46 least developed countries every three years). Particularly, all 33 of Africa's least developed nations are located in Sub-Saharan Africa, what highlights the overall fragile state of the region (Bamidele, 2022).

3.2 Africa's Colonization

Africa's colonization, which lasted from the late 19th century to the mid-20th century, was a pivotal event in the continent's history. European powers, seeking to expand their influence and control over resources, divided up the African continent among themselves, without regard for existing cultural, linguistic, or political boundaries. This process, which was marked by violence, exploitation, and oppression, had a profound impact on Africa's development, shaping its political, economic, and social landscape for generations to come (Austin, 2010).

During the colonial era, European powers extracted resources from Africa, such as minerals, timber, and agricultural products, while neglecting to develop the infrastructure necessary to support long-term growth and development. Colonial powers also established a system of political control that favoured their own interests, often leading to the marginalization and exploitation of local populations. This, in turn, created deep-seated social and economic inequalities that have persisted long after the end of the colonial rule (Bertocchi, 2002).

Nowadays, the legacy of colonialism can still be felt in many African countries. While some of them have made significant progress in terms of economic development

and political stability, others continue to struggle with poverty, conflict, and corruption. Nevertheless, there is a growing recognition that Africa's future lies in its own hands, and that the continent has the potential to be a major force in the global economy and a source of innovation and creativity.

There has been a notable economic development experienced by Africa during the 20th century, which has brought many advantages to the continent, such as the introduction of wage labour and the improvement of both logistic and communications (Ocheni, 2012). However, at the same time, colonialism gave also rise to several serious problem (Mabogunje, 2023). Indeed, colonialism had a profound impact on African economies, and many of the challenges that these countries are facing today can be traced back to their colonial past (Austin, 2010).

First, colonisers imposed their economic systems on African societies, often to the detriment of local economies. Indeed, the colonial powers required a steady supply of raw materials for their industries, but the organization of African economies at the time did not guarantee this supply. This situation led to a need for direct control over the economy and administration of African enclaves and states: the colonial powers had to take charge of the economy to ensure the production of the necessary raw materials (Ocheni, 2012). The legacy of that, however, resulted to be that the majority of African countries would heavily depend on the exportation of only a few key agricultural products or minerals to generate the bulk of their foreign-exchange earnings (Mabogunje, 2023). The situation has not changed. In fact, the dominance of "monoculture" in African economies is often criticized and viewed as a triumph of colonial agendas over African ones. In addition, European colonisers established export-oriented economies that were geared towards meeting the needs of European markets, rather than the needs of local populations (Austin, 2010). The term “monoculture” refers to the situation where colonial economies were centred around a single crop. For instance, in those years, Liberia was a monoculture reliant on rubber, the Gold Coast was dependent on cocoa, Dahomey and southeast Nigeria on palm-derived produce,

Sudan on cotton, Tanganyika on sisal, and Uganda on cotton. In Senegal and Gambia, groundnuts accounted for 85 to 90 percent of their revenues (Rodney, 1972).

Historians and agronomists have all demonstrated the diverse range of foods present within the pre-colonial African economy. African farmers domesticated numerous crops, and there were several wild food species, especially fruits, which were used for sustenance. Moreover, Africans were not hesitant to adopt useful food plants of Asian or American origin. Indeed, diversified agriculture was a common practice in African tradition and, focusing solely on one or two cash crops for export had various negative consequences (Rodney, 1972).

The disadvantages arising from the threat of extreme vulnerability and insecurity of monoculture were devastating: African producers were left powerless against capitalist manoeuvres due to the externally controlled price fluctuations. This situation, and thus monoculture, was favoured by capitalists also because they made colonial economies reliant on European imports for their harvest (Rodney, 1972).

The colonization of Africa by European nations was prompted by numerous factors, such as the emergence of the Industrial Revolution which led to swift socio-economic changes and technological breakthroughs within Europe. This shift resulted in a surge in manufacturing, and developments in industry outpaced those in agriculture. Subsequently, the agricultural sector was faced with the difficult task of meeting the increasing demand for raw materials required by industries. This challenge was further exacerbated by dwindling agricultural harvests, which posed the problem of how to produce sufficient food to feed the fast-growing urban population (Ocheni, 2012).

The straight consequence to Africa of being an export-oriented country was that its economies have been vulnerable to high fluctuations in the prices of commodities and its economic growth was profoundly impacted by their volatility (Deaton, 1999). When the price of the commodities reaches high levels, countries basing economy on commodities export may undergo rapid economic development, since their revenues do grow thanks to those commodities. As a result, this can bring to new investment in infrastructures and other areas of the economy, driving further growth. On the contrary, when commodity prices experience fall, countries reliant on exporting them are likeable

to live an acute contraction in economic growth, leading to a cruel cycle of low growth and developments (Deaton, 1999).

Colonialism prematurely integrated African trade and economy into the world market and international trade, and as it is commonly recognised, before fully integrating into a more global economy, a local economy must initially establish its own internal dynamics and production capabilities (Ocheni, 2012). Essentially, in Africa, the raw materials produced were used by industries located abroad, leading to no organic linkage between the agricultural and industrial sectors. As a result, the African economy stagnated, with surplus profits appropriated by the colonial powers not being reinvested in the economy. Furthermore, the colonialists' direct authority over the African economy and political administration hindered African colonies from participating in the manufacturing sector. As a result, Africans and their technology were solely limited to producing primary goods or agricultural raw materials that were in demand by industries in Europe (Ocheni, 2012).

Moreover, it is argued that commodity-dependent countries are often exposed to a phenomenon known as the "Resource Curse[9]", at the basis of which there is a counter-intuitive result. Not only the favourable endowment is not exploited by the resource-rich country, but it may also economically underperform with respect to the less-well-endowed countries (Auty, 2002). In substance, the Resource Curse states that, in addition to an almost total absence of economic growth, countries heavily dependent on the export of commodities suffer also from several economic and social consequences, such as corruption, political instability and environmental degradation (Deaton, 1999). Different studies have discovered that the phenomenon is particularly evident in the case of one specific natural resource: petroleum (Investopedia, 2022). All of this underscores the significance of economy diversification with a view to reduce commodity export dependency and promote sustainable economic growth (Deaton, 1999).

During the two decades after the political independence of most African countries (1960-80), the promotion of industrial development was surely the second

[9] The definition "Resource Curse" was coined by the British economist Richard Auty in his book intitled "Sustainable development in mineral exporting economies: The Resource Curse Thesis" in 1993.

significant change in their economies. However, the political fragmentation of the continent gave birth to numerous small markets, so becoming a major obstacle to the widespread of industrialization. As a matter of fact, a significant number of African nations ended up burdened with surplus industrial production capability, as well as substantial foreign debts that were primarily accrued to construct such capacity (Mabogunje, 2023). Additionally, European colonizers often neglected to invest in infrastructure or develop local industries, which meant that African economies remained underdeveloped and dependent on outside markets.

As it is possible to understand, the African commodity market has been a significant driver of economic activity on the continent for almost a century. Africa is home to a diverse range of commodities (including oil, gas, minerals, and agricultural products), which are in high demand in global markets. However, the African commodity market has been subject to a variety of challenges, including volatile global commodity prices, weak infrastructure and logistics systems, and a lack of diversification in many African economies. These challenges have made it difficult for African countries to fully realize the potential of their commodity resources and have hindered efforts to achieve sustained and inclusive economic development.

After colonialism ended, African countries has been left with a legacy of economic underdevelopment that has proved difficult to overcome (Austin, 2010).

3.3 Africa’s Economy Overview

Commodities play a vital role in Africa's economy, as they have historically been the main source of revenue for many African countries. The prosperity of natural resources in the African continent, which includes minerals, oil, gas, and agricultural products, have always brought the demand of those commodities to be heightened from a global perspective. As a result, commodities have been the backbone of many African economies for decades, if not even for the last century, significantly contributing to their export earnings and trade balance. Notwithstanding, in recent years Africa's

commodity exports have tried to diversify in order to include processed and value-added products, such as refined petroleum products, processed food, and finished goods, as the continent has been managing to add more value to its raw materials and improve its economic prospects (UNCTAD, 2022).

Commodities account for more than 60 percent of total merchandise exports in 45 of the 54 countries in Africa in 2022, leaving them highly vulnerable to global commodity price fluctuations, leading to revenue shortfalls, economic instability and the underdevelopment of the continent’s inclusive growth and prospects (UNCTAD, 2022). Despite the challenges, commodities still remain the main component of Africa's economic development, and also for this reason, there is the need for sustainable and inclusive policies to ensure the benefits of commodity exports being equitably shared among all segments of society.

In spite of the impressive recovery in 2021 from the COVID-19 pandemic shock, mainly thanks to a strong rebound in commodity prices on the back of strengthening global demand, the rollback of pandemic-induced restrictions, recovery in domestic consumption, and a gradual resumption of tourism in several tourism-dependent economies, African economies faced significant headwinds in 2022 (AFDB, 2023). However, the economies have managed to remain resilient and have maintained a stable outlook. The causes of the economic growth deceleration include multiple factors, such as the increasing influence of climate change, the ongoing COVID-19 threats in Africa and worldwide, and the spill-over effects of mounting geopolitical tensions, such as emerging flashpoints of conflict and insecurity across the continent and Russia's invasion of Ukraine. These domestic and external shocks have led to substantial volatility in global financial markets, resulting in inflationary pressures, higher capital and debt servicing costs, disruptions in global supply chains (particularly in the food and energy markets), and have weakened demand in major export markets, such as Europe and China, the two Africa's main trading partners (AFDB, 2023).

In 2022, there was a deceleration in the estimated average growth of real gross domestic product (GDP) which decreased to 3.8 percent from 4.8 percent in 2021 and it is expected to stabilize at about of 4.3 percent on average during the 2023-2027 period

(Statista, 2022). Thus, the slowdown reflects the confluence of the domestic and external shocks just high-lighted.

Notwithstanding the challenges, the overall economic outlook for Africa is positive thanks to high prices for key exports and an expected increase in demand for Africa's natural resources (AFDB, 2023). Thus, regardless of facing various negative impacts, the economy in all five regions of Africa[10] managed to grow positively in 2022. Moreover, the prospects for 2023-2024 are foreseen to be steady. In particular:

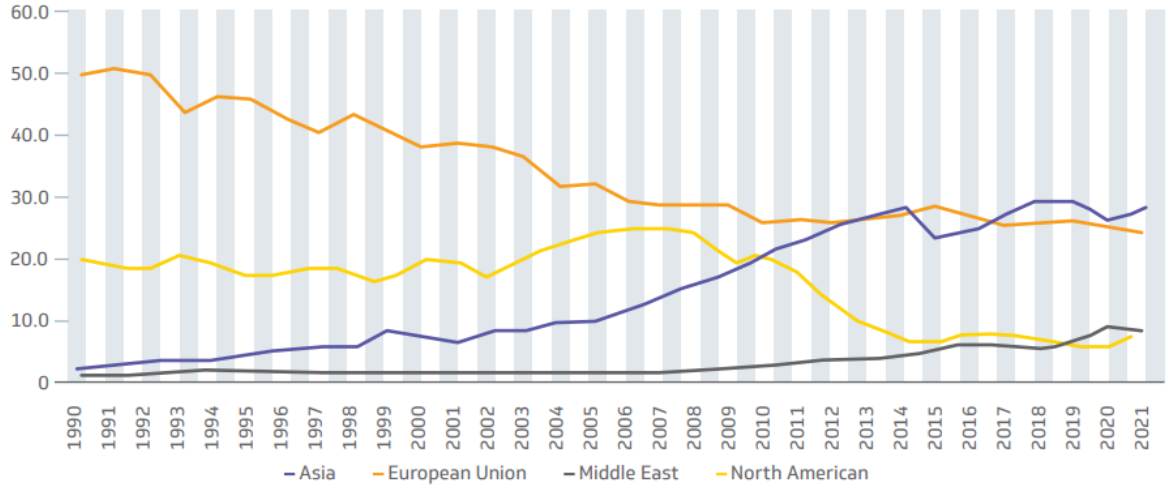
- In North Africa, the growth rate decreased by 1.1 percentage points, going from 5.4 percent in 2021 to 4.3 percent in 2022, mainly due to a significant reduction in Libya's economy and a drought in Morocco. However, the growth rate is anticipated to remain stable at 4.3 percent in 2023, with the two aforementioned countries expected to experience a robust recovery and other regions in the area sustaining their economic growth (AFDB, 2023).
- In Sub-Saharan Africa (SSA), which comprehend the economy of Central, Southern, East, and Western Africa, the economic growth rate decreased from 4.1 percent in 2021 to 3.6 percent in 2022, and it is expected to drop even further to 3.1 percent in 2023. This downgrade is attributed to various factors, such as the sluggishness of the global economy, high inflation rates that are decreasing but still high, and challenging domestic financial conditions, exacerbated by high levels of debt. Despite projected growth rates of 3.7 percent and 3.9 percent in 2024 and 2025 respectively, it is still unlikely that these conditions will be enough to eradicate extreme poverty or promote shared prosperity in the long run. Obviously, it is also important to note that economic growth rates are not consistent across all subregions and countries within SSA (World Bank, 2023).

The stable forecast of the African economy and growth in the medium term could receive an additional boost thanks to the expected reopening of China (which has been following a zero-COVID policy for three years), and thanks to the solid growth

[10] The continent of Africa is commonly divided into five regions, four of which are in sub-Saharan Africa: Northern Africa, Central Africa, Southern Africa, East Africa, and Western Africa (UNSD, 2023).

projections for Asia. Asia is fundamental to Africa's commodities market since it accounted for about 40 percent of the continent's total merchandise export just in 2021 (UNCD, 2022). Indeed, despite African nations have historically traded more with Europe than with any other region in the world, during the last few decades, this trend has been gradually shifting, with the rise of the developing world, especially Asia (AFDB, 2023). This enabled Africa to accelerate the geographical diversification of its trading partners. According to this, the quota of Africa's exports to Europe, which averaged around 45.7 percent during the 1990s, has been gradually declining, averaging about 30.9 percent from 2002 to 2011 and 26.4 percent from 2012 to 2021. On the other hand, Asia's share has seen an exceptional escalation from just about 4.97 percent to 14.10 percent and 27.04 percent, respectively, during the same periods (Graph 3.2) (IMF Direction of Trade Statistics, 2022).

GRAPH 3.1: AFRICA'S EXPORT DESTINATION THROUGH THE YEARS



Source: IMF Direction of Trade Statistics, 2022

The growing trade ties between Africa and Asia reached a turning point in 2013, when Asia's share of Africa's exports reached 26.9 percent, exceeding for the first time the share of Africa's exports to Europe—26.6 percent. By 2017, the proportion of Asia's share in Africa's trade had risen to 27.8 percent, surpassing the European Union's share once more. This ongoing trend was characterized by strengthening trade connections

between Africa and Asia, accompanied by a decline in Africa's exports to Europe. In 2021, African exports to Asia raised to 28 percent, while the EU's share dropped to 24 percent during the same period (Graph 3.1).

The strengthening trade relations between Africa and Asia have primarily been propelled by the prominent contributions of China and India. Africa's exports to Asia expanded by 28.3 percent to almost $160 billion in 2021, from $139.37 billion in 2019. Of these, the share to China has remained above 60 percent during the last three years, and expanded by 62.4 percent in 2021, from 63 percent in 2019 (AFDB, 2023). At the same time, China experienced a notable increase of 17.4 percent in its share of Africa's overall merchandise exports to the global market in 2021. This expansion solidified China's position as the foremost trading partner for Africa, a partnership where African exports have generally exceeded its imports. Moreover, the stronger increase in Africa's exports to China than its imports allowed Africa to achieve a trade surplus of $10.8 billion in 2021, a significant shift from the sluggish deficit of $0.19 billion in 2020 (AFDB, 2023).

A comparable pattern can be observed in the import sources of African countries. Despite the EU historically being Africa's primary import market, its share of the overall African imports has been consistently declining over the years. In contrast, the share of Asia in African imports has been steadily increasing (AFDB, 2023). The changing geographical shift of Africa's import sources can be attributed to various factors, among which a very significant one is the enduring economic challenges faced by the EU. Indeed, the EU has experienced stagnant growth and a continuous decline in industrial production and manufacturing output. In contrast, Asia has witnessed robust economic growth driven by rapid technological advancements and expanding manufacturing capabilities, establishing itself as a global industrial powerhouse. Africa's increasing imports from Asia are primarily characterized by machinery and electrical appliances, electronics, mineral fuels and oil, vehicles, and plastic materials (AFDB, 2023).

To conclude, although African countries are expected to experience a welcome recovery and economic resilience in the short to medium term, it is important to approach this outlook with cautious optimism due to the significant global uncertainty. The accumulation of public debt in the past decade and the changing structure of this debt, combined with the financial pressures created by the appreciating US dollar and tightening monetary conditions worldwide, could increase the risks of debt default in some African countries. Furthermore, the planned national elections in 30 African countries in 2023 and 2024 may create uncertainty over sustained macroeconomic policy and potentially weaken investor sentiment (AFDB, 2023).

3.4 Africa's Commodity Market

The sustained improvement in commodity terms-of-trade, commonly known as the commodity super-cycle, has been attributed to Africa's economic expansion over the past two decades. This period of growth has aligned with a global commodity price boom since 2000, leading some analysts to argue that the continent's growth is closely tied to commodities (Collier and Goderis, 2012). However, the end of the last commodity super-cycle in 2014/16 marked the onset of severe supply disruptions that adversely affected commodity prices. More recently, these disruptions have been further exacerbated by the COVID-19 pandemic downturn, reduced investment in the energy sector, disruptions in supply chains, and the Ukraine crisis. Additionally, the gradual yet consistent global shift towards decarbonization has also been impacting commodities demand and amplifying their price volatility, particularly in the energy sector (AFDB, 2023).

Despite relatively low Covid-19 fatality rates in Africa, the region experienced significant economic repercussions from the pandemic. As a continent heavily reliant on commodity exports, fluctuations in natural resource prices emerged as a key driver of macroeconomic instability. The imposition of lockdowns and movement restrictions in response to the pandemic led to a sharp decline in demand for inputs, resulting in limited production activities and disruptions in global commodity markets (AFDB, 2023).

For instance, the energy sector was particularly affected as consumption levels plummeted. The number of oil exploration projects dropped from over 800 in 2019 to 265 in 2021, and petroleum consumption experienced a severe decline of approximately 25 percent, marking one of the most significant energy demand shocks since World War II (IEA, 2020). This substantial drop in crude oil demand resulted in prices reaching levels not seen since 2016 during the mid-2020 period. However, as concerns regarding the pandemic eased and economic activity started to recover in 2022, energy prices began to rise, benefiting Covid-impacted countries. Thus, monitoring trends in the key commodity markets of the region has been of utmost importance for businesses and policymakers due to the recurring impact of unfavourable commodity terms of trade shocks, which have significantly hampered economic growth in African economies (AFDB, 2023).

Africa is home to a substantial amount of the world's natural resources, including roughly 30 percent and 12 percent of global oil and mineral reserves respectively, and 8 percent of the total natural gas. Moreover, the continent possesses about 40 percent of the world's gold and up to 90 percent of chromium and platinum, as well as the largest reserves of cobalt, diamonds and uranium. Additionally, a significant portion of the world's arable land is located in Africa (around 65 percent) and, in most African countries natural capital accounts for between 30 percent and 50 percent of their total wealth (UNEP, 2023).

