

Impact of Trade Flows on Income Distribution in Angola

(Ticaret Akışlarının Angola'daki Gelir Dağılımı Üzerine Etkisi)

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Abstract

Opening to international trade has been a crucial factor in the development and growth of economies for the last decades. On the other hand, it is known that opening brings advantages and disadvantages for economies. Income inequality can thus be related to these disadvantages which have been increasing in certain countries. The aim of this study is to find out whether trade flows have an impact on income inequality related to trade opening in Angola. Ordinary Least Squares method is used to analyze the relationship between variables over the period 2000-2017. In order to define the effect of international trade on the income inequality Gini coefficient is analyzed along with export and import values of Angola. Gini values are gathered from World Inequality Database with 0 representing perfect equality and 1 meaning perfect inequality. Other macroeconomic variables are used such as unemployment and short term debt stock along with export and import to assure the relationship between Gini and foreign trade variables. According to the model results, exportation has a negative effect on Gini coefficient, while importation, unemployment and debt have a positive impact on Gini.

Keywords:

Angola Economy,
International Trade,
Income Inequality,
Gini Coefficient

Paper type:

Research

Öz

Uluslararası ticarete açılmak ekonomilerin gelişmesinde ve büyümesinde son yıllarda çok önemli bir faktör olmuştur. Öte yandan ekonomik olarak dışa açılmanın ekonomilere avantaj ve dezavantajlar getirdiği bilinmektedir. Dolayısıyla gelir eşitsizliği bazı ülkelerde artan dezavantajlar ile ilişkilendirilebilir. Bu çalışmanın amacı ticaret akışlarının Angola'nun ekonomik olarak dışa açıklığı bağlamında gelir eşitsizliği üzerinde bir etkisinin olup olmadığını ortaya çıkarmaktır. 2000-2017 dönemi için değişkenler arasındaki ilişkiyi analiz etmek için Ordinary Least Squares yöntemi kullanılmıştır. Uluslararası ticaretin gelir eşitsizliği üzerindeki etkisini tanımlamak için Gini katsayısı Angola'nun ihracat ve ithalat değerleri ile birlikte incelenmiştir. Gini değerleri World Inequality Database'den alınmış ve 0 mükemmel eşitliği temsil ederken 1 mükemmel eşitsizliği ifade etmektedir. Gini ve dış ticaret değişkenleri arasındaki ilişkiyi sağlamlaştırmak için ihracat ve ithalatın yanı sıra işsizlik ve kısa vadeli borç stoğu gibi makroekonomik değişkenler kullanılmıştır. Model sonuçlarına göre, ihracatın Gini katsayısı değeri üzerinde azaltıcı bir etkisi olurken; ithalat, işsizlik ve borç Gini üzerinde artırıcı bir etkiye sahip olduğu bulunmuştur.

Anahtar Kelimeler:

Angola Ekonomisi,
Uluslararası Ticaret,
Gelir Eşitsizliği,
Gini Katsayısı

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Araştırma

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Introduction

The objective in this study is to focus on the relationship between trade flows and inequality or unfair distribution of income in Angola. The principal concern as examined by many researchers or literature is the fact that most patterns of national openness to the world economy have been increasing onwards with inequality. This is well known for Angola since the natural resources owned such as oil, gas, diamonds, and powerful agricultural land, Angola still be ranked as a poor country, the country presents unquotable improvements by being the second petroleum and diamond extractors in Sub-Sahara Africa. Besides, with the creation of policies that influenced the construction of frameworks and social institutions, although the country dependence is on the oil sector, with elevated oil prices and increasing the level of oil production allows Angola to have strong economic growth with high levels of inequality. Angola's market economy working still a process and they are factors or constraints playing a role, especially in the private sector, and with Angola occupying the ranking of 165 out of 180 in terms of corruption, thus persisting a problem for Angola's economic development (Transparency International Corruption Index, 2019).