Agriculture

Despite the significant variations across countries, agriculture is by far the single most important economic activity in Africa, providing employment for about two-thirds of the continent’s working population. The number of people employed in the primary sector in Africa grew from around 197 million in 2011 to 226 million in 2021 (Statista, 2023). Agricultural activities attract a large share of the labor force in East and Central Africa, which has registered percentages over the regional average. In contrast, North Africa exhibits the lowest proportion of employment in the agricultural sector due to its

substantial reliance on the industrial and service sectors within the regional economy (Statista, 2023).

South Africa and Nigeria possess the largest agricultural areas among African countries, with approximately 96 million and 69 million hectares of land respectively dedicated to crop cultivation (Statista, 2023). The agricultural production across African nations exhibits substantial variations in terms of both the types of crops grown and the overall volume of production. Cereals, including rice, corn, and wheat, stand out as primary crops cultivated on the continent, serving as staple food sources in most countries.

Several factors have always worked in favour of further expansion and commercialisation of the crops sector. Agricultural policies have undergone positive changes, reducing distortions such as industrial protection and export taxation and consequently enhancing financial incentives for farmers. Furthermore, export agriculture has undergone substantial progress, thanks to the emergence of global value chains and the strengthened position of African suppliers in integrated supply chains for traditional commodities (Swinnen, 2012). The African agricultural export relies on products such as cocoa, coffee, cotton, cassava and spices to the nations of the world to earn significant foreign exchange and together generate over 80 percent of the dollar value of agricultural exports in 2021 (Statista, 2023). Those crops are also known as “Cash crops”, that is agricultural crops cultivated primarily for sale, rather than for subsistence or personal consumption. Indeed, cash crops play a significant role in Africa's economy and have a substantial influence on the continent's export sector. The size of Africa's cash crop economy has substantially increased in the past decade and its production and export have both positive and negative impacts on the continent's economy (Achterbosch, 2014-2017). As stated before, cash crops significantly contribute to Africa's export earnings, providing vital foreign exchange that can be used to finance imports, pay off debts, and support economic development initiatives. In addition, cash crop cultivation creates employment opportunities, particularly in rural areas where agriculture is a primary economic activity and foster trade relationships with other countries (Achterbosch, 2014-2017).

By contrast, one of the challenges associated with cash crops is tied to the problems already cited when discussing about the Monoculture, that is the vulnerability of the African continent to international market price fluctuations and the high degree of dependency on external markets (Achterbosch, 2014-2017).

Africa's most extensively produced cash crop is represented by cassava, which yields on average an annual production of nearly 200 million tonnes, 63 percent of the global total (Africa Business Insider, 2023).

On the other hand, with 97 percent of the global total, yam production primarily thrives in West Africa, which is often referred to as the "yam belt." The cultivation of yam plays a vital role in the economic well-being of the region, involving more than 60 million individuals in its production. Ghana was a leading exporter of it thanks to a volume of 35 million metric ton in 2021 (Africa Business Insider, 2023).

The African cocoa production, instead, is globally represented by the countries of Côte d'Ivoire, Ghana, Nigeria, and Cameroon which together are responsible for over 70 percent of it, with a combined output of 3 million tons in 2021 (Statista, 2023). Côte d'Ivoire, specifically, took the lead, producing approximately 2.2 million tons of cocoa beans that year. Indeed, a substantial portion of the country's export revenue is derived from the export of that commodity, approximately 38 percent (Statista, 2023).

Moreover cotton, a significant commodity in the global textile industry, is one of the most important cash crops in the continent. It is cultivated in 37 out of the 54 African countries, with exports being conducted by 30 of these nations. Benin, Mali, Burkina Faso, and Ivory Coast are the highest cotton-producing countries in Africa and account for about 50 percent of the region's production (MordorIntelligence.com, 2023). Mali was the largest exporter in Africa, selling around 1.3 million bales in the crop year 2020/2021. This represented the highest export trade in Africa, followed by Burkina Faso at approximately 1.1 million bales (Statista, 2023). Major importers of African cotton are Bangladesh, Vietnam, China, and Malaysia. Cotton, in fact, better grows in a warm and moist climate where summer is longer and where salinity in the soil is rich, making Sub-Saharan Africa one of the largest cotton producers worldwide (MordorIntelligence.com, 2023).

As for the import of agricultural products, it has increased through the decades because of the outpacing growth of population over commodities production growth, so resulting in a greater dependence on world food markets. Cereals, vegetable oil and sugar are the main staple foods that African countries import from world markets. For instance, between 1990 and 2010, Nigeria's cereal imports expanded to 600,000 tonnes, a sixfold increase in two decades. According to United Nations COMTRADE database on international trade, Nigeria imported $554.8 million of cereals during 2021.

Minerals

As briefly mentioned above in reference to minerals, Africa is also well endowed with them. The mining and extractive industry made and continues to make substantial contributions to Africa's annual exports, revenue, and GDP. In 2019, minerals and fossil fuels constituted more than one-third of exports from at least 60 percent of African nations. Moreover, 42 of the 54 countries in Africa are categorized as reliant on natural resources, with 18 countries dependent on non-fuel minerals, 10 countries dependent on energy exports, and the remaining countries reliant on agricultural exports (Signé, 2021). In certain nations, minerals comprise over 50 percent of the overall value of exported goods. To illustrate, minerals and metals represented 92 percent of the total value of exports from Botswana from 2013 to 2017, while they accounted for 81 percent of the total export value from the Democratic Republic of Congo during the same period (UNCTAD, 2020).

The demand for minerals is projected to experience significant growth in the coming years due to their indispensable role in the manufacturing of batteries, wind turbines, and solar energy systems. Indeed, as the global focus on addressing climate change intensifies, the shift towards renewable energy sources presents a promising opportunity for Africa: the continent possesses such a wealth of metals and minerals that is crucial to clean energy production. Notably, in 2019 Africa produced

approximately 80 percent of the world's platinum supply, 50 percent of manganese, two-thirds of cobalt, and a substantial quantity of chromium (IEA, 2019).

In Africa, the mining sector has proved resilient to hostile conditions in the global economy through the years, such as the financial crisis of 2008 and the decline in world commodity prices since 2014, even if the COVID-19 pandemic has recently exacerbated the forward pressure on commodity prices. In 2008, the African Union's Africa Mining Vision provided a significant boost to the mining sector by aiming to enhance capacity, improve revenue transparency and management, address environmental and social challenges, and foster connections with other productive sectors, particularly manufacturing (Signé, 2021).

Presently, mining constitutes a substantial portion of numerous national economies in Africa. Specifically, in countries such as Burkina Faso, the Democratic Republic of Congo, Guinea, Mauritania, Mozambique, and Zambia, the mining sector contributes to more than half of their total exports. However, in North African and Central African countries, the production of non-fuel minerals is comparatively lower, with greater reliance on oil extraction and agriculture, respectively. In this regard it is worth noting that Morocco stands as an exception, given that it holds a prominent position as a global leader in phosphate reserves (USGS, 2020).

Emerging economies are recognizing the resource boom that Africa has experienced over the past decades, as well as the continent's potential to maintain its dominance in the global market. Africa's advantage lies in its relatively low production costs, and the continent's expanding workforce further incentivizes the expansion of foreign operations. Countries such as India, Russia, and Brazil are actively expanding their presence in Africa's mineral resource sector, augmenting their investments and intensifying their competition for rights to both known-resource-rich land and unexplored territories. Notably, China has displayed a particularly formidable presence in Africa (Signé, 2021).

For example, in 2021 Africa produced around 156 metric tons of platinum, with South Africa being the world's leading platinum producer. South Africa accounted for roughly 142 metric tons of the mine production, more than twice as much as every other

country on Earth combined. Zimbabwe was the third largest platinum producer in the world with only 15 metric tons (Statista, 2023).

In addition, the African continent produced more than 29 million metric tons of manganese and, even for this type of metal, South Africa resulted to be the world's largest producer, accounting for 33.5 percent of global production in 2021. South Africa produced over 19 million metric tons of it, followed by Gabon with 7 million metric tons. Most of South Africa's manganese mining is concentrated in the Kalahari Desert, which is believed to hold more than 70 percent of global reserves (Statista, 2023).

Not only. South Africa also emerged as the dominant global producer of chromium, surpassing all other countries, with a remarkable production volume of 18 million metric tons in 2022. In this case, Africa's share of the world's total chromium production, which reached 41 million metric tons, was approximately 44 percent (Statista, 2023).

Another mineral essential to our era and widespread in the African continent is, for sure, cobalt. It is a crucial component in the cathode of lithium-ion batteries, widely used in portable electronic devices. According to data released by the US Geological Survey, global cobalt production reached a record high of 170,000 tonnes in 2021 and the Democratic Republic of the Congo maintained its position as the world's foremost supplier of mined cobalt, accounting for over 70 percent of the global cobalt-mine production.

The Democratic Republic of the Congo stood also as the largest copper-producing country on the continent, with nearly 2 million metric tons produced during the same year. This represented approximately 8 percent of the total global copper production. Overall African copper output for 2021 amounted to 2.87 million metric tons (Statista, 2023).

African diamonds, one of the world's major natural resources, accounts for a substantial portion of the global production, both in terms of quantity and value. An estimated $13 billion worth of rough diamonds are produced per year, of which approximately 65 percent are from Africa (Diamondfacts.org, 2023). Within Africa, several countries are major diamond producers. Botswana is the world's leading

diamond-producing country by value and it is estimated to account for around 20-25 percent of global diamond production. Democratic Republic of Congo is known for its vast diamond reserves and is a significant contributor to the global diamond supply. It is estimated to produce around 18 percent of the world's diamond. To conclude, thanks to its long history of diamond mining, South Africa remains an important player in the global diamond market (Statista, 2023).

Ultimately, the economies of resource-rich African countries rely heavily on crude oil and natural gas, which significantly contribute to their development and represent the main source of public revenue and national wealth. In fact, the African continent is constantly witnessing new findings of oil and gas reserves, which offer distinctive prospects for economic growth (African Development Bank, 2021).

The next sub-paragraph is to analyse the African economic situation experienced by the three hard commodities presented in chapter 2, in order to better understand how much the weight of Africa's production (and not only) is relevant in those markets and namely in the overall global economy.

Oil

Since the discovery of oil in the mid-19th century, crude oil explorations have been an important source of revenues in Africa, via trade and investment. Crude oil has strengthened the continent's economy and improved the wellbeing of the citizenry (Adeola, 2022). However, the great influence of the oil market in the Mother Continent has also some drawbacks. Indeed, the economic recession in oil-producing countries was caused by the heavy reliance on revenues from the hard commodity, which plummeted due to both lower prices and the global pandemic during the two-year period 2020-2021. In addition, as a result of crude oil exploration activities without satisfactory compensations and remedial actions by oil companies and the government throughout the decades, many communities in areas endowed with crude oil reserves

now suffer from inadequate infrastructure, arable soils, and clean water, leading to a violation of their functioning capabilities (Adeola, 2022). Moreover, the significance of oil as a resource in African economies has been amplified by the continuing emergence of new oil reserves.

Africa holds five of the top 30 oil-producing countries in the world and its production accounted for about 6.5 million b/d in 2022, representing approximately 9 percent of the world total output (EIA, 2023). As it is possible to note from Graph 3.3, this level of production is very far from the peaks reached during the period going from 2005 and 2010, when Africa's production amounted to more than 9 million b/d, almost 10 million b/d (EIA, 2023). The main reason behind the significant drop in production from 2010 to 2015 was primarily attributed to the decrease in the worldwide oil prices. Indeed, the production drastically decreased from about 10 million b/d in 2010 to 8.5 million b/d the following year, arriving even to a lower level of 7.4 million b/d in 2016 (EIA, 2023). Then, until 2019, production levels remained constant. Yet, the combination of the financial crisis around the globe, the Covid-19 pandemic and a conflict related to production between Saudi Arabia and Russia during the initial months of 2020 further decreased African oil production to the lowest level observed in the last 20 years. In 2020, the production amounted to 6.4 million b/d (EIA, 2023). Although Africa faced these challenges, it remains a significant oil producer on a global level, and its oil-rich nations manage to obtain a considerable portion of their expected oil quota.

The production of oil is primarily concentrated in North and West Africa, which holds seven of OPEC's 14 members namely: Algeria, Angola, Congo, Equatorial Guinea, Gabon, Libya, and Nigeria. Across the history, African nations have taken on powerful and proactive leadership positions within OPEC, and they will undoubtedly be crucial in addressing the global energy needs of both the present and future, according to what stated by the Secretary General in the OPEC's World Oil Outlook 2021.

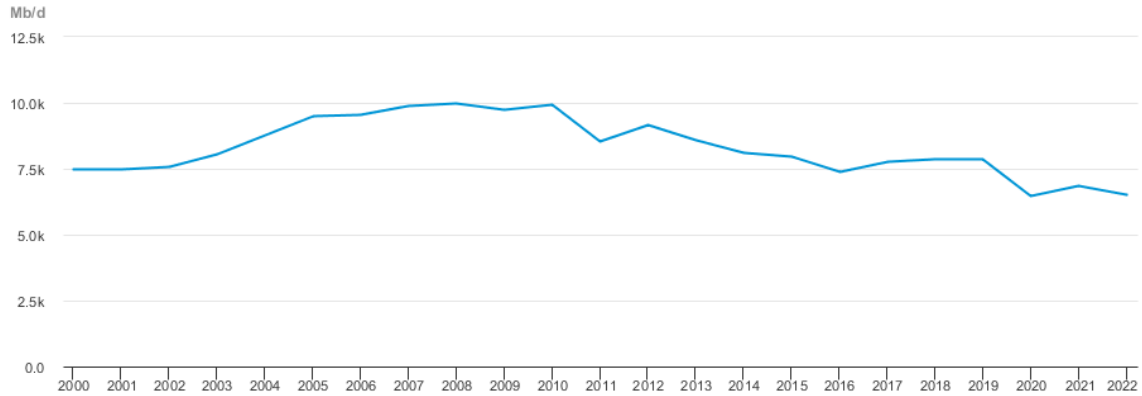
As regard oil consumption, the amount at issue is not so large. Indeed, considering all 54 African countries together, oil consumption amounted just at 4.3 million b/d in 2021, a slightly increase with respect to 2020 which registered 4 million b/d (EIA, 2023). However, looking at the Graph 3.3, it is possible to understand that the consumption of oil in Africa in 2021 just confirmed the increasing trend lasting for more

than 20 years. The main driving factors of the increasing of oil consumption are population growth and economic development. Indeed, as African economies continue to grow and industrialize, the demand for energy, including oil, is rising. Additionally, as more people in Africa are gaining access to electricity and transportation, there is an increased demand for oil-based fuels like gasoline and diesel. Furthermore, Africa's oil production has not kept pace with its rising demand for oil, which has led to an increase in oil imports. Indeed, energy demand on the continent, and thus the demand for oil, threatens to outstrip supply. According to a McKinsey's study 2021, over the next two decades, the two factors cited before are supposed to trigger a strong energy demand growth across the continent. McKinsey's modeling estimates that energy demand in Africa in 2040 may increase by approximately 30 percent compared to current levels, whereas global energy demand is expected to rise by only 10 percent.

As for oil reserves, just five African countries hold more than 85 percent of the continent and, in 2021, crude oil reserves amounted to 125.3 billion barrels (Statista, 2023).

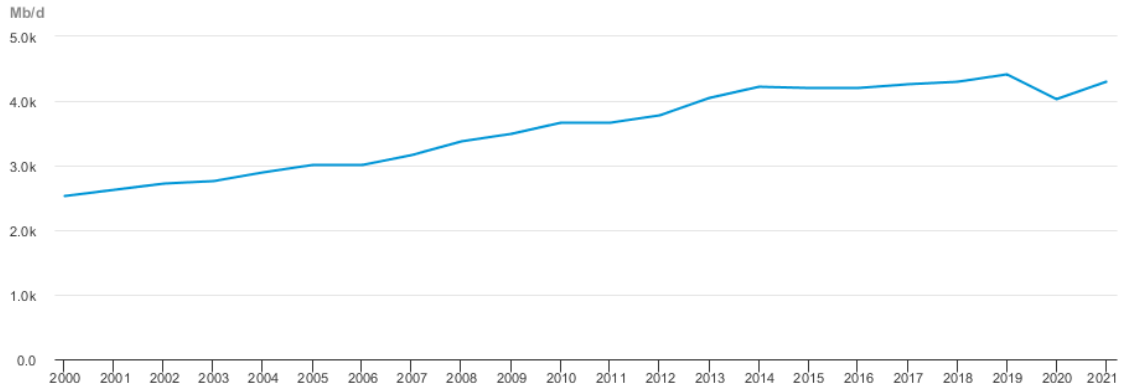
Regarding the monetary value, African oil is typically priced in relation to the global benchmark for crude oil, that is the Brent crude. For this reason, the price of African oil is impacted by global supply and demand factors, geopolitical tensions and events, and even by the variations in the value of major currencies such as the US dollar.

GRAPH 3.2: AFRICA'S OIL PRODUCTION



Source: EIA, 2023

GRAPH 3.3: AFRICA'S OIL CONSUMPTION



Source: EIA, 2022

In 2022, the leading oil producing country in Africa was Nigeria, which ranked 14th in the world. Oil production amounted to 1.3 million b/d in the country, confirming a decreasing trend started in 2014 when the production registered was about 2.3 million b/d, and representing a minus 31.6 percent with respect to 2019, when the production was 1.95 million b/d. Furthermore, the amount is still far by the highest level reached, almost 3 million b/d, in 2005 (EIA, 2023).

While being the main oil producer in Africa, Nigeria was also the largest crude oil exporter in the continent. The country sold nearly 1.6 million barrels of oil daily to the international market in 2021, essentially 800k b/d lower than the peak experienced during the 2004-2006 period (EIA, 2022). The African nation primarily exports crude oil to Europe and Asia. In 2021, the export value of crude oil to Europe was approximately $3.2 billion, while exports to Asia were nearly equal at $3.1 billion (Statista, 2022). In addition, Nigeria has been ranked 11th among the top 20 countries with the largest proven oil reserves in the world, which has remained unchanged at 37 billion barrels for the past decade due to minimal exploration efforts aimed at discovering new reserves (EIA, 2022).

The second place in the continent's oil production is occupied by Algeria. Indeed, the North African country obtained 1.2 million b/d in 2022 according to EIA. Despite being a significant oil producer, Algeria faced several challenges, including a declining oil production trend, which has been attributed to aging oil fields and insufficient investment in exploration and production. In 2007 the production amounted to almost

2 million b/d, specifically 1.7 million b/d (EIA, 2023). It also ranked sixteenth in proven oil reserves with 12 billion barrels and exported roughly 60 percent of its total oil production in 2021. In particular, Algeria's crude oil exports amounted to 446,000 barrels per day, representing an increase compared to the previous year. However, there has been a decline in crude oil exports since the peak of over 1.2 million barrels per day reached in 2007, which coincided with the 2008/2009 global financial crisis (Statista, 2023).

The oil production podium is then completed by Angola, with a production of 1.3 million b/d in 2022, although during the years of prosperous oil production, such as 2010, it reached as high as 2 million b/d (EIA, 2023). The petroleum industry is crucial to the country's economy, contributing nearly 75 percent of its total revenue and representing 90 percent of its total exports in 2021 (Statista, 2023). In 2021, the total export of oil accounted to 1.1 million b/d and the main destination was China, amounting to a total of nearly 14.2 billion U.S. dollars and 71.5 percent of total exports. Then, India followed with 7 percent. Despite being a major producer in the continent, Angola relies heavily on imported refined petroleum since its domestic refining capacity is limited and cannot meet its demand. The 80 percent of its refined petroleum product demand (such as gasoline, diesel, aviation fuel, and oil fuel) is actually met through imports. Only 20 percent of refined products is sourced by local production (Privacy Shield, 2023). For this reason, the country annually spent more than $2 billion on importing petroleum in 2021 (International Trade Administration, 2022). However, Angola could still be defined as a net oil exporter, like all the others African countries cited before. As regard Angola’s crude oil reserves, they amounted to 7.8 billion barrels in 2021 (EIA, 2022).

Other important oil producing countries in Africa are Libya and Egypt, which respectively produced 1 million b/d and 568 thousand b/d in 2022 (EIA, 2023).

Natural Gas

The gas sector has a central role in the economy of different important countries of the African continent, which are rich of it and depend on its sales for a large share of revenues and economic development (Graham, 2019).

Several countries in the African continent acknowledge the pivotal role of the gas sector in their economy. Beneath them is a huge reservoir of natural gas whose sale means a large share of revenues and lies at the basis of economic development

Natural gas production in Africa amounted to 260 billion cubic meters in 2021, up from 233 bcm registered the previous year (EIA, 2023). Since the beginning of the 21st century, African production of natural gas has bounced by almost 134 billion cubic meters (a growth of more than 70 percent) and the 2021's output represented the highest ever reached. Thanks to the abundant natural gas reserves, Africa is expected to expand its status in the global scenario in the coming years and, as the demand for the hard commodity increases worldwide. Accordingly, Africa may play an increasing role in the World's supply chain of natural gas (Statista, 2022).

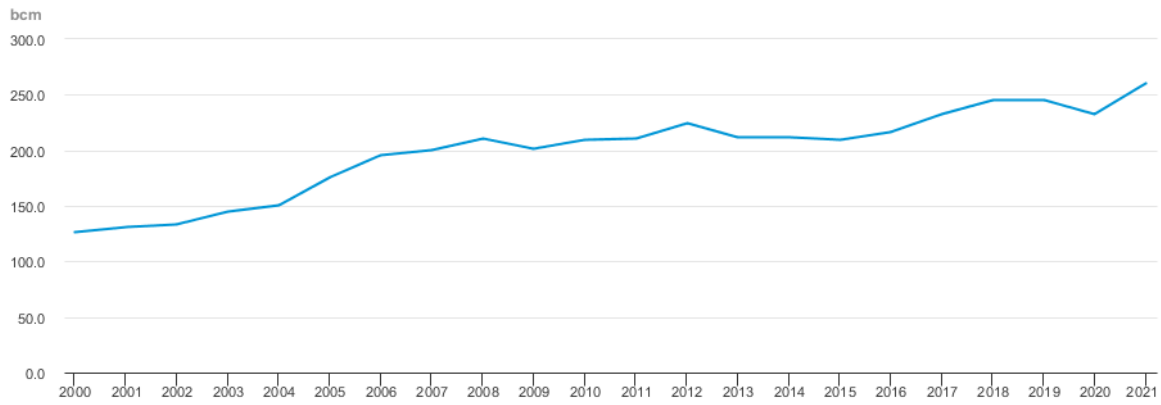
Moreover, it is projected that the amount of gas exported from Africa may triple by 2050. In 2021, African countries exported 58.5 billion cubic meters of LNG and transported an additional 38 billion cubic meters through pipelines (Statista, 2022). Being in close proximity to Europe, the Northern African countries have significant potential as a strategic supplier. In addition, North Africa accounted for nearly half of the continent's total gas reserves, with Algeria concentrating the highest amount.

Natural gas reserves in the whole of Africa totaled over 620 trillion cubic feet in 2021 and it is expected to last for about another 56 years before being depleted, taking into consideration the preservation of the current production level (Statista, 2022). In 2021, the largest reserve of the continent was represented by the one of Nigeria, which was around 5.66 trillion cubic meters, equivalent approximately to 3 percent of the confirmed worldwide natural gas reserves (Statista, 2022). Approximately 85 percent of Africa's natural gas production is supplied by Nigeria, Egypt, and Algeria and nearly 40 percent of it is used to be exported to Europe, China, or India (EIA, 2022). However, this

proportion has seen a persistent decline in recent years due to the rising consumption of domestic gas within African nations (Climate Action Tracker, 2022). Several African nations are pondering the enlargement and/or construction of natural gas-related facilities. In particular, in 2022 there were 16 operational gas fields in Africa, predominantly situated in Nigeria and Egypt, one had been undergoing development in Egypt, and 19 were newly discovered, most of which in Tanzania and Mozambique (Climate Action Tracker, 2022).

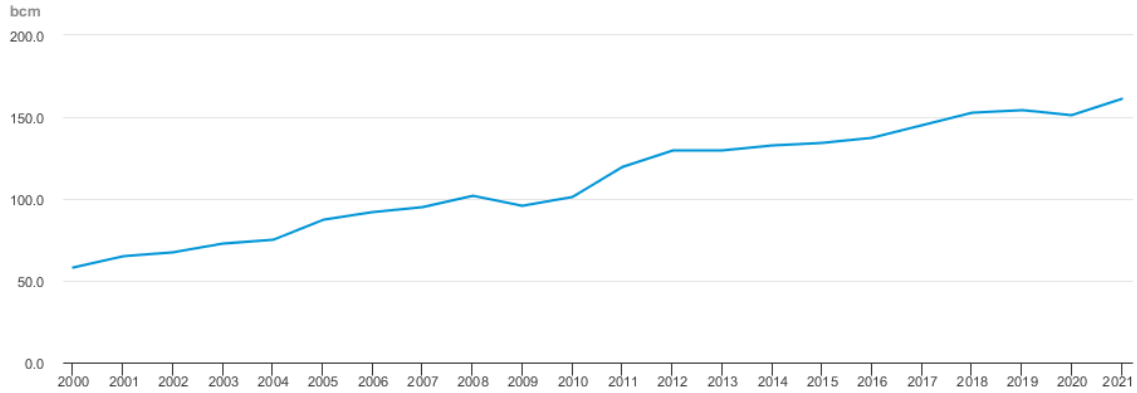
There are also about 22,000 km of planned gas pipelines in Africa, most of which are located in South Africa, Mozambique and Nigeria. Additionally, there are noteworthy proposals to develop LNG export capacities that would amount to 60 million tons per year, as well as LNG import capacities of roughly 20 million tons per year. (Climate Action Tracker, 2022).

GRAPH 3.4: AFRICA'S NATURAL GAS PRODUCTION



Source: EIA, 2022

GRAPH 3.5: AFRICA'S NATURAL GAS CONSUMPTION



Source: EIA, 2022

Algeria is the fourth-largest natural gas producer in the world, after the United States, Russia, and Australia. Moreover, Algeria has always been the largest natural gas producer in Africa, with an average of 84 bcm per year starting from 2000. In 2021, Algeria reached its peak and overcame the 100 bcm threshold in output for the first time, producing about 102 bcm (EIA, 2022). The volume made in that year was 21,4 percent higher with respect to the previous one (84 bcm) and marked a change in the decreasing direction which the production undertook in 2019, when the volume was 89 bcm (EIA, 2022).

After the extraction and production processes, natural gas is mainly exported or used domestically for power generation. As of 2021, Algeria's natural gas consumption amounted to 47 bcm, while its exports were about 54 bcm, making Algeria the leader also in the export of the commodity (EIA, 2022). The primary country for the export of natural gas from Algeria was Italy, representing nearly 67 percent of the total exports in gaseous form. Following Italy was Spain as the second leading destination, accounting for about 30 percent of the exports (Statista, 2023). The largest volume ever exported has been experienced in 2005, around 65 bcm in a year. In 2021, the proven natural gas reserves in Algeria stood at 4,504 bcm, remaining stable since 2005 (Statista, 2023).

Egypt, instead, is the second-largest natural gas producing country in Africa. In 2021, the Egyptian natural gas production reached a high of 69 bcm, that is the 26.5 percent of the total African production (EIA, 2022). In recent years, Egypt has significantly increased its natural gas output, in the aftermath of the Egyptian Revolution[11] in 2011, which brought natural gas production to significantly decline (Climate Action Tracker, 2022).

Despite Egypt's significant increase in natural gas production in recent years, its natural gas exports are smaller than those of other major producers on the continent. This is largely due to the country's growing domestic demand. Nevertheless, the Egyptian government has expressed its intention to expand natural gas exports (Climate Action Tracker, 2022). Natural gas exports amounted to just 4 bcm in 2021, whereas in 2009 they were even around 18 bcm, so they registered a significant drop (EIA, 2022).

Natural gas is even the largest contributor to Egypt's energy sector. In fact, over the past few years, Egypt has been consuming nearly 60 bcm of natural gas annually, which accounts for more than one-third of the total natural gas consumption in Africa, (EIA, 2022). If Egypt continues to consume natural gas at this rate, without exporting any of it, the country's current reserves would be depleted in around 30 years (Climate Action Tracker, 2022). Egypt's natural gas reserves have been estimated at 1,780 bcm in 2020 (EIA, 2022).

Gold

Thanks to the enormous valuable and extractable natural resources concealed beneath its surface, Africa's mining industry is regarded as one of the most relevant in the global context. Indeed, Africa is a major producer of many key mineral commodities,

[11] Starting from January 2011, unprecedented mass protests against poverty, corruption, and political repression broke out in Egypt. Eighteen days later, the marches brought down, , the President Hosni Mubarak, who had ruled the country for almost thirty years (Britannica, 2023).

with plentiful reserves of metals and minerals such as gold, diamond, cobalt, bauxite, iron ore, coal, and copper across the continent (Statista, 2022).

Particularly for this reason, the gold industry has been critical for Africa's economy for centuries, and still remains one of the principal sources of income for many African countries. The continent is well-known for its abundance and its gold reserves are some of the most extensive in the world. The abundance of gold reserves in Africa has attracted significant international investment from all around the world, and several multinational mining companies start operations on the continent every year.

Africa's gold industry has a long and complex history, dating back to the ancient empires and kingdoms that lived on the continent. From the great kingdoms of Ghana, Mali, and Songhai to the modern-day Republic of South Africa, gold has played a crucial role in the continent's economic development (Habashi, 2009). Despite the significant economic benefits derived from gold mining, that industry has also led to various environmental and social challenges in many African countries. These challenges include environmental degradation, health and safety concerns, and the displacement of local communities. Nevertheless, various initiatives by African governments aim to manage and address these challenges in order to promote sustainable gold mining operations on the continent (AFDB, 2012).

On the other hand, in addition of being a pivotal source of revenues, the African gold sector is determining to provide employment opportunities and socio-economic benefits, both for local communities and the broader African economy. Moreover, as the demand for the precious mineral continues to globally increase, the African gold business is likely to remain a major contributor to the continent's economy and development.

In 2021, the worldwide gold output reached roughly 3,000 tons, and Africa contributed to almost a quarter of it, with an overall yield of 680 tons from gold mines around the continent (Statista, 2023). Over the last decade, West Africa has become a significant hub for gold mining, overtaking South Africa's previous dominance in the sector. In fact, the region's economic feasibility and geographical advantages have been attracting attention, resulting in a significant shift in the African gold industry, with West

African countries playing an increasingly critical role. Not only, quickly becoming one of the main gold producing regions in the world – the second largest after China – West Africa has recently become also home to three of the top five gold producing countries on the African continent: Ghana, Burkina Faso, and Mali (Globaldata, 2022).

As the gold price continues to rise, there is an increase in gold exploration on the continent with the activity of mergers and acquisitions expected to increase, above all through foreign investors. Actually, foreign multinational companies are owners of the majority of Africa's gold mines, leading to the government's tax revenues being the primary means by which African countries effectively receive mineral revenue benefits (AFDB, 2012).

According to the Gold Council, in 2021 the largest gold producing region in Africa was Ghana. Also known as the "Gold Coast"[12], Ghana reached a production of 129 tons (117 metric tons), which placed it as the sixth gold producer in the world. Ghana overtook South Africa as the leading African miner in 2019 and has maintained the ranking through the following years. However, the 2021 production level was still far from 2018's one, which amounted to 164 tons (149 metric ton).

Gold is the most commercially exploited mineral in Ghana, accounting for about 95 percent of the total country's mineral revenues (US Department of Commerce, 2023). Total exports amounted at about $5 billions in 2021, making Ghana the 19th largest exporter of gold in the world. The main destination of its exports were Switzerland, United Arab Emirates, India, Australia, and Hong Kong (OEC, 2023).

The second largest gold producing country of the continent is South Africa, which reported a production of almost 114 tons in 2021, representing about 4.2 percent of the global production (Gold Council, 2021). For a long period of time, South Africa was the main producer of gold, having last reached 226 tons of gold in 2006 (Statista, 2023). Before then, in 1970, the total gold production measured 1000 tons. However, in the

[12] Gold Coast was the name for the region on the Gulf of Guinea. It is so called because it was an incredible source of gold (and other minerals). Area of intense colonial rivalry from the 17th century, it was acquired by the British in the 19th century (Britannica, 2023).

early 1990s, the country started to decrease its percentage contribution from around 20 percent in 1990 to 2.8 percent in 2021 of global production (Mutele, 2023). Despite a decrease in production in recent years, there are still a total of 86 gold mines in the southern African country, including the world's largest gold resource, the Witwatersrand Basin.

In 2021, South Africa exported an amount of gold equal to a total value of $20 billion, making it the 5th largest exporter in the world. Gold resulted to be the second most exported product in South Africa and the main destinations being China, India, Switzerland, United Kingdom, and United Arab Emirates. At the same time, South Africa imported more than $1.5 billion in gold (OEC, 2023).

Although South Africa's production has decreased, the country is believed to possess still 6,000 tons of gold, making it the second-largest reserve base globally (Gold Council, 2023). For this reason, new exploration campaigns have recently been launched. Due to the fact that a significant portion of the remaining resources are located deep underground, and the mine temperatures are among the hottest in the world, the cost of mining for gold in South Africa exceeds that of numerous competing African producers.

Burkina Faso is in the midst of a modern gold rush, which place it in the third position of gold production, thanks also to its 103 tons of gold in 2021 (Gold Council, 2021). Over the last decade, Burkina Faso has seen a steady growth in its mining industry, as precious metal reserves are widespread in all areas of the country. As a result, the artisanal and small-scale mining sector has also expanded and, according to certain estimates, the sector has even outpaced the production of the industrial one. Indeed, artisanal and small-scale mining is the primary source of income for the majority of the country's population, directly including over 430,000 people at more than 440 mine sites (Planetgold.org).

Moreover, the share of gold in total exports increased from 5.4 percent in 2007 to 63 percent in 2010 and has risen further in 2012 to an estimated 79 percent. As it is possible to understand, the mining sector has become the primary foreign exchange

earner for the country since 2009 (Ouoba, 2017). In particular, Burkina Faso exported $7.71 billion in Gold in 2021, making it a net exporter of the commodity (OEC, 2023).

Notwithstanding a production of almost nothing, Algeria was the African country with the largest gold holding, precisely at 174 metric tons in 2021. The North African country was then followed by South Africa, with official gold reserves amounting to 125 metric tons. Libya and Egypt ranked next, with 117 metric tons and 81 metric tons, respectively. On the other hand, the rest of the countries each registered official holdings ranging from 3 to 25 metric tons (Statista, 2022).

CHAPTER IV: NIGERIA TERMS OF TRADE

Research method and identification of the country candidate

In order to analyze the terms of trade for a specific African country, a Multiple-Attribute Decision-Making Method has been utilized to select a suitable candidate. The use of Multiple-Attribute Decision-Making Methods means making decisions that involve preferences such as evaluation, prioritization, and selection, when faced with alternatives that possess conflicting attributes (Hwang, 1981). Multiple-Attribute Decision-Making methods are commonly used to determine the optimal solution, select a single option, or rank choices based on their appropriateness, even in cases where there are no specific preferences among the potential outcomes. The primary literature on Decision-Making Models explores various approaches that do not rely on attribute comparisons such as the Dominance criterion, Maximin, and Maximax Methods (Mason, 2008). Among these, the Maximax Method has been employed for the analysis under consideration.

The Maximax Method reflects an optimistic perspective compared to the more cautious approach of the Maximin Method. Each decision is first evaluated as based on the attribute with the highest performance, and then the decision associated with the greatest value among the whole range of maximums is taken (Mason, 2008). To select the country for the analysis, data from 2019 on oil, natural gas, and gold exports from African countries have been gathered. The year 2019 has been selected as the reference year for the data due to several reasons. Firstly, it followed the 2014 oil price shock, which had repercussions on global trade and economies. Thus, the choice of that year has allowed an analysis that captures the period when economies were in a process of recovery, albeit only partially, from the effects of that event. Secondly, it preceded the global COVID-19 pandemic, which also had a significant impact on the global economy and commodity markets.

A matrix has been constructed using the data, where the potential decisions (African countries) were placed in the rows, and the attributes (exports of the analyzed commodities) were represented in the columns. Next, the collected normalized data will be found, encompassing 36 out of the 54 African countries. The remaining countries have not been included as they did not report any exports for the commodities being considered. It is important to note that not all countries have the capability to produce and export all the commodities. In fact, as evident from Table 4.1, certain nations have reported zero values for specific exports.

TABLE 4.1: MAXIMAX CRITERION MATRIX

	OIL	**NATURAL GAS**	**GOLD**	**MAXIMAX CRITERION**
Algeria	0,336	1	0	**1**
Angola	0,724	0,104	0	0,724
Burkina Faso	0,000	0,000	0,217	0,217
Burundi	0,000	0,000	0,005	0,005
Cameroon	0,033	0,018	5,4E-05	0,033
Central African Rep.	0,000	0,000	0,0003	0,000
Chad	0,061	0,000	0	0,061
Cote D'Ivoire	0,016	0,000	0,100	0,100
Egypt	0,108	0,047	0,143	0,143
Equatorial Guinea	0,097	0,086	0	0,097
Eswatini	0,000	0,000	0,0001	0,000
Gabon	0,094	0,000	0	0,094
Ghana	0,094	0,000	1	**1**
Kenya	0,000	0,000	0,059	0,059
Libya	0,565	0,086	0,116	0,565

Madagascar	0,000	0,000	0,012	0,012
Mali	0,000	0,000	0,255	0,255
Mauritania	0,001	0,000	0,023	0,023
Morocco	0,000	0,000	0,004	0,004
Mozambique	0,000	0,082	0,0002	0,082
Namibia	0,000	0,000	0,028	0,028
Niger	0,000	0,000	0,026	0,026
Nigeria	1	0,529	8,260E-06	**1**
Rep. Dem. Of Congo	0,011	0,000	0,010	0,011
Rep. Of Congo	0,176	0,000	9,49899E-05	0,176
Rwanda	0,000	0,000	0,009	0,009
Senegal	0,000	0,000	0,062	0,062
South Africa	0,005	0,000	0,621	0,621
South Sudan	0,067	0,000	0	0,067
Sudan	0,007	0,000	0,102	0,102
Togo	0,000	0,000	0,042	0,042
Tunisia	0,015	0,000	1,239E-05	0,015
Uganda	0,000	0,000	0,053	0,053
United Rep. of Tanzania	0,000	0,000	0,021	0,021
Zambia	0	0,000	0,011	0,011
Zimbabwe	0,000	0,000	0,116	0,116

Source: EIA and UN Comtrade Database, 2023

Usually, in models that exclusively rely on the data contained in the matrix itself, just as in this case, it is necessary to rectify the numerical values with some method of normalization to avoid the choice of the decision maker being influenced by the measurement units (Mason, 2008). In this case, normalization has been carried out by dividing the values in each column by the maximum value within that column. It is evident that when normalization is conducted by assigning a rating of 1 to the best values across different attributes, there is a higher likelihood of identifying more optimal decisions.