Even though Angola retains a small economy and being critically dependent on international trade, there are no changes in the cost of production, causing unhealthy consumption and high-cost prices. Developing countries are integrated with 40% of world trade. Furthermore, most economic models of international trade like Ohlin's (1933) model inform in advance that the trade causes change in the income distributed to society. Some commercial economists indicate that a recompense system should be created for those harmed by trade because it encourages aggregate growth. Seyoum (2009) states that due to the desertification of the economy, developing countries tend to be more dependent on international trade than developed countries. Therefore, international trade allows manufacturers or distributors to look for products or services in foreign countries because of the cost advantages or to learn about advanced technical systems to decrease the cost of production. Alvaredo et al. (2018) argues that economic inequality is not precisely written, there is a need to correlate macroeconomic aspects because in terms of microeconomic aspects it is more targeted at individual wages. Additionally, stopping global and national transformations in tax can help decrease social inequality.

Torul and Öztunalı (2018) claim that the distribution of wealth has a very large economic involvement because it covers the infratemporal and temporal decisions of families. They also emphasize that often what drives developing economies to diverge are their discount rates and the share of capital and technology. Kayıkçı (2019) informs that the contemporaneous method of studying inequality and poverty may have very lucrative strides for policymakers because it can generate development and stop situations of crime or even social exclusion. On the other hand, income distribution is a consistent issue for professionals in the field of knowledge all over the world, and that many kinds of literature show great divergences when comparing the growth rates of developing and developed countries. Thus, if economies had an assessment in

terms of choice and high technology, it could be said that the economies of developing countries grow faster than the rich ones.

The fundamental approach following the Gini coefficient is that it uses a value of 0 to describe a society where everyone has the same income and does not present the sign of inequality, at the different end of the scale, it utilizes 1 to describe a society where only one person has all the income and which has the maximum inequality. At some point, it can be discussed that extreme revenue is not enough for the economy because it leads to produce fewer incentives to enforce human capital. In this context, income inequalities are examined as the rate of return on investment and its miss control can create social tensions and political insecurity. Nevertheless, some countries demonstrate that the average health of society relies on the distribution of income, implicating that countries with more unequal distributions struggle with lower life expectancy.

Despite, Angola having a high number of young unemployed, it makes difficult for the country to develop taking into account that the progress of improving health care and education still laggard, destabilizing the country by aggrandizing inequality, making poverty more visible in the rural areas and increasing the mortality level among mothers and children. The diversification of the economy is a decisive factor for sustainable growth and that can be only achievable if the country brings structure transformation by modernizing and constructing social infrastructure, encompassing transportation, service to telecommunication and energy and water (United Nations Organization, 2016). Raising the quality of life for many people by managing the human and natural resources available rationally has been an everyday endeavor of the economic and political system.

Provided that to be a subject of analysis considering the definition of inequality must certainly be correlated with another measurable factor. These are the common factors that will be analyzed in this study in order to find any relation with an equal distribution of income; export, import, unemployment and debt. For that, this study is divided into four sections. In the first section, there is information about Angola Economy in a general meaning. The second section provides information on income distribution in Angola. The third part is dedicated to the econometric analyses and results. A conclusion completes this study.

1. Angola Economy

Luanda is the considerable capital of Angola, bring to bear an effect of repose in all national territory and despite personifying the inter-ethnic and exclusive cross-cultural culture of the country. The central/eastern region has the producing provinces of diamonds and electricity in the northern region we find the province of Cabinda and Zaire, owning the present largest natural resource of the country and it is occupying by a main ethnic group Bakongo. The central/west region can be named as the great land reserve and the county's fisheries, it represents a huge potential, especially for agro-industry sector formation to satisfy the needs of the domestic market and export. The South part of Angola possessed only two provinces with

competencies and exceptional. Besides Angola shows to be in a transition to a market-driven economy where the main goal is to achieve macroeconomic stabilization and rebuild the economy (Reis and Serafim, 2018).