TABLE 4.2: MAXIMAX CRITERION RESULTS

	OIL	**NATURAL GAS**	**GOLD**
Algeria	0,336	1	0
Ghana	0,094	0,000	1
Nigeria	1	0,529	8,260E-06

Source: EIA and UN Comtrade Database, 2023

Following the normalization of the data, three countries have obtained a value equal to one (*see* Table 4.2), requiring additional considerations to reach a final decision. Specifically, Algeria, Ghana, and Nigeria have emerged as the top countries in terms of being the largest exporters of natural gas, gold, and oil, respectively. Ultimately, Nigeria has been selected as the final decision because it results to be the only country among the options that had exports in all three commodities, despite its relatively lower value in gold exports. Moreover, this choice has been influenced by Nigeria's recognition as one of the most developing countries by the World Bank and the International Monetary Fund. Additionally, Nigeria's significance within the African continent has been playing a crucial role in the decision-making process, considering its status as the largest

economy and the most politically influential country, as highlighted by the Institute for Security Studies in 2021.

Subsequently, a comprehensive overview of Nigeria will be presented, encompassing key details pertaining to its historical background, prevailing political and social status, and its economy. With regard to the economy, a detailed analysis has been conducted on the three principal export sectors of Nigeria, namely agriculture, oil, and natural gas.

4.1 Nigeria's Geography

Nigeria is situated in West Africa and shares its borders with Benin to the west, Niger to the north, Cameroon to the east, and is separated from Chad by Lake Chad in the northeast. To the south, Nigeria is bordered by the Bights of Benin and Biafra, which open into the Atlantic Ocean. The geographical characteristics of Nigeria's territories are diverse, ranging from tropical regions to arid areas. The Niger delta region in the south features dense mangrove swamps, while the southern part of the country is covered by extensive forests. Moving northwards, the landscape transitions into hills and plateaus, known as the middle belt, with mountains present in the east. Nigeria's geographical diversity contributes to a wide range of natural resources. The country boasts significant deposits of coal, iron, tin, columbite, as well as lead, copper, and zinc, predominantly found in the hills and plateaus of the middle belt. Additionally, there have been discoveries of small amounts of gold, silver, and diamonds in various locations. Notably, Nigeria is renowned for its abundant petroleum reserves, primarily located in the Niger delta region.

The river Niger, the third longest river in Africa, has historically served as a vital route for commerce and communication, stretching for 730 miles through Nigeria (Falola, 2008).

4.2 Nigeria’s History

The roots of human habitation in the region can be traced back to ancient times, with archaeological findings indicating the presence of early settlements as early as 10,000 BCE. However, it is the Nok culture that provides some of the earliest evidence of a structured and organized society, flourishing from 500 BCE to 200 CE.

The Nok people were revered for their artistic prowess, particularly in the domains of pottery and terracotta sculptures. Their vibrant civilization left an indelible mark on the cultural fabric of the region. Beginning as a Neolithic society, the Nok culture underwent a remarkable transition, embracing the Iron Age and harnessing its technological advancements (Britannica, 2023). These early chapters in Nigeria's history set the stage for the subsequent rise and fall of powerful empires and kingdoms, shaping the socio-political landscape of the region. Indeed, throughout Nigeria's rich history, a multitude of empires and kingdoms emerged, leaving indelible marks on the region. Among these, the Kanem-Bornu Empire stood out, flourishing in the North-East and reaching its Zenith in the 11th century. Renowned for its pivotal role in facilitating trade, the empire established vibrant commercial networks connecting North Africa to the southern lands. Their trade encompassed a diverse range of commodities, including salt, elephant tusks, ostrich feathers, and live animals. Furthermore, the Kanem-Bornu Empire engaged in the exchange of slaves for valuable war horses from North African populations. Alongside trade, the empire embraced agricultural and livestock activities to sustain their own population (Britannica, 2023).

In the southwestern part of the country, the illustrious Benin Empire thrived from the 13th to the 19th century. It gained widespread recognition for its remarkable bronze castings and sophisticated administrative system.

Even during the pre-colonial era, from the 1500s to the 1800s, Nigeria was characterized by a rich and diverse tapestry of cultures, kingdoms, and societies. The region was home to numerous ethnic groups, each with its own distinct language, customs, and governance systems. As this vibrant tapestry unfolded, powerful empires and kingdoms emerged, leaving a lasting impact on the region's history.

One such empire was the Oyo Empire, which rose to prominence during the 17th century as a dominant power in West Africa. Simultaneously, in the 15th century, the Portuguese arrived in the kingdom of Benin, where they encountered an established monarchy that had thrived for centuries. The kingdom's intricate system comprised chiefs and palace officials who oversaw its steady expansion in various directions. These empires and kingdoms, including Oyo and Benin, were integral to the socio-political landscape of Nigeria, exerting influence over vast territories and playing significant roles in trade and cultural exchange (Britannica, 2023). Several powerful kingdoms developed during this period, playing significant roles in the political and economic landscape of Nigeria. In the western part of Nigeria, the Oyo Empire was a prominent Yoruba kingdom, which prospered through agricultural production, trade, and tribute from conquered territories. In the eastern region, the Igbo people lived in decentralized communities, with each community having its own autonomous governance system. Trade and agriculture were central to their economy, and they developed a reputation for their entrepreneurial spirit and artistic achievements (Falola, 2008).

On the other hand, coastal regions of Nigeria were major hubs of trade and interaction with European traders. The Benin Kingdom, known for its artistic and bronze-casting traditions, controlled trade routes and engaged in long-distance trade with Europeans. In particular, the transatlantic slave trade had a profound impact on Nigeria during this period.

Interactions with European traders and explorers started to take place in the 15th century, the Portuguese being the first to arrive, followed by the British and Dutch. In the beginning, the trade between Europeans and African communities primarily revolved around valuable items like textiles, pepper, and gold. However, with the exploration of the Americas and the subsequent establishment of plantation labor during the 16th century, the slave trade grew significantly through the following centuries (Falola, 2008).

In the early 19th century, Nigeria was comprised of diverse kingdoms and empires, each with its own trade networks. After assuming direct control of the Royal

Niger Company's territories[13], the British government reorganized the regions. The northern areas were renamed the Protectorate of Northern Nigeria, while the Niger delta and surrounding regions became part of the Niger Coast Protectorate, later renamed the Protectorate of Southern Nigeria (Britannica, 2023).

In particular, the gradual extension of British influence commenced in 1861, ultimately resulted in the establishment of Nigeria as a British colony in 1914. In that year, the two protectorates were merged to form the Colony and Protectorate of Nigeria, with a single governor-general based in Lagos. The administrative system introduced by the British, known as "indirect rule," allowed traditional chiefs to retain local governance under the guidance of European officers, aiming to minimize interference with local customs and utilize native institutions. Over time, this system evolved into a sophisticated form of local government and became a feature of British colonial rule in Africa. Essentially, the colonial administration had two tiers of government: a powerful central government accountable to the colonial authorities in London and local administration based on the policy of indirect rule (Britannica, 2023).

Overall, the British rule brought significant changes to Nigeria: Western education, the English language, and Christianity spread throughout the country. Moreover, the economy shifted towards cash crops, with areas producing lucrative crops like cocoa and peanuts benefiting economically. However, despite initial stability, the British faced challenges in maintaining control over their Nigerian colony, which persisted until the declaration of independency in 1960 and the establishment of a federal system (Britannica, 2023).

[13] The Royal Niger Company was a British charter company founded in 1879. Its purpose was to establish British commercial and political influence in the Niger River area of West Africa, exploiting the region’s resources (Britannica, 2023)

4.3 Nigeria’s Population

Nigeria’s large population is very diverse, consisting of over 200 different ethno-linguistic groups where three main ethnic groups make up the majority of the population. According to Statista’s estimations from 2018, the Hausa, located in the northern savannas, account for roughly 30 percent of the population, while the Yoruba, located in the southwestern part of the country, make up 16 percent, and the Igbo of the southeast 15 percent. Although over 250 different indigenous languages are spoken in Nigeria, English has been the official language of the country since 1960. Pidgin, a combination of indigenous languages and English, which developed through hundreds of years of contact with British traders and later with colonial authorities, is also commonly used (Falola, 2008) Nigerians belong to many different religions as well, but the vast majority identify with either Islam or Christianity. The culture, instead, is shaped by a blend of indigenous traditions and the adoption of Western values and lifestyles.

Nigeria's population is predominantly rural, but urbanization is happening quickly. Rural areas are centred around agriculture, maintaining a homogeneous community, while urban areas showcase a more diverse mix of lifestyles and economic activities. The migration of young individuals from rural to urban areas in search of educational and employment prospects have played a significant role in the rapid urban growth (Falola, 2008)

Nigeria is the most populous country in Africa thanks to a population of over 222 million in 2023, with projections indicating a potential doubling by 2030 (IMF, 2023). By 2050, the population could reach approximately 400 million, showcasing a significant growth trend over the past 50 years (Statista, 2022). A noteworthy aspect of Nigeria's demographics is its youthful population, with a projected median age of 18.5 years by 2025. As of 2022, Nigeria ranked 18th among African countries with the lowest median age and 20th globally (Statista, 2022). A youthful population signifies certain demographic characteristics within a country: alongside high population growth, Nigeria's life expectancy in 2022 was the third lowest worldwide. For this reason, individuals aged 60 years and above represent a small proportion of the Nigerian

population. The rapid population growth in Nigeria is closely associated with a high birth rate. The crude birth rate in 2022 was one of the highest in Africa, with 35 births per 1,000 people (Statista, 2022).

4.4 Nigeria's Government and Corruption

Nigeria is a federal nation composed of 36 autonomous states and the Federal Capital Territory, characterized by its rich multi-ethnic and cultural diversity. The political landscape is influenced by the ruling All Progressives Congress party, which holds power in the executive branch of government and maintains a majority in both the Senate and the House of Representatives, as well as in the majority of states across the country (World Bank, 2023).

According to the 1999 constitution, the executive power in Nigeria is held by a president who serves as both the head of state and the chief executive. The president is elected directly by the people for a four-year term and has the authority to appoint the vice president and members of the cabinet (Britannica, 2023).

The country's legislative branch is a bicameral National Assembly, consisting of the House of Representatives and the Senate. The House of Representatives is composed of 10 elected members from each state, serving four-year terms. The Senate includes three members from each state and one from the Federal Capital Territory, also serving four-year terms (Britannica, 2023).

In February and March 2023, general elections were held in Nigeria to elect a new president, federal and state legislators, and governors. Following those elections President Muhammadu Buhari completed his second term in office in May 2023, leaving the office to Bola Tinubu, who assumed presidency in amidst a nation divided and economic challenges.

However, the Nigerian Government has been and still is characterised by corruption. Corruption is a phenomenon that has persisted throughout history and across diverse societies. It transcends political systems, manifesting in various forms

within both established and developing democracies. Nevertheless, the impact of corruption varies across different political systems. In particular developing countries, characterized by weak economic foundations, fragile political structures, and insufficient control mechanisms, bear the brunt of corruption's devastating effects (Dike, 2011).

Corruption has been a pervasive issue in Nigeria's political landscape since gaining independence. Whether under civilian or military rule, corruption has been a prevalent feature, transcending different regimes: the political leadership, unfortunately, has often placed personal, group, or ethnic interests above the welfare of the nation (Ogbeidi, 2012).

The systemic corruption has deeply rooted itself within Nigerian society, impeding socio-economic, cultural, and political progress.

Efforts to combat corruption in Nigeria have been made by both past and present political regimes. Various measures were implemented, including the introduction of legislative decrees such as the "Corrupt Practices Decree" in 1975 and the "Advance Fee Fraud and Other Related Offences Decree" in 1995 (Igiebor, 2019). The establishment of anti-corruption agencies such as the Independent Corrupt Practices and Other Related Offences Commission (ICPC) in 2000 and the Economic and Financial Crimes Commission (EFCC) in 2003 were also key steps taken (Igiebor, 2019).

However, despite the initial optimism surrounding those anti-corruption efforts, political and institutional challenges have hindered their effectiveness. The credibility of those agencies has been limited, and the prosecution of corrupt individuals have faced significant obstacles. The lack of effective corruption control has been attributed to the attitudes and actions of the political leadership, who have prioritized, again, personal interests over national development (Igiebor, 2019).

Indeed, since the return to civilian rule in 1999, Nigerian political leaders have been criticized for their mismanagement and involvement in corrupt practices, further impeding the country's progress and development (Igiebor, 2019).

For this reason, corruption has been widely recognized as the major obstacle to Nigeria's socio-economic development. It has hindered progress, discouraged foreign

investments, and undermined the allocation of resources for infrastructure and poverty reduction programs.

The diversion of public funds towards large-scale projects, often plagued by fraud, has resulted in the neglect of essential public services such as healthcare, education, and infrastructure. Corruption has also contributed to the cycle of poverty, high unemployment rates, and the brain drain of intellectual capital (Ogbeidi, 2012).

Nigeria finds itself in a paradoxical situation of being rich in resources but poor in development. The healthcare and education sectors have suffered greatly, and counterfeit drugs have infiltrated the country. Moreover, despite its abundant natural and human resources, Nigeria remains one of the poorest countries due to mismanagement by corrupt governments.

The African state has been criticized by various corruption-monitoring agencies as among the most corrupt nations in the world, receiving a score of 24 out of 100 on the 2022 Corruption Perceptions Index[14] (Transparency International, 2023).

4.5 Nigeria's Economy

Nigeria's economy is classified as the economy of an emerging market nation, characterized by a mixture of both traditional and modern sectors (World Bank, 2023). Several key factors contribute to such a situation of the Western African country. First and foremost, its large and growing population plays a significant role. With over 200 million people in 2023, Nigeria has the largest population in Africa and is projected to become the world's third most populous country by 2050 (IMF, 2023). Rising income levels, urbanization, and a growing middle class create a demand for various goods and services, attracting local and international businesses. This consumer market offers a huge potential for companies to establish a presence, stimulate economic activity, and

[14] The Corruption Perception Index assesses the perceived levels of corruption in 180 countries and territories worldwide. This evaluation is based on an international survey of experts and businesspeople. The index employs a scale ranging from 0 to 100, where a score of 0 indicates a high level of corruption, while a score of 100 represents a very low level of corruption, signifying a clean public sector (Transparency International, 2023).

drive job creation (Ogunleye, 2018). However, it is crucial for the Nigerian government to ensure that the country's increasing population is effectively utilized in sectors of the economy where they can contribute to achieving high rates of economic growth (Ogunleye, 2018).

Another factor acting in Nigeria's emerging market status is its abundance of natural resources, particularly oil. While agriculture has historically been a significant contributor to the country's GDP and employment, Nigeria has experienced a notable shift towards oil and gas production in recent decades. Indeed, the discovery of substantial oil reserves in the Niger Delta region in the 1950s marked a turning point in the nation's economic landscape, leading to increased reliance on petroleum exports (Nigerian High Commission, 2023). As one of the world's largest oil producers and exporters, Nigeria possesses substantial oil reserves that have the potential to drive economic development and revenue generation. Despite this, it is important to note that Nigeria's economy is gradually diversifying to reduce its dependence on oil and harness other sectors such as the one of agriculture, even through the adoption of specific programs like the Anchor Borrowers Program (ABP) and the National Agricultural Technology and Innovation Plan (NATIP) in 2022 (U.S. Department of Commerce, 2023).

Furthermore, Nigeria plays an important leadership role in both West Africa and on the African continent as a whole and its strategic geographic location grants access to regional and international markets. The country serves as a gateway to the Economic Community of West African States (ECOWAS), a regional bloc comprising 15 member countries, which promotes trade and economic cooperation. Not only, the headquarter of ECOWAS is located in Nigeria’s capital of Abuja (U.S. Department of Commerce, 2023). Nigeria's participation in regional integration initiatives strengthens its position as an emerging market and opens doors to expanded trade opportunities. An notable example is the sign of the African Continental Free Trade Agreement (AfCFTA) aimed at creating intra-African trade and a $3.4 trillion economic bloc across Sub-Saharan Africa in 2019.

Additionally, Nigeria has made progress in implementing economic reforms to improve its business environment and attract foreign investment. Efforts have been

made to enhance transparency, ease of doing business, and address governance challenges (World Bank, 2020). These reforms, coupled with the country's vast market potential, have positioned Nigeria as an attractive destination for foreign direct investment (UNCTAD, 2022).

Nigeria's GDP

Nigeria holds the 25th position globally in terms of GDP volume, reflecting its substantial economic presence (Lloyds Bank Trade, 2023). However, the country's economy is heavily reliant on oil, making it highly susceptible to fluctuations in crude oil prices and production levels. In addition, over the past decade, Nigeria has faced challenges in its development despite having abundant natural resources and a youthful and entrepreneurial population. The country has struggled to match the GDP growth rates achieved by its counterparts. Factors such as declining private investment and demographic pressures have driven many young Nigerians to seek opportunities abroad (World Bank, 2022).

Furthermore, recent high oil prices have not translated into a strong performance for the Nigerian economy. Instead, macroeconomic stability has weakened because of various challenges, including declining oil production, costly petrol subsidies, exchange rate distortions, fiscal deficit monetization, and high inflation. Consequently, the deteriorating economic environment has resulted in increased poverty levels, with the number of Nigerians living below the national poverty line projected to rise significantly in the coming years (World Bank, 2023).

Despite these challenges, the Nigerian economy is projected to experience modest growth, with an average annual growth rate of 2.9 percent between 2023 and 2025. However, this growth rate remains only slightly above the estimated population growth rate of 2.4 percent. The key drivers of growth are expected to be the services, trade, and manufacturing sectors. Nonetheless, downside risks to this growth outlook have intensified, primarily stemming from domestic policies, low oil production (despite

recent increases), and scarcity of foreign exchange and local currency (World Bank, 2023).

Starting from the 2000s, Nigeria gained recognition as a rapidly growing economy globally, benefiting from the implementation of various structural reforms alongside rising oil prices. However, this impressive growth was not accompanied by substantial job creation. From 2001 to 2010, Nigeria consistently ranked among the top 15 fastest-growing economies, boasting an average annual growth rate of 8.2 percent. Regrettably, the hard-earned income gains made during the 2000s were eroded between 2011 and 2021 due to the absence of comprehensive structural reforms, global shocks, conflicting macroeconomic policies, and heightened insecurity (World Bank, 2022).

Upon examining Graph 4.2, which presents the gross domestic product (GDP) at current prices, we gain insight into the optimistic outlook for Nigeria's economic growth. The graph illustrates the GDP in national currency converted to U.S. dollars using market exchange rates (yearly average). It becomes evident that the forecasts project a positive trajectory for Nigeria's economy (Statista, 2023). Indeed, the projected growth of Nigeria's GDP indicates a consistent upward trend from 2023 to 2028, with a total increase of 409 billion U.S. dollars (+80.73 percent). By 2028, the estimated GDP is expected to reach 915.63 billion U.S. dollars (Statista, 2023).