The improvement of the population's well-being, sustainable funding, acquisition of investment, and increasing competition has been a supreme challenge for the country, for this purpose, the implementation of policies and programs in different areas of national life with an emphasis on agriculture and rural development has been constant to ensure systematic monitoring and evaluation of the effect of the policies and programs on the living conditions of the population. In this context, the results of the Integrated Program on the Well-Being of the Population (Intergrado sobre o Bem-Estar da População, IBEP) in the integrated survey on the welfare of the population, which arrived at an opportune moment for the economic and social enlargement of the country, allowed setting up a baseline for various population well-being indicators, from which it is possible to adjust some ongoing policies and programs. The financial sector of Angola is improving positively, although the private sector demonstrates to have issues related to short-term operations in making available credit for international investors and local investors to finance their business, it turns the neediest investors to seek internal banks because they need to see their business undergoing. In order to change this situation, the country chooses to interfere with subsidized loan programs to encourage economic development, but it is more complicated than it seems because the country is selective in choosing who should benefit from such initiatives thereby making inequality even greater (International Business Publications, 2009).

Currently, the country decided to implement conservative lending practices throughout the financial sector, because most of the corporative had more advantage to loans and concessionary rates compared to other commercial enterprises. Besides, among many obstacles the foreign exchange restriction opted by the national bank of Angola is the most notable in national financial markets and its scarcity brings serious problems, especially the depreciation of the national currency and the abandonment of two main bank's providers of dollars making it difficult to import products, nevertheless, the preference is based on the creation of an equilibrium to grow economy and protect those Angolans with a higher level of demand from rather economic shocks.

Carvalho (2017) states that the prioritization in spending on services, infrastructure development, and megaprojects to private equity and Purchasing Power Parity facilitates allowed Angola to hold a lower debt to Gross Domestic Product (GDP). In fact, with such results, Angola could encourage associates such as International Monetary Fund (IMF), that Angola's economy displays conditions to grow, plus the election brought relief to many Angolans because there was an opening for foreign exchange restrictions which demonstrate that apart from economic policies, reforms to foment hope from international organizations is also necessary for the country to increase the competitive edge.

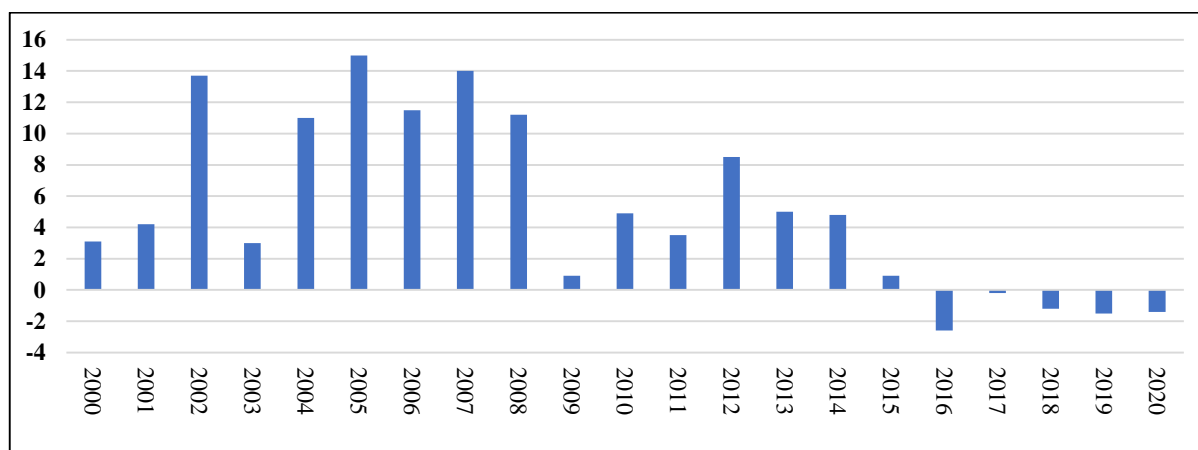


Figure 1. Annual Growth Rate of Real GDP in Angola (% , 2000-2020)

Source: Africa Development Bank (AFDB)

Figure 1 represents information on the Annual Growth Rate of Real GDP in Angola between 2000 and 2020. Angola displayed an average annual growth rate of 12% from 2002 to 2008, composing the economies with rapid growth in the world. Provided that from 2004 to 2008 GDP growth had a significant impulse when comparing with the year of 2003 in Figure 1.2 this abysmal progress was due to new fields of oil discovered and better governance by the Angolan government with effective macroeconomic policies to oppose inflation in the country consequently, there was a historic reduction in the national economy with inflation reducing to 35% and recover the national currency against US dollar. Besides that, Angola demonstrates to have grand debts due to huge construction projects execute to stimulate economic growth, providing that growth has always been buoyant since Angolan's economy depends totally on oil. The International financial crisis in 2009 had a crucial impact on the economy estimated around 0.9% in the development of the country and with this fast growth allow a viable betterment of the GDP per capita, which enlarge at an annual average rate of 9.9% from 2000 to 2009. GDP growth in 2008 and 2011 did not gain plenty from the oil price enlargement, and this shrinkage only happened due to oil production problems that the country displayed.

In contrast, the impulse given was not enough because in the year 2016 towards the year 2020 the GDP attained extremely negative values due to excess oil dependence. Bearing in mind that foreign exchange rate depends on oil export, so was necessary the intervention of the Central Bank for the improvement of a new exchange rate or monetary policy which once again seems to be unsustainable covered, thus affecting the coming years. Notably, agriculture is among the sectors that helped the government achieve admirable results in GDP growth rates, although the sectors are getting back from the massive struggles made by the internal conflict in the country. Nonetheless, the rapid progression of GDP growth rate demonstrated to have a sustainable impact on the GDP per capita that flourished with a rate of 9.9% from 2002 to 2020.

Specifically, there are disparities during the growth of GDP per capita when making a comparison between the level of GDP per capita and Current Purchasing Power Parity (PPP) USD. It can be observed in Figure 2 from 2002 to 2020 current USD and

current PPP USD are in constant fluctuation, with GDP per capita current USD presenting an increase up to 2014 then decreasing until 2020 and GDP PPP presenting a higher increase with a slight decrease until 2020.

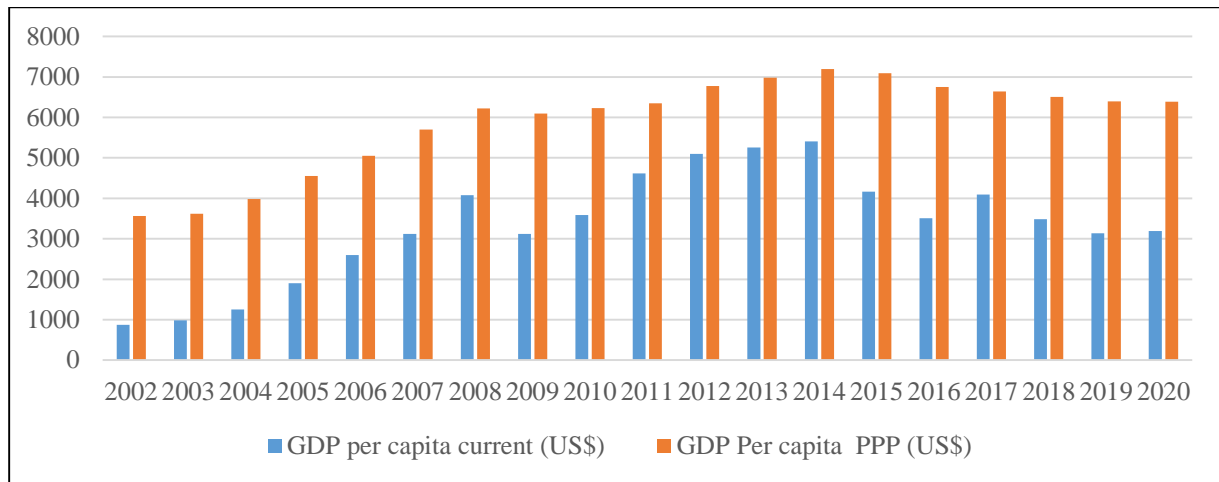


Figure 2. GDP Per Capita at Current Prices and Current PPP (USD, 2002-2020)