In support of these data, there are also those concerning the percentage growth of the Nigerian GDP. Indeed, as it is possible to see from the table, Nigeria in the last 11 years has almost always recorded growth in its GDP. In fact, only in two particular years there was a drop in the country’s GDP. In particular, the sharp decline in global oil prices between 2014 and 2016, coupled with reduced domestic oil production, resulted in a significant economic slowdown in 2016. Nigeria, which had been experiencing an average annual real GDP growth rate of 7 percent from 2000 to 2014, saw a substantial drop to 3 percent in 2015 and a further contraction of -2 percent in 2016 (World Bank, 2019). However, there was a recovery in growth with a modest increase to 1 percent in 2017, followed by 2 percent in 2018. Subsequently, the growth rate stabilized at 2 percent in 2019.

In 2020, Nigeria faced its most severe recession in forty years due to the impact of the COVID-19 pandemic. However, as restrictions were gradually lifted, oil prices began to recover, and the government implemented various measures to mitigate the economic shock (World Bank, 2021). As a result, the Nigerian economy contracted by a smaller margin of -2 percent in 2020, if compared to the initial projection of -3.2 percent at the onset of the pandemic. To address the crisis, the government took decisive actions, even in the face of opposition. These included efforts to harmonize exchange rates, phase out gasoline subsidies, adjust electricity tariffs to reflect actual costs, reduce nonessential expenditures, and redirect resources towards COVID-19 response initiatives at both the federal and state levels. Additionally, there were notable improvements in debt management and increased transparency in the oil and gas sectors (Word Bank, 2021).

These reforms were crucial in creating fiscal space, maximizing the impact of limited resources, and safeguarding the economy against a more severe recession. They also laid the groundwork for an earlier recovery, setting the stage for future economic growth and stability in Nigeria.

Indeed, according to some estimates, the economy demonstrated a remarkable growth rate of +3 percent in 2022, primarily driven by a thriving services sector and increased revenues derived from exports of oil and gas (Lloyds Bank Trade, 2023).

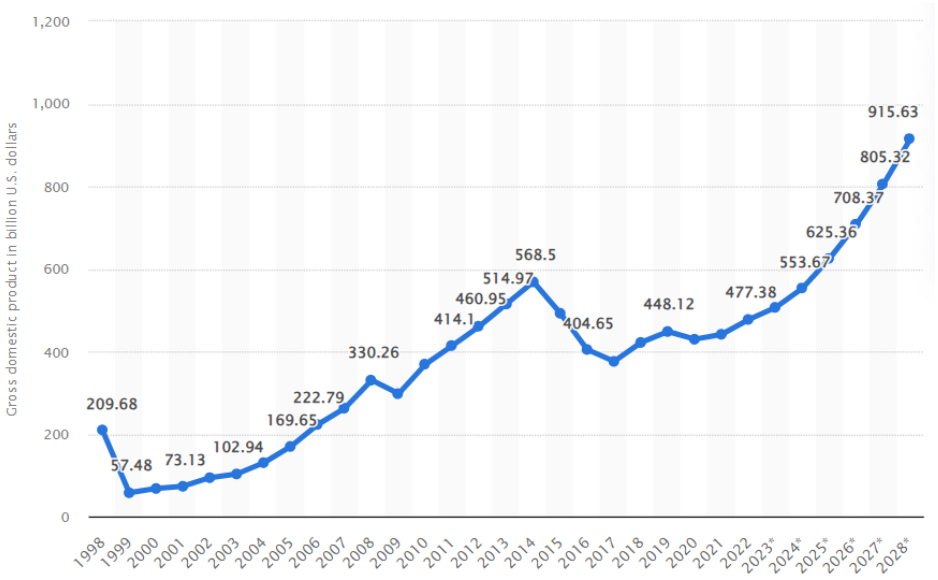
TABLE 4.3: NIGERIA'S GDP GROWTH

	2010	**2011**	**2012**	**2013**	**2014**	**2015**
GDP per capita *(current US$)*	2,280	2,505	2,728	2,977	3,201	2,680

	2016	**2017**	**2018**	**2019**	**2020**	**2021**
GDP per capita (current US$)	2,145	1,942	2,126	2,204	2,075	2,066

Source: World Development Indicators

GRAPH 4.1: NIGERIA'S GDP IN CURRENT PRICES FROM 1998 TO 2028* (IN BILLION U.S. DOLLARS)



Source: Statista, 2023

*Forecasts made by Statista

Notwithstanding the prosper GDP's growth throughout the years and its positive forecasts, in 2018 Nigeria surpassed India as the country with the highest population living in extreme poverty, despite India having a population nearly seven times larger. Alarming statistics reveal that an individual in Nigeria is considered poor when they have access to less than $361 per year (Statista, 2022). As of 2022, approximately 40 percent of Nigeria's population, equivalent to around 84 million people, lived in poverty. The majority of these impoverished individuals reside in rural areas and resulted to being people working exclusively in the agricultural sector (Statista, 2022). Between 2010 and 2020, Nigeria experienced a decline in GDP per capita from $2,280 to $2,097. During the same period, the number of Nigerians living below the poverty line rose from 68 million to approximately 80 million, making it the world's second-largest impoverished population after India (World Bank, 2022).

To address this issue, the creation of better job opportunities becomes crucial for poverty reduction and economic transformation. Nigeria faces the challenge of

integrating approximately 3.5 million new entrants into the labor market annually, a number that exceeds the capacity of a public sector-led economy (World Bank, 2022). The limited investment by the private sector, low industrialization, slower economic growth, and the resulting inability of the economy to absorb the annual influx of job seekers are expected to contribute to continued high unemployment rates in 2023, with projections indicating an increase to 40.6 percent (KPMG, World Bank, 2022).

Moreover, Nigeria scored 35.1 in the 2022 Gini coefficient[15] on countries with wealth inequality. With this score, Nigeria is 11th in West Africa and 100th out of 163 countries globally (Naira Metrics, 2023). Clearly, there has been some improvement in Nigeria's wealth inequality compared to previous times, particularly during the military regimes. For instance, in 1985, Nigeria's Gini Index stood at 38.7, shortly after a civilian government was overthrown. The ratio deepened to 45 by 1992 and worsened further to 51.9 by 1996. Then, there was progress by 2010, with the ratio improving to 35.7. Although it slipped slightly to 35.9 in 2015, by 2018, the Gini Ratio widened to an average of 35, which has been maintained over the past five years (Naira Metrics, 2023).

However, according to political economist and social affairs analyst Paul Dugu, this improvement can be attributed to the inclusion of more politicians, their aides, attendants, and a higher number of civil servants on the government's payroll. This naturally leads to wealth being spread among more people. Dugu highlighted that this is reflected in the federal government's higher current expenditure compared to capital expenditure. Indeed, the economist expressed doubts about how Nigeria's Gini index would improve, considering the current high unemployment rate (Naira Metrics, 2023).

In the recent years, President Muhammadu Buhari has placed great emphasis on achieving self-sufficiency as a fundamental driver of economic growth and national security in Nigeria. To realize this vision, his administration has actively promoted policies that encourage backward integration, import substitution, and the

[15] The level of inequality measured in a Gini coefficient ranges from 0 to 1, with 0 referring to perfect equality and 1 perfect inequality. The coefficient is arrived at by reviewing some basic economic parameters in the country. These are the GDP at purchasing power parity, poverty rate, unemployment, GDP per capita, and social spending.

implementation of local content laws (U.S. Department of Commerce, 2023). Nigeria's economy exhibits a heavy reliance on the oil and gas sector; nevertheless, the formal sector encompasses a diverse array of industries, including agriculture, services, and manufacturing.

Agriculture, a prominent sector in Nigeria, employs a substantial 35 percent of the workforce and contributes around 25 percent to the GDP (Central Bank of Nigeria, 2023). The industrial sector accounts for 20 percent of the GDP and provides employment for 12 percent of the workforce. Within the industrial sector, the petroleum industry serves as the largest subsector and in 2022, its annual contribution to the aggregate GDP stood at 6 percent (Central Bank of Nigeria, 2023).

The manufacturing sub-sector, constituting the primary component of Nigeria's industrial sector, encompasses various industries, including textiles, food and beverages, chemicals, cement, paper, and automobiles. However, the manufacturing sector grapples with hurdles such as inadequate infrastructure, high production costs, and limited access to finance and raw materials. Overall, it is estimated that the manufacturing sector accounts for approximately 10 percent of the GDP (Central Bank of Nigeria, 2023). Even the construction industry in Nigeria assumes significance as a contributor to the industrial sector, driven by the demand for new infrastructure, housing, and commercial buildings.

Services occupy a substantial share of Nigeria's economy, representing 55 percent of the GDP and employing 53 percent of the population. Notably, the financial sectors, telecommunications, and retail industries exhibit dynamic characteristics (Central Bank of Nigeria, 2023). The finance sub-sector, comprising banking, insurance, and capital markets, assumes a pivotal role within Nigeria's services sector, with the country's banking industry emerging as one of the largest and most sophisticated in Africa, hosting both local and international banks. However, the tourism sector encounters challenges stemming from inadequate power supply, insufficient road infrastructure, and poor water quality, hindering its growth prospects (Lloyds Bank Trade, 2023).

TABLE 4.4: BREAKDOWN OF ECONOMIC ACTIVITY BY SECTOR IN 2022

	Agriculture	Industry	Services
Employment By Sector *(in % of Total Employment)*	35	12	53
Value Added *(in % of GDP)*	25	20	55

Source: Central Bank of Nigeria, 2023

Agriculture Industry

During Nigeria's independence in 1960, the agricultural sector played a significant role, contributing to more than half of the GDP and serving as the primary source of export earnings and public revenue (Nigeria High Commission UK, Year, 2009). However, the emergence and subsequent establishment of the oil sector in the 1960s and 1970s led to a shift in the country's economic landscape. Indeed, the oil sector has become overwhelmingly important to the extent of creating an over-dependence on it. Nigeria possesses approximately 34 million hectares of arable land, with 6.5 million hectares allocated for permanent crops and 28.6 million hectares utilized as meadows and pastures (Statista, 2022). The agricultural sector contributes around 35 percent to Nigeria's GDP (Central Bank of Nigeria, 2023). The country demonstrates leadership in various agricultural productions, notably palm oil, cocoa beans, pineapple, and sorghum. In terms of sorghum production, Nigeria ranks as the second-largest producer globally in 2022, trailing only the United States (Statista, 2022). Additionally, Nigeria secures the fifth position in both palm oil and cocoa bean production in the same year, while also maintaining significant export volumes in these sectors. Noteworthy export categories include oil, fruits, nuts, and seeds.

Agricultural activities serve as a livelihood for a substantial portion of Nigerians, whereas the benefits derived from the oil industry tend to concentrate among a limited segment of the population. Recent data indicates that approximately 70 percent of Nigerian households engage in crop farming, while approximately 41 percent own or raise livestock (Statista, 2022). Agricultural participation is more prevalent in rural areas

compared to urban areas. Fishing, on the other hand, exhibits lower popularity compared to farming, with roughly three percent of households involved in fishing activities. In the South states of Nigeria, fishing is considerably more prevalent than in other regions.

As previously mentioned, Nigeria's population is experiencing rapid growth, what leads to a corresponding increase in food demand. Estimations published in 2019 indicate that by 2050, there will be a significant surge in the consumption of livestock products. For instance, the consumption of milk is projected to grow by more than 260 percent, while egg consumption is expected to increase by 250 percent (Statista, 2022). Similarly, there will be a substantial rise in meat demand. However, this scenario may have detrimental effects on the country's food supply.

In recent years, the proportion of the Nigerian population facing severe food insecurity has been steadily increasing. Between 2018 and 2022, nearly 20 percent of the population experienced hunger, enduring days without food due to limited financial resources or other constraints (Statista, 2022). This escalating trend in severe food insecurity poses a significant challenge to ensuring adequate food availability within the country.

During the last years, Nigeria’s agricultural sector has been hurt by several shocks: regular flooding, desertification of crop and grazing land, extremist insurgencies, and conflicts between herdsmen and local farmers. In late 2022, widespread floods across Nigeria destroyed about N700 billion ($1.5 billion) worth of investment in the agricultural sector, according to the National Agricultural Extension and Liaison Services (NAERLS). Food processing continues to suffer from a lack of financing and infrastructure, and those challenges have exacerbated food inflation, which is risen to around 20 percent in 2022 (U.S. Department of Commerce, 2023). There were wide-ranging price increases across items such as cereals, yam, meat, fish, and fruits. Additional upward pressure is caused by devaluation of the local currency (naira) which has been devalued multiple times since 2021. Also, higher fuel prices and insecurity have also contributed to rising food prices as transportation costs increase (U.S. Department of Commerce, 2023).

In December 2021, the government of Nigeria launched the National Development Plan (2021-2025). The plan was formulated specifically to tackle existing development challenges confronting the country – especially addressing farmers' needs. The plan set targets and identified priority areas, addressing gaps in infrastructure, macroeconomic stability, social investment, and adaptation to climate change. Being built on the foundation developed in previous plans (e.g., Vision 20:2020, the Economic Recovery and Growth Plan, and the Economic Sustainability Plan), now the plan is also outlining the central role that food security plays in the country's growth and development. The government and various stakeholders have identified food insecurity as a major challenge – especially the fragile state of cereal production (U.S. Department of Commerce, 2023). Food security is a prerequisite for development, but the global experience confirms that sufficient food supply alone is not enough. Dietary diversity, food quality, prenatal and pediatric dietary education, access to health services, water, sanitation, and other public health measures are indispensable development needs.

Data collected and analyzed by the National Bureau of Statistics (NBS) shows that average annual agricultural output growth slowed to 1.88 percent in 2022, its lowest rate in the last decade. The agriculture sector's stunted growth is due to low productivity, inaccessible or expensive inputs, and increasing post-harvest loss due to poor logistics and insecurity across the country. As for 2022, the security situation is improving in the North-East part of the country, with declining cases of violence against farmers (U.S. Department of Commerce, 2023). A network of militias and local famers continue to limit the insurgents to the fringe of Lake Chad and attacks on soft targets. The improvement in security is revitalizing food production, especially grains. The state governors are clearing lands for the farmers to increase production - especially households that are returning to their communities from camps for internally displaced people.

On the international front, Russia's invasion of Ukraine has threatened Nigeria's food security situation. Even though Nigeria imports low quality wheat from Russia and surrounding Black Sea countries, the escalation of the crisis has made imported wheat prices to be increased, leading to a multiplier effect on the price of wheat-based products (Borgen Project, 2023).

The implementation of the various policies alone is not enough to ensure a more prosperous future for the country's agriculture: it is fundamental to emphasize the importance of fostering genuine democracy and good governance in Nigeria (Ugwu, 2012). Indeed, only by creating an environment that promotes poverty reduction, sustainable livelihoods, and enhanced food security, comprehensive agricultural development can be achieved. Furthermore, the attainment of the Millennium Development Goals in Nigeria is seen as a potential outcome of these efforts.

Thus, alongside effective agricultural policies, the establishment of a favorable political and governance framework is crucial for promoting the growth and development of the agricultural sector in Nigeria (Ugwu, 2012). This approach would not only address key challenges but also contribute to broader socioeconomic goals.

TABLE 4.5: GDP COMPOSITION: AGRICULTURE

GDP Composition	2015	2016	2017	2018	2019	2020
Agriculture (%)	20,9	21,2	21,1	21,4	22,1	25

Source: World Bank, 2022

In 2018, the value of agricultural exports in Nigeria experienced a significant increase over the value of previous year, representing 21.4 percent of the total GDP during that period. However, in 2019, there was a decline of 10.8 percent in agricultural exports, accounting for 1.4 percent of the total exports (World Bank, 2019). Notwithstanding this, agriculture represented 22 percent of Nigeria's total GDP, a slight +0.6 percent with respect to 2018. In 2020, there was a notable rebound with a 19 percent increase in the value of agricultural exports (approximately $772.6 million), comprising 2.6 percent of Nigeria's total exports (World Bank, 2022).

On the other hand, in 2021, Nigeria's agricultural exports still constituted a modest 2.7 percent of the total exports during that year, amounting to nearly $1.2 billion (World Bank, 2022).

According to some studies, the relatively low contribution of agriculture to the overall export value can be attributed to Nigeria's predominant practice of exporting

approximately 90 percent of its agricultural commodities in their raw form, without undergoing substantial processing (Okojie, 2022). As a result, Nigeria has yet to develop an effective strategy to promote the export of processed agricultural commodities. Indeed, despite its vast size, Nigeria's agricultural sector suffers from low productivity and underdevelopment. Over the past two decades, agricultural value-added per capita has experienced a meagre annual growth rate of less than 1 percent, and the marginal yield remains significantly below its potential (World Bank, 2022). The majority of farms in Nigeria are small-scale and rely on rain-fed irrigation, lacking adequate physical capital. Additionally, the agricultural value chains in the country are underdeveloped due to various factors such as poor infrastructure, inefficient land markets, limited access to finance, unreliable policy environment, and insufficient market information (World Bank, 2022). These unfavourable conditions discourage investments and hinder the adoption of new technologies, thereby impeding the growth of productivity in the agricultural sector.

Nigeria holds a prominent position as a top producer of various agricultural commodities, including cashew, cocoa, sesame, sorghum, and ginger, among others. However, the lack of significant processing of these commodities before exportation has led to the loss of potential revenue amounting to billions of dollars that could have been earned if they were processed locally.

According to the Nigerian Bureau of Statistics, Nigeria's most exported agricultural products in 2021 were cocoa beans and sesamum seeds. In 2021, the value of Nigeria's cocoa beans exports reached $560 million, positioning the country as the second largest exporter of cocoa beans globally, following Ecuador (UN Comtrade, 2023). Cocoa beans ranked as the fourth most exported product in Nigeria in the same year, accounting for 1.2 percent of the country's total exports. The sales of cocoa beans experienced a significant increase of 91 percent compared to 2020 (TrendEconomy, 2023). The primary destinations for Nigeria's cocoa beans exports were the Netherlands, Malaysia, Indonesia, the United States, and Canada (OEC World, 2023).

Nigeria is globally recognized as the fourth largest exporter of sesame seeds, with approximately 90 percent of its sesame seeds being exported. China and Japan are key importers of Nigerian sesame seeds. According to UN Comtrade data, Nigeria generated nearly $300 million from sesame exports in 2021. This export revenue has

remained relatively stable for more than three years, indicating a strong recovery from the low figure recorded in 2016, which was $98.5 million. However, prior to 2021, the export figures for sesame seeds were significantly higher. In fact, in 2013, the value of this market reached $842.6 million (UN Comtrade, 2023). While cultivation of sesame seeds was limited to a few Nigerian states in the past, it is now grown in 26 states, with the northern regions of the country being the primary producers (Borgen Project, 2023).

Another consequence of low productivity and agricultural underdevelopment is that the country must rely on imports to meet its food and agricultural product needs. The most relevant example is wheat. Nigeria's local wheat production only satisfies a negligible portion of the country's wheat consumption demand. Imports of wheat amounted to an estimated $2.1 billion in 2020 and $2.5 billion in 2021 (UN Comtrade, 2023). In 2021, Nigeria experienced a surge in prices for locally grown staple foods, further compounded by a decrease in consumer purchasing power. As a result, consumers have been compelled to seek out cheaper alternatives. For instance, to mitigate the impact of rising prices and maintain profitability, many Nigerian flour mills have resorted to purchasing cheaper wheat from Russia, Latvia, and Lithuania (U.S. Department of Commerce, 2023).