Source: AFDB

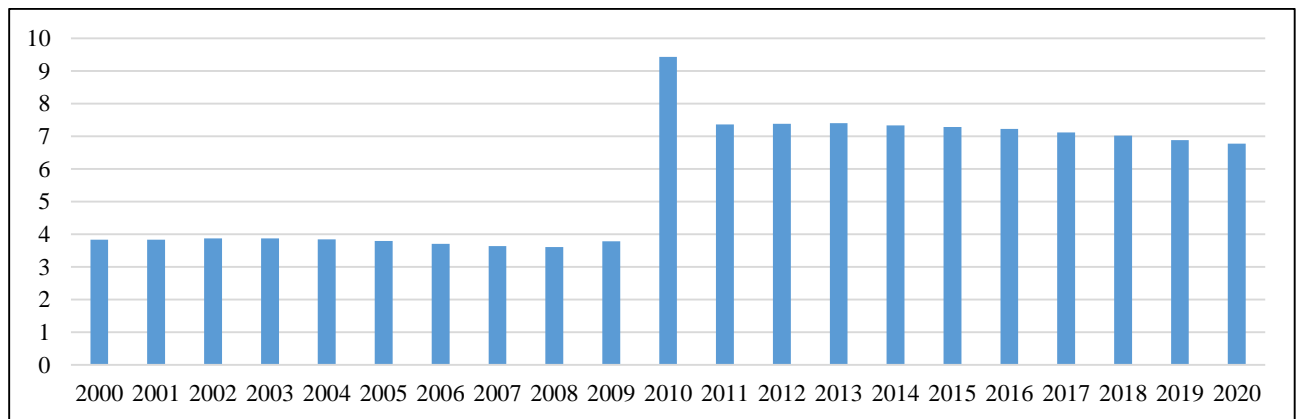


Figure 3 Unemployment Rates in Angola (% , 2000-2020)

Source: World Bank

The rapid economic growth that Angola exhibit during some years was not efficient to respond to the changes in unemployment but was possible to improve the living conditions for the Angolans in some sectors, mainly the agricultural and reconstruction sector. In the Angolan territory, unemployment has decreased since 1990, as shown in Figure 3 from 2000 to 2009, 42% of the Angola workforce was unemployed not having a significant impact comparing with the years 2010 and 2020 in which unemployment peak an abysmal negative level. Lopes et al. (2007) conclude that unemployment is to the greatest extent observed as urban phenomena while compared to rural zones.

Among the number of people employed 44.2% were working in agriculture and fisheries representing a subsistence of the economy, but nothingness compared to Cuanza Sul which is the province with a large agricultural capacity with 70% working in agriculture in 2014. Despite that, the lack of skilled labor impedes the progress of this task, especially in the construction sector which the need for skilled labor is

obligatory. Contrarily, the industrial sector that employs 6.1% of the workforce, more frequent in urban areas, there is also the service sector that contributes massively for the country in generating employment which divides into two terms for the economically active population estimated in 26.6% and 23.5% that does not advocate their activity sector. The workforce market of Angola is simply characterized by the large level of the informal sector found in the country. The rise of the informal economy in Angola resides on many factors, for instance, rural livelihood and non-agricultural rural enterprises. However, it is important to say that the rapid pace of urbanization in some way influences the informal economy due to the migration of people from rural zones to urban zones, owing to internal conflicts that abruptly affected the country. In another way, this in-house migration brought very negative results regarding opportunities for formal jobs in urban areas and encouraged the population to sell regulated products at black market prices to have an additional salary to cover their expenses.

For the developing countries, especially Angola the informal urban sector is contemplated to be all in all, by giving opportunities to the poor and a way out of unemployment. It also states that a contemporary assessment of development conducted by the United Nations in Angola in terms of socioeconomic context considered that Angola should focus on fewer or more strategic areas that can add more value to the economy thus rejects the need of investing in non-profit projects and have a broad vision of a program focused on decisive results-oriented that are capable of ensuring the sustainability of contributions to directly influence on the reduction of poverty and promoting human development. Putting an end to the informal sector is not a solution, on the contrary, it is necessary to work together with the sector to promote the empowerment of beneficiaries and ensure the sustainability of initiatives that may eventually be part of the government. The informal sector in many countries is normally observed as the leftover sector, typically it is nothing more or less than obtaining leftover products from crucial sectors of the economy, like the public sector, domestic transportation, import, and export protection of production and services.

Figure 4 demonstrates the evolution of export and import from 2000 to 2020. After the civil war that covered all the national territory at the end of 2002 and the global crisis from 2008-2009, Angola could achieve positive and negative results, either in export and import or even in the trade balance. With export reaching 71.873 billion USD in 2012, it was the highest level of export attained due to the fast recovery of the world from the crisis which reduces in mid-2010 due to the focus on the main product demands. Still, the trade balance registered a trade deficit, notwithstanding a decrease of 11.6% from 2012 to 2013 because of the increase in import and reduced export.

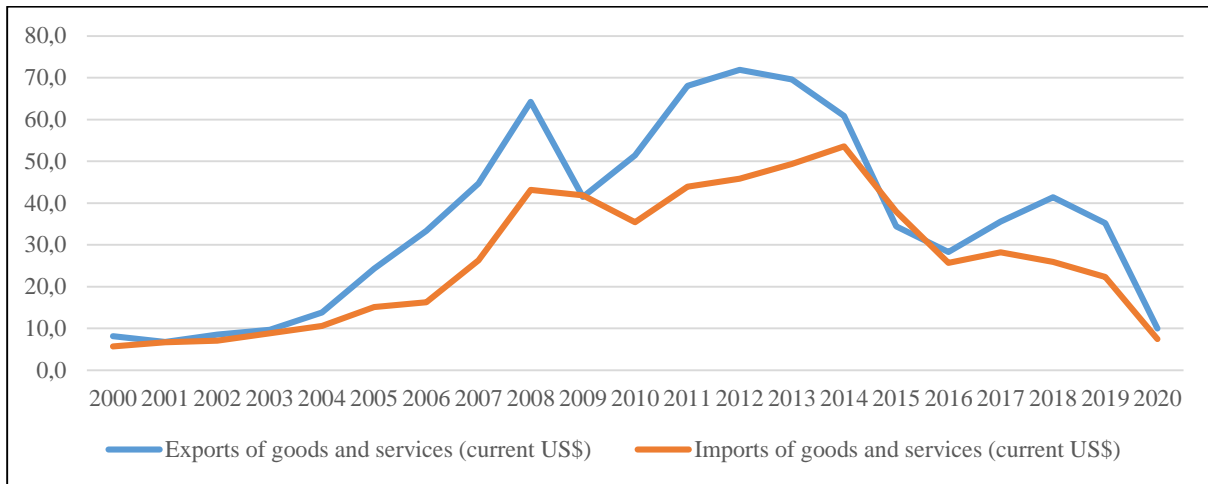


Figure 4. Exports and Imports in Angola (Billion USD, 2000-2020)

Source: Banco Nacional de Angola (BNA)

The export sector of Angola has shown fabulous growth for many years, due to at least two important factors, first because of the extractive sector of the country that represents 99% of all the export, and second, the diversification of products, thus decreasing the level of mining and utilities in the country. Beyond that, there is a very large mass of Angolans that do not have access or profit from the country's export (IMF, 2019). The revenue required from these transactions goes precisely to the national reserve, under these circumstances, creating enormous inequality and affecting poverty even more. Although there is a government budget that encloses poverty, still there must be a bet on local production. For instance: the food amount consumed by the workforce in the country is imported, the employment generated by the sector is smaller than the level of the population, urban coastal population participation into the economy is less, depending still on the imported products due to poor market conditions and the manufactures that have not recovered yet from the civil war. Considering the extensive territory of Angola and the non-investment in agriculture, some agricultural producers are in areas of difficult access, providing difficulties for the import and export markets. The state has been working to improve this situation, but the resolution does not seem to be enough because the urban population is increasingly dependent on all food chain imports.