In light of the current global wheat situation, the Nigerian government is emphasizing the need for self-sufficiency. They present two options: investing in domestic production or exploring alternative sources beyond the Black Sea region. However, increasing production will take time, as population growth and consumption surpass the pace of production. While alternative sources are possible, they would result in higher costs for wheat derivatives, particularly bread, a crucial staple food in Nigeria (U.S. Department of Commerce, 2023).

Oil and Gas Industry

The oil and gas sector stands as the primary source of government revenues and holds a dominant position in Nigeria's export portfolio, accounting for more than 90 percent in 2021. Nonetheless, the country has been unable to fully reap the rewards of surging global oil prices in the aftermath of Russia's invasion of Ukraine. As a member

of the OPEC, Nigeria adheres to the organization's regulations that govern daily oil production. However, these efforts have been hindered by ongoing issues, resulting in declining contributions from the oil and gas sector to the overall economy. Despite this decline, the sector continues to play a crucial role in financing numerous capital projects across the country.

The country is blessed with vast reserves of oil, which has been a significant driver of its economy for several decades. Nigeria's oil industry has attracted foreign investment and generated substantial revenue, positioning the country as one of the largest oil producers in Africa. This natural resource wealth presents opportunities for economic diversification and development across various sectors. Currently, Nigeria holds the position of being the leading oil producer in Africa. Boasting an impressive network of 18 functioning pipelines, the country's average daily oil production in 2022 reached approximately 1.5 million barrels, ranking Nigeria as the eleventh largest oil producer globally (Statista, 2023). The oil sector plays a significant role in Nigeria's economy, contributing around 6 percent to its GDP and accounting for a large share of the total export value (Central Bank of Nigeria, 2023).

However, Nigeria is confronting significant economic challenges resulting from the severe impact of crude oil theft. This pressing issue has reached an alarming level, causing the country to fall short of meeting its increased quota set by OPEC. The recent surge in global energy prices triggered by Russia's invasion of Ukraine has further exacerbated the situation (U.S. Department of Commerce, 2023). Reports from industry experts indicate that Nigeria is grappling with a staggering loss of crude oil production, with estimates ranging from 60 percent to as high as 80 percent due to theft (EIA, 2023). The scale of this illicit activity has had a profound impact on the country's oil sector and its overall economic stability. According to data from the Nigerian Upstream Petroleum Regulatory Commission, the first quarter of 2022 alone witnessed a staggering loss of approximately $1 billion in revenue due to crude oil theft. This substantial financial setback underscores the severity of the issue and highlights the urgent need for decisive action to curb this illicit activity. The implications of such widespread theft extend beyond the immediate economic repercussions. They also create an environment of uncertainty and instability, impacting investment confidence and hindering Nigeria's

ability to fully capitalize on favourable global energy market conditions (U.S. Department of Commerce, 2023). Enhanced security measures, stricter regulations, and the implementation of advanced monitoring technologies are some of the potential strategies that can be employed to combat crude oil theft effectively.

Undoubtedly, the state-owned Nigerian National Petroleum Corporation (NNPC) Limited stands as the most crucial oil company in Nigeria. NNPC occupies a central position in Nigeria's oil industry, serving as a vital link between various stakeholders, including the government and private companies involved in oil and gas operations. The Nigerian company makes significant contributions to the revenues of the country and through its diverse subsidiaries and joint-venture, NNPC assumes multiple roles in the oil sector (Thurber, 2010).

However, the majority of the prominent oil companies operating in Nigeria hail from the United States and Europe.

An example of NNPC’s joint venture is Exxon Mobil, a major player in Nigeria's oil industry in which NNPC holds 60 percent of the share. Notably, ExxonMobil, achieved a daily production of 150 thousand barrels of liquids in Nigeria during 2020 (Statista, 2023).

Similarly, Chevron, another prominent American oil giant, functions through a joint venture with NNPC for assets in the Niger Delta region, including offshore and onshore operations. Chevron contributed to Nigeria's oil production with a daily output of 140 thousand barrels of crude oil and natural gas liquids in the same year.

Royal Dutch Shell, a British-Dutch multinational corporation, played a significant role thanks another joint venture of NNPC by producing nearly 49 million barrels of oil in Nigeria during the same period (Statista, 2023).

The involvement of foreign companies in the Nigerian oil industry brings substantial value to the country, serving as a vital source of income for the government. In 2019, for instance, Equinor, a Norwegian company, made payments totalling 427 million U.S. dollars to the Nigerian government for its extractive activities, primarily through taxes (Statista, 2023). These financial contributions played a crucial role in supporting the government's initiatives and funding public services.

Notwithstanding this, it is important to note that despite the oil industry significant contribution to Nigeria's income, the benefits derived from oil are not evenly distributed among the population. Only a small portion of the population reaps the rewards of the wealth generated by the oil sector. This disparity highlights the need for inclusive economic policies and initiatives to ensure that the oil wealth translates into broad-based prosperity and improved living standards for all Nigerians.

Table 4.3 highlights the substantial volumes of oil exports over the years, although there has been a decline in the past two. In 2020, the export of oil resources amounted to approximately $26 billion, constituting around 75 percent of Nigeria's total exports. Despite the decrease in the total value of oil exports caused by the impact of the Covid-19 pandemic, it is noteworthy that the percentage of oil in the export value has actually increased. This observation underscores the significant influence of oil production and exports on Nigeria's overall economy, which continues to heavily depend on this valuable commodity even during periods of crisis. In 2021, the percentage of oil exports as a share of total exports further rose to 76 percent. However, the highest proportion of oil exports relative to total exports was observed in 2018, when the value of $51.4 billion accounted for nearly 80 percent of the total export value.

TABLE 4.6: NIGERIA'S CRUDE OIL EXPORT VALUE

	2017	2018	2019	2020	2021
Oil Export *($ billions)*	36,06	51,37	41,04	26,32	35,99
Total Exports *($ billions)*	49,49	65,36	63,73	35,09	47,34
% of Total Exports	73%	79%	64%	75%	76%

Source: UN Comtrade, 2023 & World Bank, 2023

Thus, crude oil dominates the Nigerian landscape, contributing to over half of the government's total revenues and comprising more than three-quarters of the country's overall exports. However, this heavy reliance on crude oil exposes the Nigerian economy to vulnerabilities, particularly during periods of declining oil prices.

Recognizing the need for a sustainable energy future, the importance of gas in Nigeria's energy, industrial, and economic development has gained significant prominence. With a growing population and increasing urbanization, the role of gas has become increasingly urgent in meeting the country's energy demands and driving its economic progress (PWC, 2022). Gas is seen as a crucial resource to diversify the Nigerian economy and reduce its dependence on crude oil, providing a more resilient and sustainable foundation for long-term growth.

In 2021 Nigeria solidified its position as the third largest natural gas producer on the African continent and the 17th largest globally. With an annual production of around 44 billion cubic meters (bcm) in 2021, Nigeria witnessed a steady increase from the 12 bcm produced at the turn of the 21st century, aligning with the average production of the past decade (EIA, 2022). The peak output of 47 bcm was recorded in 2020, a remarkable achievement considering the challenges posed by the Covid-19 pandemic. Of the total production in 2021, more than half, nearly 23 bcm, was exported to Europe and Asia, positioning Nigeria as the world's sixth-largest natural gas exporter and the second largest on the African continent after Algeria (EIA, 2022).

TABLE 4.7: NIGERIA'S NATURAL GAS EXPORT VALUE

	2017	2018	2019	2020	2021
Natural Gas Export *($ billions)*	5,2	6,15	4,98	3,92	4,93
Total Exports *($ billions)*	49,49	65,36	63,73	35,09	47,34
% of Total Exports	11%	9%	8%	11%	10%

Source: UN Comtrade, 2023 & World Bank, 2023

As mentioned before, the export of natural gas dominates total Nigerian exports together with crude oil. Indeed, the share of the commodity is kind of constant over the years, averaging to 10 percent from 2017 to 2021. Not only. During the Covid-19 pandemic, natural gas export registered an increase of +3 percent of share to the total exports value, while both crude oil export quantities and values drastically dropped.

Indeed, while the prices of crude oil experienced a significant drop due to a decrease in global demand and an oversupply in the market, the value of natural gas exports witnessed an increase. This disparity can be attributed to several factors. Firstly, the pandemic resulted in widespread lockdown measures and travel restrictions, which led to a sharp decline in oil consumption, particularly in the transportation sector. As a result, the global oil market was oversupplied, causing prices to decline. On the other hand, the demand for natural gas remained relatively stable or even increased during the pandemic since it was widely used for electricity generation, heating, and industrial processes, which remained essential during lockdowns.

Nigeria's significance in the natural gas sector extends beyond production and exports. With an abundant reserve, it boasts the largest natural gas reserve in Africa, accounting for nearly a third of the continent's reserves and approximately 2.8 percent of global reserves. As of 2021, Nigeria's natural gas reserve stood at a substantial 5,572 bcm (EIA, 2022). From this amount it is possible to understand how much the Nigerian natural gas sector is underdeveloped as production-to-reserves is approximately 1 percent.

The oil industry in Nigeria has had a detrimental impact on the country, transforming it into a prime example of the "Resource Curse". Despite being the largest oil producer in Africa, the sixth-largest global exporter, and possessing substantial oil reserves, Nigeria has failed to realize its full potential due to weak state institutions and poor governance (The Guardian, 2021). In particular, as already stated in Chapter 3, the Resource Curse phenomenon highlights the inverse relationship where wealth from natural resources brings negative consequences.

So, countries heavily reliant on natural resource exports, like Nigeria, typically experience lower economic growth rates, lower levels of human development, increased inequality, and higher poverty rates. Moreover, these nations often suffer from inadequate institutional frameworks and heightened levels of conflict compared to resource-poor economies (The Guardian, 2021).

In conclusion, the Nigerian oil industry, while holding immense potential for economic prosperity, has been plagued by the resource curse.

The OPL 245 Scandal

As already mentioned in the above paragraph regarding Nigeria's government, the African country has been affected by corruption, oil sector included, since the very beginning. The most recent example regards the OPL 245, Nigeria's largest oil block estimated to hold potentially 9.23 billion barrels of crude oil according to the findings of the Nigerian House of Representatives (Global Witness, 2018).

In 2011, Shell and Eni made a payment of US$1.1 billion to acquire the rights to OPL 245, one of West Africa's largest oil fields located off the coast of Nigeria. Surprisingly, this payment amounted to more than 80% of Nigeria's proposed health budget for 2015. However, the money did not benefit the country's citizens as intended. Instead, it was funnelled to a company named Malabu Oil and Gas, which was secretly owned by the former oil minister. The minister had granted his own company rights to the oil field back in 1998. Although Shell and Eni denied paying anyone other than the Nigerian government, substantial evidence indicates that they were aware their payment would be diverted for personal gain (Global Witness, 2018).

In 2014, the Nigerian House of Representatives called on the government to cancel the deal, stating that it was in violation of Nigeria's laws. Despite the outcry, no action was taken. However, early in 2015, President Muhammadu Buhari, who was elected with a strong mandate to combat corruption, especially in the oil sector, assumed office, bringing renewed hopes for reform (Global Witness, 2018).

Despite the fact that the main directors of this operation were acquitted in 2020, there are still some doubts about the correctness of the transaction.

Mineral and Gold Sector

Over the years, the availability of more accurate geological data has revealed that Nigeria possesses abundant reserves of various industrial, metallic, and non-metallic minerals. Among the identified minerals, there are a total of 34, but only 13 are currently being actively mined, processed, and sold. These minerals include coal, which

has the potential for annual exports of 15 million tonnes valued at approximately US$1 billion, as well as kaolin, baryte, limestone, dolomite, feldspar, glass sand, gold (in small quantities), iron ore, lead-zinc, tin, and associated minerals, and recently gypsum. Regrettably, the remaining 21 minerals, although in demand, remain untapped. The resulting domestic trade deficit and foreign exchange losses due to this untapped potential are substantial (Nigerian Statistical Office, 2019).

The lack of advanced geo-scientific data gathering tools has been a major obstacle to the growth of Nigeria's mining sector. For many years, companies have relied on illegal mining activities to gather information about the types, quantities, and locations of available minerals. The reliance on illegal mining is, still nowadays, a concerning issue (FDi Intelligence, 2023).

In light of the global demand for critical minerals like lithium, manganese, and nickel for green energy solutions, Nigeria's mineral reserves have attracted significant attention in recent years. In response, the government has introduced initiatives to facilitate foreign direct investment and expedite the development of the sector. A significant development occurred in February 2023, when the Africa Finance Corporation, a pan-African multilateral development financial institution, formed a partnership with Nigeria's mining sovereign wealth fund, the Solid Minerals Development Fund (SMDF). This partnership aims to accelerate large-scale mining projects led by the private sector by providing essential funding and technical advisory services (FDi Intelligence, 2023). Moreover, the government has actively promoted the sector through initiatives like the National Integrated Mining Exploration Project (NIMEP), generating valuable data to attract investors (The Guardian, 2022).

Due to limited capital investment and rampant illegal mining activities, the country has struggled to capitalize on its reserves, estimated to be worth $700 billion according to SMDF analysis. The solid minerals sector has consistently underperformed, contributing less than 1 percent to the country's GDP over the years (FDi Intelligence, 2023).

Illegal mining has had devastating consequences, including a lead poisoning outbreak in 2010 that affected thousands of people and claimed the lives of hundreds of children, as reported by the UN. Despite the risks involved, artisanal miners continue

to dominate mining activities in Nigeria's north-western regions. Banditry and insurgencies in mining areas, such as Zamfara and Kaduna states, have further discouraged foreign investors. In fact, a local terror group threatened to attack a gold mine in Zamfara when miners refused to pay a 10 percent levy in November 2022 (FDi Intelligence, 2023). This made the President place a ban on mining activities in 2019 and in 2020 declared a “no-fly zone” on the state as a measure to curb insecurity (Premium Times, 2021).

To enhance the sector's credibility, the government is also actively supporting infrastructure initiatives to establish transportation links for moving equipment to mining sites and facilitating the extraction and sale of minerals for domestic and international markets.

According to the Nigerian Bureau of Statistics (NBS), limestone, sand, and granite were the most mined minerals in 2020, while limestone, granite, and laterite topped the list in 2019.

In the past, Nigeria was predominantly recognized as an oil and gas nation, which limited the exploration and exploitation of its diverse mineral resources. Nevertheless, there has been a notable transformation in this perception, thanks to amplified investment in exploration and the remarkable accomplishments of Segilola Resources Operating Limited (SROL) in gold production (The Guardian, 2022). Indeed SROL, a subsidiary of Thor Exploration Limited operating in West Africa, has emerged as a key player in the exploration and development of gold resources, showcasing remarkable achievements in Nigeria. These successful operations have sparked a surge of interest in the country's mining prospects, positioning Nigeria as an attractive destination for mining opportunities (The Guardian, 2022). The achievements of SROL have not only attracted foreign investments but have also delivered significant social and economic benefits to the communities hosting its operations. The company has diligently fulfilled its obligations outlined in the Community Development Agreement, surpassing the mandatory requirements by undertaking a range of community social responsibility initiatives. These efforts encompass the construction of markets, schools, and bridges, as well as the provision of scholarships and access to clean water, among other notable contributions (The Guardian, 2022).

The Nigerian government has embraced this shift and actively promotes the involvement of foreign mining companies, highlighting the country's abundant mineral reserves. To facilitate progress, the government emphasizes the importance of continuous collaboration between mining firms and the communities they operate in, with the aim of expediting development, creating employment opportunities, and fostering wealth generation (The Guardian, 2022).

Gold, boasting an estimated reserve of 200 metric tons, is identified as one of the seven strategic minerals that hold the key to unlocking the immense potential of Nigeria's mining sector (Premium Times, 2021). Aside from oil and gas, gold stands as the most valuable mineral resource within the country. Despite its potential to stimulate economic growth and development in the nation, the story of gold in Nigeria has unfortunately been characterized by the Resource Curse (Premium Times, 2021). The mining of gold, often carried out by artisans, is plagued by numerous vices, including but not limited to illegal exploitation, smuggling, child labor, violence, health hazards, and more.

The Nigerian government is determined to rewrite the story. If the plans are executed with the necessary action and commitment, Nigeria has the potential to become a prominent African gold mining hub. A significant step in this direction is the ground-breaking foundation laying of the first-ever gold market, called Kano Gold Souk (KGS), in the North-western state of Kano. Once completed, KGS will be unrivalled across Africa and could revolutionize the sector, positioning the country as a premier destination for gold (Premium Times, 2021).

To foster growth and development in the sector, the federal government has introduced various initiatives, including the Presidential Artisanal Gold Mining Initiative (PAGMI). PAGMI aims to formalize artisanal mining operations, thereby mitigating the illegality associated with gold mining (Premium Times, 2021). Indeed, 90 percent of the gold mining in the country is carried out by small artisanal miners, employing around 85 percent of the workforce in the sector (Naira Metrics, 2022).

Despite having substantial gold reserves estimated at 8.5 million kg, Nigeria's gold production has been relatively low in recent years. In 2020, the country's total gold production amounted to 1,520 kg, a significant decrease compared to the peak production of 10,000 kg recorded in 2018 (Statista, 2023).

In a noteworthy shift for Nigeria's export economy, the country has seen a recent trend of gold exports amounting to $192 million over the past 15 months (BusinessDay, 2023).

Furthermore, Nigeria possesses a notable advantage in the quality of its gold, with one of the highest grades in sub-Saharan Africa. This presents a significant growth opportunity as gold continues to be in demand, commanding high prices in the global jewelry sector (BusinessDay, 2023).

Adding to the positive outlook, Nigeria anticipates the commencement of its inaugural commercial gold mine, the Kiamalu project, in 2023. The project, spearheaded by Australian miner Resolute Mining, has received a $100 million investment and is projected to yield up to 2.8 million kg of gold annually. Apart from its substantial production capacity, the Kiamalu project is set to generate employment opportunities in the thousands and contribute millions of dollars in revenue to the Nigerian government. Furthermore, the project is expected to stimulate the local economy by fostering the provision of goods and services to the mining company and its workforce (BusinessDay, 2023).

In conclusion, Nigeria's mineral and gold sector holds immense potential for the country's economic growth and development. With significant reserves, high-grade deposits, and increasing foreign investor interest, the sector is poised for success. The government's initiatives, such as PAGMI and the establishment of the Kano Gold Souk, demonstrate a commitment to formalizing the industry and attracting further investments.

The upcoming Kiamalu project, along with the recent trend of gold exports, highlights the growing opportunities and revenue generation potential. Furthermore, the sector's expansion is expected to create employment, stimulate local economies, and contribute to the country's revenue. However, addressing challenges such as illegal

mining, infrastructure limitations, and security concerns is crucial for fully harnessing the sector's potential.

With improved data, collaboration, and continued investments, Nigeria has the opportunity to position itself as a significant player in the global mineral and gold market. By leveraging the sector's strengths and addressing its weaknesses, the country can unlock long-term economic benefits, job creation, and sustainable development.