The exports depreciated from 72 billion dollars in 2008 to 41 billion dollars in 2009 due to the global economic crisis. Alternatively, with this decline imports also decrease with a margin of around 10% from 23 billion dollars to 21 billion dollars, causing the total trade and trade balance with large declines but remaining positive. Angola's trade surplus was 4,933 million USD in the third quarter of 2019, with export decrease 24.6% to 8,140.9 million USD because of lower shipments of oil while the diamond sales rose 13.3% and import fell 13.8% to 3,207.9 million USD (United Nations, 2020).

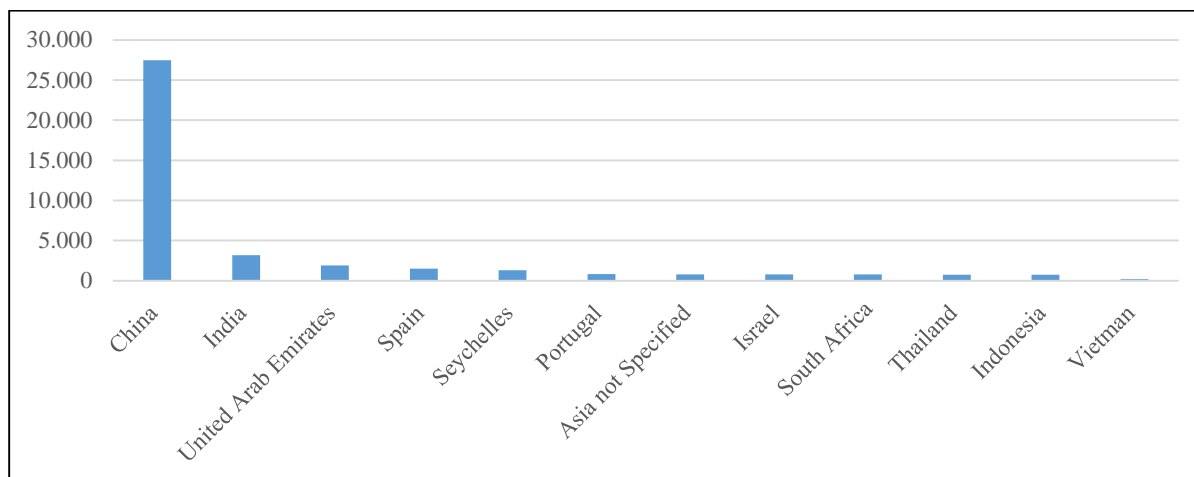


Figure 5. Exports by Destination (Million USD, 2019)

Source: International Monetary Fund (IMF)

With the diversification of the export market, Angola is no longer dependent upon developed countries. Figure 5 exhibits 12 countries that proffer up the Angolan export sector. As mentioned above, diversification is an important component to improve the economy, but regrettably, with so many exporting countries, there is no variety of products, thus causing the country to be longer and more dependent on oil exports. Angola's main export markets are China that displays 27,487 million dollars of the export products being the largest following by India with export surrounding 3,185 million dollars, United Arab Emirates with export surrounding 1,906 million dollars, and Spain, Seychelles, and Portugal with 1,489 million dollars, 1,317 million dollars and 821 million dollars.

Figure 6. contains information for 12 countries that proffer up the Angola import sector. China occupies the first line with a value surrounding 2,050 million dollars, following by Portugal with a value about 2,015 million dollars, and the Republic of Korea with a value surrounding 851 million dollars. The import of Angola hasn't changed much compared to the previous years, only some changes happened with China increasing its import products variations. However, it appears that most of the products consumed by the Angolan people are imported, and it is a tragic reality considering the production sector that is so vast with ambiguous possibilities to take care of the basic needs do not go further. Intermediate goods are equivalent to 15.41% of total imports while capital goods exhibit 32.38% of import because of the extractive sector and the construction material that is an important segment of import trade.