4.6 Nigeria’s Terms of Trade

Following the examination of Nigeria's key export components, this paragraph aims to present an analysis of the country's Terms of Trade.

Understanding the Terms of Trade is crucial in assessing the competitiveness and economic well-being of a nation. Terms of Trade refer to the ratio between export and import prices, representing the purchasing power of a country's exports in relation to its imports. Analysing Nigeria's Terms of Trade provides insights into the country's export competitiveness, its ability to generate revenue from exports, and the balance of trade dynamics that influence its economic growth.

In this paragraph, Nigeria's Terms of Trade will be examined in detail, considering both the historical trends and the contemporary challenges faced by the country. Specifically, it focuses on the period from 2015 to 2021, encompassing both the 2014-2015 and 2020 oil price shocks and crisis.

The factors influencing Nigeria's export performance will be explored, including global market conditions. Furthermore, the implications of the Terms of Trade on Nigeria's economic growth, government revenue, employment, and the overall well-being of its population will be assessed.

This analysis will contribute to a deeper understanding of the challenges and opportunities faced by developing countries heavily reliant on exports, utilizing the Net Barter Terms of Trade formula, as outlined in chapter 1, to conduct the assessment.

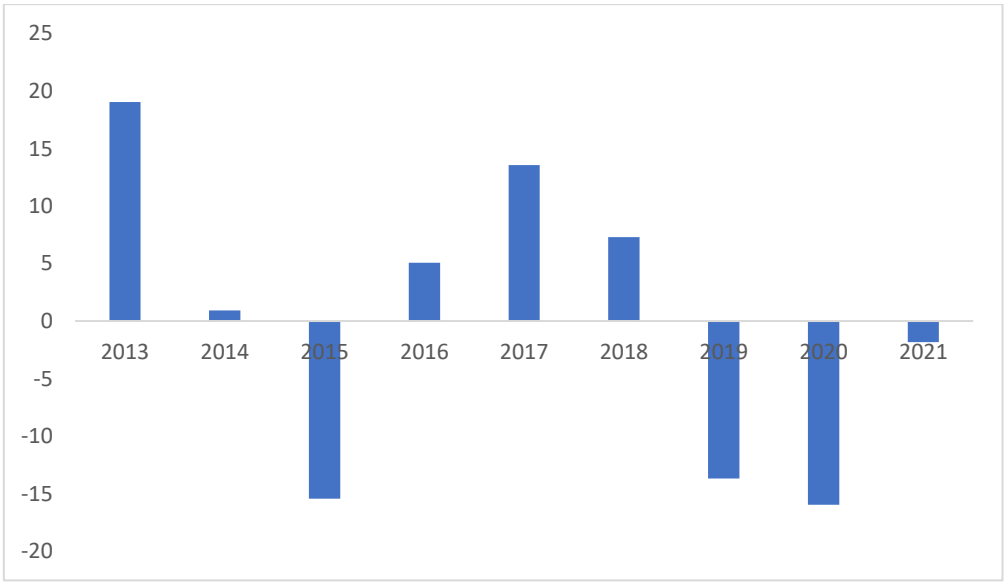
In order to calculate the Net Barter Terms of Trade, it is necessary to utilize the Unit Value Index of both Exports and Imports, which allow for the analysis and computation of the Terms of Trade using the Net Barter formula.

TABLE 4.8: NIGERIA'S NET BARTER TERMS OF TRADE

	2015	2016	2017	2018	2019	2020	2021
Export unit value index *(2015 = 100)*	100	82,07	101,94	130,48	115,18	82,44	154,37
Import unit value index *(2015 = 100)*	100	94,33	99,08	106,99	104,2	101,28	121,19
Terms of Trade	100	87,00	103,00	122,00	111,00	81,00	127,00

Source: UNCTAD, 2023

GRAPH 4.2: NIGERIA'S CURRENT ACCOUNT BALANCE (BoP, CURRENT US$ BILLION)



Source: Author's elaboration on Word Development Indicators, 2023

Since Nigeria's status as a nation that mainly exports crude oil and given that the largest share of its imports is composed of refined oil products (which have higher prices compared to crude oil), it was already anticipated that fluctuations in oil prices, both positive and negative, would exert a substantial influence on the country's TOT. As already noted, a value less than 100 implies that the price of a country's exports is declining relative to the price of its imports. This situation is often unfavourable for the country's economy: a decrease in TOT indicates that a nation needs to export a larger volume of goods and services to maintain the same level of imports.

Given that the latest available export and import unit value indexes from major data sources (such as the World Bank and International Monetary Fund) are based on a reference year of 2015 (2015 = 100), the analysis of Nigeria's Terms of trade of this thesis begins from that point onward.

According to Table 4.8, the initial Terms of Trade (TOT) value in 2015 was 100. However, it declined to 87 percent in 2016, indicating a decrease in the value of exports relative to imports. Furthermore, the TOT value fell below 100, suggesting an imbalance where imports exceeded exports probably due to price variations. The cause of that TOT disruption has surely been the oil prices shock undergone during the two previous years. Indeed, from mid-2014 to early 2016, the world experienced a significant downturn in oil prices, marking one of the most substantial declines in recent times. The price of oil dropped by 70 percent during that period, which ranked among the top three largest declines since World War II. Moreover, the decline persisted for an extended duration, making it one of the two longest-lasting drop since the supply-driven collapse observed in 1986 and putting to test the resilience of oil exporters (World Bank, 2018).

This situation led to a decrease in Nigerian export revenues and negatively impacted on the country's trade balance and on the overall economic performance, both in 2015 and 2016. For instance, the current account balance deteriorated in 2015, swinging from a surplus of $0.91 billion in 2014, to a deficit of $15.44 billion, equivalent to 3.8 per cent of GDP. The decline in revenues and the negative impact on the trade balance pose significant threats to Nigeria's fiscal sustainability and governments' ability

to finance critical expenditures in sectors such as healthcare, education, and security (World Bank, 2017).

In addition, the overall situation exerted an increased pressure on the exchange rate of Nigeria's currency, the Naira, ultimately resulting in its depreciation against the dollar, which is the reference currency in the trade of commodities. This depreciation was primarily driven by the significant depletion of Nigeria's foreign exchange reserves, which played a crucial role in maintaining the value of the currency. Due to lower reserves, the Central Bank of Nigeria (CBN) faced greater difficulties in defending the exchange rate of the Naira, leading to its depreciation and to many other several implications. Above them, prices of imported goods increased and contributed to a further rise of the inflationary pressures within the economy. By mid-2015, the year-on-year inflation rate in Nigeria had exceeded 9 percent (World Bank, 2015).

As stated by Campa (2005), either foreign price increases or depreciation of a country's exchange rate can trigger the rise in the price of imported goods, having a direct impact on the domestic production costs and causing an increase in prices of domestically produced goods. A phenomenon also known as “imported inflation”.

In 2016, Nigeria faced its first year-long recession in 25 years (until then), driven by a combination of factors. After global oil prices have plummeted to their lowest level in 13 years, the country's oil production was severely disrupted by acts of vandalism and militant attacks in the Niger Delta region (The Guardian, 2017). As a result, the oil sector, representing 8.4 percent of GDP in 2016, contracted significantly.

The repercussions of this downturn in the oil sector extended beyond its direct impact. The reduced foreign exchange earnings from oil exports had spillover effects on other sectors of the economy, just like in 2015. Particularly industries and services that heavily rely on imported inputs and raw materials faced significant challenges and together with insufficient policy responses, the overall contraction of the Nigerian GDP amounted to 1.6 on a y-o-y basis.

Nevertheless, the current account balance of 2016 was positive as imports contracted more than exports. Particularly, during that year the value of Nigeria's

exports of goods and services experienced a continued decline to $38.3 billion, a significant drop from $9 billion in 2015 and $97.5 billion in 2014. Even this time, the slump in value was primarily driven by the combination of low crude oil prices and reduced oil production and, given that both oil and gas exports constituted over 80 percent of Nigeria's total exports that, their collapse had a significant impact on the Nigerian economy (World Bank, 2017).

Fortunately, there was a substantial contraction in the imports of goods and services, primarily driven by reduced foreign exchange earnings at the same time. This decline was further exacerbated by policies that imposed restrictions on accessing foreign exchange. In comparison to $106.2 billion in 2014 and $72 billion in 2015, imports dropped to $47.2 billion in 2016. Consequently, the current account balance showed a positive trend in three out of four quarters of 2016, resulting in an overall surplus of $5.07 billion at the end of that year (World Bank, 2017).

Inflation reached double digits by February 2016 and continued to accelerate, averaging at 15.6 percent at the end of the year, significantly higher than the Central Bank of Nigeria's long-term target range of 6-9 percent. This inflationary pressure was driven by multiple factors, including the rising costs of power and transportation, an increase in petrol prices, the expansion of the money supply (due to increased lending to the government for budget deficit financing), the depreciation of the Naira, and the pass-through effect on the prices of imported consumer goods (World Bank, 2017).

In 2017, Nigeria’s TOT finally registered a positive value of 103 and the current account surplus expanded from 0.7 percent of GDP in 2016 to over 2 percent. This growth was attributed to the strengthening of oil exports, driven by both increased production and higher prices. On the other hand, imports remained constrained due to sluggish private demand (World Bank, 2018).

The Central Bank of Nigeria (CBN) implemented a substantial tightening of monetary policy and. continued to enforce restrictions on interbank foreign exchange access for 40 categories of imports, aiming to uphold exchange rate stability and encourage import substitution. As a result, exports experienced an estimated growth of

32 percent, while imports declined by 7 percent. This deliberate action led to a deceleration in inflation, which however persisted at elevated levels. Food inflation, in particular, remained high, significantly impacting low-income households. Given that food constitutes nearly three-quarters of the expenditure of these households, the high food inflation further worsens poverty levels (World Bank, 2018).

The following year, Nigeria maintained a positive current account balance, representing 1.3 percent of its GDP and a TOT value of 122. However, the balance witnessed a decline as the growth in imports of goods and services outpaced the growth in exports. The surge in oil prices not only boosted the value of oil exports but also led to an increase in fuel imports. This increase in fuel imports was further amplified by the rising demand for petrol, partially driven by smuggling activities resulting from the prevailing petrol subsidy in the country (McCulloch, 2021).

The Nigerian economy has made ongoing strides in its recovery from the recession of 2016, with GDP growth maintaining a relatively stable rate of 11.4 percent in 2019. However, compared to similar economies, Nigeria's recovery from the oil shock experienced in 2014-2015 has been relatively slower (World Bank, 2019).

The TOT slightly decreased in value compared to the previous year, amounting to 111. The net exports of goods and services in Nigeria experienced a contraction as the growth in imports, particularly capital goods and services, surpassed the exports, which were predominantly dominated by oil. The export portfolio of Nigeria remained heavily reliant on oil and gas, accounting for approximately 80 percent of the total exports in 2019 (National Bureau of Statistics, 2022).

Nigeria faced its most severe recession in forty years due to the global Covid-19 pandemic in 2020. Indeed, TOT value dramatically dropped to 88, while the Nigerian economy experienced a smaller contraction of -1.8 percent in GDP with respect to 2019.

Unfortunately, high inflation rates had detrimental effects, exacerbating poverty levels and dampening economic activity. The consequences of elevated inflation were significant: in 2020, the upward trajectory of prices resulted in approximately 7 million Nigerians falling below the poverty line. This, coupled with the economic slowdown caused by the COVID-19 pandemic and the sharp decline in oil prices, emphasized the urgent need to enhance non-oil revenue sources (World Bank, 2021).

The COVID-19 pandemic exerted increased pressure on Nigeria's balance of payments. In 2020, there was a widening of the current account deficit from 3.7 percent of GDP in 2019 to 4.2 percent, primarily driven by a significant decline in oil exports.

Notably, total exports experienced a sharp decline of 43 percent, while imports also contracted by 28 percent. This decline in imports can be attributed to the economic disruptions caused by the pandemic, weakened demand, and a shortage of foreign exchange. Despite the substantial drop in imports, Nigeria's current account deficit did not expand as severely as that of other major oil exporters like Libya, Iraq, Kuwait, and Sudan (World Bank, 2021).

Below is the summary table of the main economic data covered in this paragraph. In particular, it is possible to find real GDP year-on-year and also the sectoral real GDP growth year-on-year on Table 4.9. Moreover, oil production and oil prices are reported in order to capture the general trend of the economy and to better understand how these factors are related and influence each other’s. In particular, the Bonny Light is reported as the reference for oil prices in the analysis. Bonny Light Crude Oil (BLCO) is a premium Nigerian crude oil of exceptional quality that originates from the Niger Delta basin. It derives its name from the city of Bonny, where it is predominantly produced. The Nigeria National Petroleum Corporation (NNPC) serves as the authorized and primary source for obtaining BLCO, ensuring its supply and distribution in the oil market (Naira Metrics, 2019).

On the other hand, the other Table 4.10 shows the exchange rate fluctuations and the current account balance values from 2015 to 2021.

TABLE 4.9: NIGERIA'S ECONOMY MAIN DATA

Economy	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Real GDP Growth (%yoy)	2,7	-1,6	0,8	1,9	2,2	-1,8	3,6
Oil Production (mb/d)	2.1	1.8	1.9	1.9	2.0	1.8	1.6
Oil Price (Bonny light, US$/bbl)	54	45	55	72	65	41	66
Inflation (%, average)	9	15,6	16,5	12,1	11,4	13,2	17
Real sectoral growth (%,yoy)							
Agriculture	3,7	4,1	3,4	2,1	2,4	2,2	2,1
Industries	-2,2	-8,9	2,1	1,9	2,3	-5,8	-0,5
Industry - Oil	-5,4	-14,4	4,7	1	4,6	-8,9	-8,3
Industry - NonOil	0,1	-5	0,6	2,4	0,9	-3,9	4,4
Services	4,8	-0,8	-0,9	1,8	2,2	-2,2	5,6

Source: National Bureau of Statistics, 2022

TABLE 4.10: NIGERIA'S EXTERNAL SECTOR DATA

External Sector	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Exchange rate (Naira/US$)	197	305	606	307	307	380	413
Current Account Balance (%GDP)	-3,2	1,3	3,4	1,6	-3,3	-3,8	-0,4
Exports of Good and Services (US$ bn)	49	38.4	50.8	66	69.9	39.9	50.9
o/w oil and gas exports (US$ bn)	42.4	32.0	42.3	56.6	54.5	31.4	45.1
Imports of Goods and Services (US$ bn)	71.9	47	50.9	71.6	100.8	72.2	66.1

Source: National Bureau of Statistics, 2022

Over the past few decades, Nigeria has heavily relied on oil, which has consistently accounted for more than 90 percent of its total exports. This heavy reliance

on a single commodity has exposed the country to significant external volatility. In fact, Nigeria had the world's 9th most concentrated export structure in 2017, according to UNCTAD, indicating a high degree of dependence on oil and making its Terms of Trade and balance of payments vulnerable to shocks.

Various global events have highlighted the risks associated with Nigeria's dependence on oil. During the global financial crisis in 2008/09, the price of crude oil plummeted by over 70 percent, and a similar plunge occurred from mid-2014 to early 2016. More recently, the COVID-19 pandemic led to a worldwide economic slowdown, causing oil prices to once again plummet by 70 percent between January and April 2020. Each of these cycles of falling oil exports has eroded confidence in the Nigerian economy, leading to decreased or even negative net capital inflows, putting pressure on the national currency (naira), discouraging investment, and slowing overall economic growth (World Bank, 2021).

Despite facing the adverse consequences of an undiversified export base, Nigeria has made limited progress in reducing its dependence on oil. To break the cycle of oil-induced volatility, it is crucial for Nigeria to diversify its export basket. Relying excessively on extractive industries and sectors with limited potential for productivity gains can hinder employment creation and income growth, as international experiences have shown (World Bank, 2021).

Therefore, Nigeria should consider diversifying into sectors such as manufacturing, commercial agriculture, and knowledge-intensive services. This approach can stabilize the macroeconomy, stimulate structural transformation, generate high-quality employment opportunities, and cultivate new competitive advantages. By broadening its export base and reducing reliance on oil, Nigeria can enhance its resilience to external shocks, foster sustainable economic growth, and achieve long-term development goals.

CONCLUSIONS

The aim of this thesis has been to delve into the dynamics of the commodities market and its significant impact on global trade and economic progress. Specifically, the thesis has centred around the concept of "Terms of Trade" and on the proving the existence of the concept of “Resource Curse”.

The study has been focused on the analysis on the commodities of oil, natural gas, and gold, with a specific focus on their influence on the Terms of Trade of a developing nation, Nigeria.

By conducting a comprehensive analysis in the second chapter of the current global market for the above said commodities, where primary producers, consumers and recent price trends are identified, it has been possible to figure out the high relevance of such commodities in the world economy.

The primary focus of the study has then shifted to Africa, which has long been recognized as a continent with abundant untapped economic potential, despite its vast reserves of natural resources. However, African economies have faced challenges in fully harnessing this potential and achieving sustainable and inclusive economic development. A possible explanation for this phenomenon is to be attributed to the presence of the "Resource Curse," which may hinder the effective utilization of these resources.

In this context, I emphasized the significance of oil, natural gas, and gold exports for the continent's economy and evaluated their impact on economic growth, development, and political stability. Furthermore, I have introduced the concept of colonialism and explored its influence on the social and economic structures of African countries, particularly on the limited diversification of their exports.

In the last chapter, the attention has shifted towards the examination of Nigeria's Terms of Trade, with particular emphasis on highlighting its substantial reliance on the biggest export: the oil sector. What I have found out is that Nigeria possesses immense potential to become a prominent player on the global stage, as being the largest country

and economy in Africa. However, based on this research findings, it is evident that Nigeria's Terms of Trade are heavily influenced by the export of commodities, with oil being the significant driver. The fluctuations in Terms of Trade are primarily caused by oil price shocks which had and still have a substantial impact on the country's economy.

In light of these observations, it is crucial for Nigeria to consider the diversification of its export base. Overdependence on a single commodity, such as oil, exposes the economy to notable risks and vulnerabilities. Diversifying the export sector, in order to achieve a more sustainable and resilient economy, would involve expanding the range of goods and services Nigeria exports by promoting and supporting non-oil sectors, such as agriculture, manufacturing, services, and technology.

So doing, Nigeria can create new avenues for growth, job opportunities, and even boost its export earnings.

This strategic shift towards export diversification would not only contribute to economic stability but also foster long-term inclusive growth and development. To fully leverage this potential, Nigeria must embark on a transformative path through comprehensive reforms. This entails establishing a strong foundation for robust and inclusive growth, with a particular emphasis on stimulating private investment and job creation. Creating high-quality employment opportunities is essential for accelerating poverty reduction and driving economic transformation.

In this regard, the government would play a pivotal role by strengthening macroeconomic fundamentals to facilitate thriving private sector investment and prioritizing investments in human capital for sustained long-term growth. By embracing these necessary reforms, Nigeria can unlock its true potential and place itself as a leading force in the global arena, where nonetheless it is asked to cope with the risk of a high level of corruption multinationals are often guilty of for their own interests.

To conclude, with its abundant resources, expanding population, and dynamic economy, Nigeria has a unique opportunity to chart a course towards inclusive and sustainable growth, propelled primarily by export diversification.

The time is ripe for Nigeria to seize this moment and realize its vision of a prosperous future.

References

Achterbosch, Thom J., et al. (2014) “Cash crops and food security: Contributions to income, livelihood risk and agricultural innovation.” No. 2014-15. LEI Wageningen UR, 2014

Addison, Tony, Atanu Ghoshray, and Michalis P. Stamatogiannis (2016) "Agricultural commodity price shocks and their effect on growth in Sub-Saharan Africa." Journal of agricultural economics 67.1: 47-61.

Adeola, A.O., Akingboye, A.S., Ore, O.T. et al. (2022) “Crude oil exploration in Africa: socio-economic implications, environmental impacts, and mitigation strategies.” Environ Syst Decis 42, 26–50. https://doi.org/10.1007/s10669-021-09827-x

Afonso, O. (2017). “The impact of international trade on economic growth.” Investigação–Trabalhos em Curso, 106.

Akiyama, Takamasa, et al. (2003) "Commodity market reform in Africa: some recent experience." Economic systems 27.1: 83-115.

Anderson, James E., and Yoto V. Yotov. (2016) "Terms of trade and global efficiency effects of free trade agreements, 1990–2002." Journal of International Economics 99: 279-298.

Anyanwu, John C. (2014) "Factors affecting economic growth in Africa: are there any lessons from China?" African Development Review 26.3: 468-493.

Arrow Sebastian Edwards (1998) “Terms of Trade, Tariffs, and Labor Market Adjustment in Developing Countries”, The World Bank Economic Review, Volume 2, Issue 2, May 1988, Pages 165–186, https://doi.org/10.1093/wber/2.2.165

Asiedu, Elizabeth (2002). "On the determinants of foreign direct investment to developing countries: is Africa different?" World development 30.1: 107-119.

Asiedu, Elizabeth (2006) "Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability." World economy 29.1: 63-77.

Ataman A.M., Beghin J.C. (2004) “Global agricultural trade and developing countries”, World Bank.

Austin, Gareth (2010) “African economic development and colonial legacies.” No. 1. Institut de hautes études internationales et du développement.

Auty, Richard (2002). Sustaining development in mineral economies: the resource curse thesis. Routledge.

Baffes, John, and Peter Nagle (2022), “Commodity Markets: Evolution, Challenges, and Policies.” World Bank Publications.

Baffes, John, Donald F. Larson, and Panos Varangis (2001), “Commodity market reforms: lessons of two decades.” World Bank Publications.

Baltagi, B.H., P. Egger, and M. Pfaffermayr (2008), “Estimating Regional Trade Agreement Effects on FDI in an Interdependent World,” Journal of Econometrics 145(1–2):194–208.

Baxter M. and M. Kouparitsas (2000), “What Causes Fluctuations in the Terms of Trade?” (NBER Working Paper No. 7462.)

Baxter, Marianne and Kouparitsas, Michael A. (2000), “What Causes Fluctuations in the Terms of Trade?” NBER Working Paper No. w7462, Available at SSRN: https://ssrn.com/abstract=213668

Bertocchi, Graziella, and Fabio Canova (2002), "Did colonization matter for growth? An empirical exploration into the historical causes of Africa's underdevelopment." European economic review 46.10: 1851-1871.

Bidarkota, P. and Crucini, M.J. (2000), “Commodity Prices and the Terms of Trade.” Review of International Economics, 8: 647-666. https://doi.org/10.1111/1467-9396.00248

Bleaney, M., & Greenaway, D. (1993), “Long-Run Trends in the Relative Price of Primary Commodities and in the Terms of Trade of Developing Countries.” Oxford Economic Papers, 45(3), 349–363. http://www.jstor.org/stable/2663748

Bleaney, Michael, and David Greenaway (2001), "The impact of terms of trade and real exchange rate volatility on investment and growth in sub-Saharan Africa." Journal of development Economics 65.2: 491-500.

Bloom, N. (2009). “The impact of uncertainty shocks.” Econometrica, 77, 623-685

Boughton, James M., and William H. Branson (1988), "Commodity prices as a leading indicator of inflation."

BP, (2021), “Statistical Review of World Energy 2021 | 70th edition”, https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf

BP, (2022). Statistical review of world energy 2022.

https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2022-full-report.pdf

Broadman, Harry (2008), "China and India go to Africa: New deals in the developing world." Foreign affairs: 95-109.

Broda, C. (2004), “Terms of trade and exchange rate regimes in developing countries”, Journal of International Economics 36, 31-58

Brückner, Markus, and Antonio Ciccone (2010), "International commodity prices, growth and the outbreak of civil war in Sub-Saharan Africa." The Economic Journal 120.544: 519-534.

Brückner, Markus (2012), "Economic growth, size of the agricultural sector, and urbanization in Africa." Journal of Urban Economics 71.1: 26-36.

Caldara, Dario, Michele Cavallo, and Matteo Iacoviello (2019), "Oil price elasticities and oil price fluctuations." Journal of Monetary Economics 103: 1-20.

https://www.federalreserve.gov/econresdata/ifdp/2016/files/ifdp1173.pdf

Laurent Ferrara, Aikaterini Karadimitropoulou, Athanasios Triantafyllou (2022) “CAMA Working Paper 8/2022”, January 2022.

Carter, Colin A., Gordon C. Rausser, and Aaron Smith (2011), "Commodity booms and busts." Annu. Rev. Resour. Econ. 3.1: 87-118.

Cashin, Patillo (2000) “Terms of Trade Shocks in Africa: are they Short Lived or Long Lived?” IMF Working Paper Research Department, April 2000

Cashin, Paul, C. John McDermott, and Catherine Pattillo (2004), "Terms of trade shocks in Africa: are they short-lived or long-lived?" Journal of Development Economics 73.2: 727-744.

Cecchetti, Stephen G., and Richhild Moessner (2008), "Commodity prices and inflation dynamics." BIS Quarterly Review: 55-66.

Cheung, Calista (2009), “Are commodity prices useful leading indicators of inflation?” No. 2009-5. Bank of Canada.

Christensen, Benedicte Vibe (2016), "Challenges of low commodity prices for Africa." BIS Paper 87.

Collier, P. and C. Pattillo (2002) Investment and Risk in Africa. Basingstoke and London: Macmillan.

Collier, P. and D. Dollar (2002), “Globalization, Growth, and Poverty: Building an Inclusive World Economy”. Washington DC: World Bank and Oxford: Oxford University Press.

Collier, P. and J.W. Gunning (1999), ‘Why has Africa Grown Slowly?’, Journal of Economic Perspectives, 13(3):3–22.

Collier, Paul, and Benedikt Goderis (2012), "Commodity prices and growth: An empirical investigation." European Economic Review 56.6: 1241-1260.

Cramer, Christopher (1999), "Can Africa industrialize by processing primary commodities? The case of Mozambican cashew nuts." World Development 27.7: 1247-1266.

Dannreuther, Roland (2013), "Geopolitics and international relations of resources." Global resources: Conflict and cooperation: 79-97.

Dannreuther, Roland (2013), "Geopolitics and international relations of resources." Global resources: Conflict and cooperation: 79-97.

Deaton Angus (1999), “Commodity Prices and Growth in Africa” Journal of Economic Perspectives, vol. 13, no. 3, summer 1999 (pp. 23-40)

De Gregorio, J. (2012), “Commodity Prices, Monetary Policy, and Inflation”. IMF Econ Rev 60, 600–633 (2012).

De Gregorio, Jose, and Holger C. Wolf. (1994), "Terms of trade, productivity, and the real exchange rate."

Deaton, Angus, and Ronald I. Miller. (1995), “International commodity prices, macroeconomic performance, and politics in Sub-Saharan Africa.” Princeton^ eNJ NJ: International Finance Section, Department of Economics, Princeton University.

Deaton, Angus (1999), "Commodity prices and growth in Africa." Journal of economic Perspectives 13.3: 23-40.

Dehn, Jan (2000), “The effects on growth of commodity price uncertainty and shocks.” No. 2455. World Bank Publications.

Delle Chiaie, S., Ferrara, L., and Giannone, D. (2021), “Common factors of commodity prices.” Journal of Applied Econometrics, forthcoming

Dooley, Michael P., David Folkerts-Landau, and Peter M. Garber (2003), "An essay on the revived Bretton Woods system.".

Dorrance, G. S. (1948) “The Income Terms of Trade.” The Review of Economic Studies 16, no. 1: 50–56. https://doi.org/10.2307/2296143.

Dowrick, S. and Golley, J. (2004), “Trade Openness and growth: Who benefits?” Oxford Review of Economic Policy, Vol. 20, No. 1, GLOBALIZATION, pp. 38-56

Easterly et al. (1993). “Good policy or good luck? Country growth performance and temporary shocks”, Journal of Monetary Economics Volume 32, Issue 3, Pages 459-483

Elizabeth Asiedu, (2003): “Policy Reform and Foreign Direct Investment in Africa: Absolute Progress but Relative Decline”. International Monetary Fund.

Falola, Toyin, and Matthew M. Heaton (2008) “A history of Nigeria.” Cambridge University Press, 2008.

Findlay R., O’Rourke K.H. (2003), “Commodity Market Integration, 1500 – 2000, Globalization in Historical Perspective”, National Bureau of Economic Research.

Findlay, R. (1980), “The terms of trade and equilibrium growth in the world economy”, American Economic Review, vol. 70, No. 3, Nashville, Tennessee, American Economic Association

Fok, Michel (2012) “Governance of natural resources in Africa: Challenges and prospects.” Politique Africaine et Développement, vol. 19, https://journals.openedition.org/poldev/78.

Funke, Norbert, Patrick A. Imam, and Eleonora Granziera. (2008) "Terms of trade shocks and economic recovery."

Furlong, Fred, and Robert Ingenito (1996) "Commodity prices and inflation." Economic Review-Federal Reserve Bank of San Francisco: 27-47.

Gervais, Antoine (2018) "Uncertainty, risk aversion and international trade." Journal of International Economics 115: 145-158.

Ghura, Dhaneshwar, and Thomas J. Grennes. (1993), "The real exchange rate and macroeconomic performance in Sub-Saharan Africa." Journal of development economics 42.1: 155-174.

Gilbert C.L. (1989). “The impact of exchange rates and developing country debt on commodity prices”. The Economic Journal. 99(397): 773-784

Goldstein, Andrea, Nicolas Pinaud, and Helmut Reisen (2006), "The Rise of China and India: What's in it for Africa?"

Grilli E. and Maw C. Y., (1988) “Primary Commodity prices, manufactured goods prices, and the terms of trade of developing countries. What the long run shows.” The World Bank Economic Review.

Hadass, Y.S. and J.G. Williamson (2001), “Terms of trade shocks and economic performance 1870-1940: Prebisch and Singer revisited”, National Bureau of Economic Research Working Paper, No. 8188, Cambridge, Massachusetts, National Bureau of Economic Research (NBER).

Havrylyshyn, O. (1990) ‘Trade policy and productivity gains in developing countries: a survey of literature.’ The World Bank Research Observer, 5(1): pp. 1 – 24

Hoffmaister, Alexander W., Jorge E. Roldós, and Peter Wickham (1998) "Macroeconomic fluctuations in sub-Saharan Africa." Staff Papers 45.1 (1998): 132-160.

Hosseini, Seyed Ehsan (2022) "Transition away from fossil fuels toward renewables: Lessons from Russia-Ukraine crisis." Future Energy 1.1: 2-5.

Igiebor, G. O. (2019), “Political Corruption in Nigeria: Implications for Economic Development in the Fourth Republic.” Journal of Developing Societies, 35(4), 493–513. https://doi.org/10.1177/0169796X19890745

John T. Cuddington & Rodney Ludema & Shamila A Jayasuriya, (2002). "Prebisch-Singer Redux," Working Papers Central Bank of Chile 140, Central Bank of Chile.

Kaplinsky, Raphael, Dorothy McCormick, and Mike Morris (2007) "The impact of China on sub-Saharan Africa."

Kindleberger, Charles P. (1958) “The Terms of Trade and Economic Development.” The Review of Economics and Statistics, vol. 40, no. 1, pp. 72–85. JSTOR, https://doi.org/10.2307/1926249. Accessed 25 Nov. 2022.

Krugman, P. R., Obstfeld, M., & Melitz, M. J. (9th ed.). International Economics: Theory and Policy. Retrieved from https://cdn.prexams.com/8978/International%20Economics%20Theory%20and%20Policy%20Book%209th%20Edition.pdf

Landry Signè (2021), “Africa’s Mining Potential: Trends, Opportunities, Challenges and Strategies”, Policy Center For The New South. https://www.policycenter.ma/sites/default/files/2022-01/PP-10-21-Landry-Signe.pdf

Loungani, P., and A. Razin. (2001), “How Beneficial is Foreign Direct Investment for Developing Countries?” Finance and Development, 38(2):1–6

Ludema, Rodney D., and Anna Maria Mayda (2013), "Do terms-of-trade effects matter for trade agreements? Theory and evidence from WTO countries." The Quarterly Journal of Economics 128.4: 1837-1893.

Lutz, Matthias, and Hans W. Singer (1994) "The link between increased trade openness and the terms of trade: An empirical investigation." World Development 22.11: 1697-1709.

Mason (2008), “Appunti di programmazione a più criteri”, Department of Applied Mathematics, University of Venice.

Mendoza, E. G. (1997), “Terms-of-trade uncertainty and economic growth”, Journal of Development Economics vol.54, 323-356

Metzler, Lloyd A. (1949), "Tariffs, the terms of trade, and the distribution of national income." Journal of Political Economy 57.1: 1-29.

Morris, Mike, and Judith Fessehaie (2014), "The industrialisation challenge for Africa: Towards a commodities-based industrialisation path." Journal of African Trade 1.1: 25-36.

Novy, Dennis, and Alan M. Taylor (2020), "Trade and uncertainty." Review of Economics and Statistics 102.4: 749-765.

Ocheni, Stephen, and Basil C. Nwankwo (2012) "Analysis of colonialism and its impact in Africa." Cross-Cultural Communication 8.3: 46-54.

Ogbeidi, Michael M. (2012), "Political leadership and corruption in Nigeria since 1960: A socio-economic analysis." Journal of Nigeria studies 1.2.

Opoku, Eric Evans Osei, Muazu Ibrahim, and Yakubu Awudu Sare (2019), "Foreign direct investment, sectoral effects and economic growth in Africa." International Economic Journal 33.3: 473-492.

Ordway, Elsa M., Gregory P. Asner, and Eric F. Lambin (2017) "Deforestation risk due to commodity crop expansion in sub-Saharan Africa." Environmental Research Letters 12: 044015.

Parikh, A., Shibata, M. (2004) “Dynamics of the Relationship Between the Terms of Trade and the Trade Balance in Developing Countries of Asia, Africa and Latin America.” J. Quant. Econ. 2, 104–121. https://doi.org/10.1007/BF03404611

Paul R. Krugman, Maurice Obstfeld, Marc J. Melitz, (2012) “Economics -Theory and Policy”, 9th edition.

Pindyck R.S. and J. Rotemberg (1990), “The Excess Co-Movement of Commodity Prices”, The Economic Journal 100(403), 1173-1189

Pistilli Melissa (2023), “Top 10 Natural Gas Producers by Country (Updated 2023)” https://investingnews.com/top-natural-gas-producers/

Powell, A. (1991) “Commodity and developing countries terms of trade: what does the long-run show?”, The Economic Journal, vol. 101, Oxford, Blackwell Publishers.

Prebish, Raul (1962) “The economic development of Latin America and its principal problems” Economic Bulletin for Latin America, 7 1962, pp. 1-22.

Punzi, M. T. (2019), “The impact of energy price uncertainty on macroeconomic variables”, Energy Policy, 129, 1306-1319.

Romer, Christina D., and Richard H. Pells (2003), "Great depression." Forthcoming in Encyclopedia Britannica. Retrieved 4.5: 11.

Ross, Michael L. (2013), "How the 1973 oil embargo saved the planet." Foreign Affairs 15: 16.

Rothenberger, H. E. (2003), “Gold production through history.” Mineralium Deposita, 38(4), 326-332.

Safari, A., Das, N., Langhelle, O., Roy, J. and Assadi, M. (2019), “Natural gas: A transition fuel for sustainable energy system transformation?” Energy Sci Eng, 7: 1075-1094. https://doi.org/10.1002/ese3.380

Salvatore, D. (2013), “International Economics.” 11th edition. John Wiley&Sons Inc., United States of America.

Schmitt-Grohé, Stephanie, and Martín Uribe (2018), "How Important are Terms-Of-Trade Shocks?" International Economic Review 59.1: 85-111.

Spatafora, Nicola, and Irina Tytell. (2009) "Commodity terms of trade: The history of booms and busts."

Werner Antweiler (2006), “The Pollution Terms of Trade” Pages 361-366 | Received 01 Jun 1996, Published online: 28 Jul 2006

UNCTAD (2016), “FDI Recovery is Unexpectedly Strong, but Lacks Productive Impact”. Global Investment Trends Monitor, 2022.

UNCTDA (2021), “Investing in Sustainable Recovery”, World Investment Report 2021.

UNCTAD (2022), “International tax reforms and sustainable investment”, World Investment Report 2022.

Viner, J. (1937) “Studies in the Theory of International Trade.” Harper and Brothers.

Viner, J. (1953). “International trade and economic development” (p. 39). Oxford: Clarendon Press.

Wale-Oshinowo, Bamidele, et al. (2022), "Least developed countries in Africa." Palgrave Macmillan

Walter H. Gardiner, Praveen M. Dixit, (1987). “Price Elasticity of Export Demand: Concepts and Estimates”, United States, Department of Agriculture

Walter Rodney (1972), “How Europe Underdeveloped Africa”, London: Bogle-L’Ouverture Publications

Wood, A. (2003), “Could Africa be like America?” Annual World Bank Conference on Development Economics, the New Reform Agenda, 26355

World Bank Group (2015) “Africa’s pulse, an analysis of issues shaping Africa’s economic future”, volume 11

World Bank Group. (2022), “Commodity Markets Outlook: Pandemic, war, recession: Drivers of aluminum and copper prices”, October 2022. World Bank, Washington, DC.

World Bank, (2000a). Global Development Finance.

World Bank (2021), “Commodities Market Outlook: Urbanization and Commodity Demand.” October. Washington, DC: World Bank.

Web Sites References

ACER, https://www.acer.europa.eu/

African Develpment Bank Group, https://www.afdb.org/en

Britannica, https://www.britannica.com/

Business Day, https://businessday.ng/

Business Insider Africa https://africa.businessinsider.com/

EIA, https://www.eia.gov/

European Commision, https://commission.europa.eu/index_en

European Council, https://www.consilium.europa.eu/en/

Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Main_Page

FDi Intelligence, https://www.fdiintelligence.com/

Financial Nigeria, https://www.financialnigeria.com/

Global Witness, https://www.globalwitness.org/en/

International Energy Agency, https://www.iea.org/

Investopedia, https://www.investopedia.com/

Naira Metrics, https://nairametrics.com/

National Bureau of Statistics, https://www.nigerianstat.gov.ng/

OPEC, https://www.opec.org/opec_web/en/index.htm

Premium Times, https://www.premiumtimesng.com/

Reuters, https://www.reuters.com/

S&P Global, https://www.spglobal.com/commodityinsights/en

Statista, https://www.statista.com/

The Guardian, https://www.theguardian.com/international

UNCTDA, https://unctad.org/

WITS, https://wits.worldbank.org/Default.aspx?lang=en

World Bank, https://www.worldbank.org/en/home

World Gold Council, https://www.gold.org/