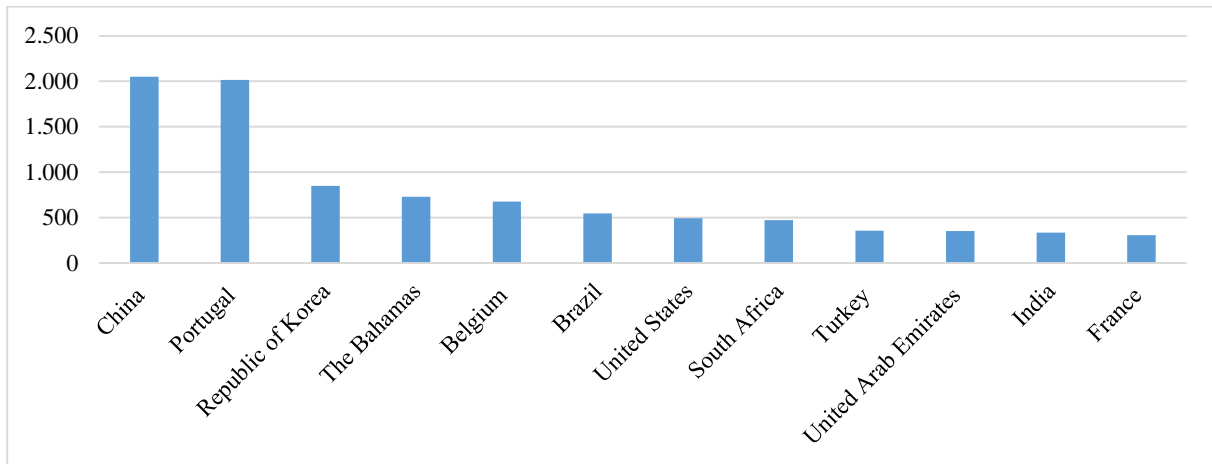


Figure 6. Imports by Destination (Million USD, 2019)

Source: IMF

2. Income Distribution in Angola

The state intervention and adequately-structured policies based on fair laws are key factors in reducing inequality and may help children to have access to education who after succeeding can help the state and bring benefits to families, in other words, increase human capital which in turn will produce financial capital. Modern societies have attained prosperity in several sectors with an emphasis on technological and scientific sectors. Yet, there are problems far from being solved, especially in social inequalities, because there are two ways to become rich, the first being 'wealth and the second withdrawal of wealth from others. In the primary case, there are advantages for society, since this creation of wealth is equal, in the second case, creates problems for society since it excludes wealth that could be redistributed equitably, thus inequality is created from this type of enrichment. The crisis affecting the country brings many problems, such as social and economic due to the fall in oil revenues and poor governance. However, it is important to recognize that Angola has the most unequal income distribution (Tvedten and Lázaro, 2011).

Over the years, Angola has waged a great fight against poverty that aims to improve the socio-economic conditions of the people in Angola. Subsequently, a period from 2013 to 2017 was created an organization through a presidential decree to promote rural trade and entrepreneurship, also there was a creation of a subprogram Papagro Agricultural products acquisition programs, with the same objective and function to reduce starvation and poverty that are widespread in rural areas.

By understanding the root of inequality there will be no difficulty in understanding its outcome. He points out two crucial factors for straightening inequality, the market as a factor that helps to shape the level of inequality and applied policies, which in turn shape these market forces. The second factor explained by the author exhibits foremost the creation of policies which is the most reliable method to level inequality within a society. Still, the same author affirms that it is up to the state to determine and implement actions to stimulate fair competition based on transparency either of distribution income or resources, and creating central taxation and social contribution

policies within the bases of the daily reality. By way of contrast, where there is no government support the poor generally have huge difficulties in restoring the socio-economic concerns, for instance, modest home to live in, basic food, health, and education (Stiglitz, 2015). The world is a very unequal place. In a way, much of its inequality coming from a large difference among social average earnings. Inequality is a 'relational phenomena' because all human beings are associated, there are only indifferences when a distinct group shares certain qualities such as forms of governance, religious belief, historical sources, and language. Angola attained effective peace about 18 years ago, over this time there has been a growth in the Gross Domestic Product (GDP), as well as the State's interest in approaching the obvious losses in the social area (Milanovic, 2012). Moreover, with the global financial crisis that happened over the years and the impact of the Coronavirus (Covid-19) after a new presidential choice, the thoughts are inclined to diversify Angolan's economy, giving more emphasis to agriculture and industry.

Plano Nacional de Desenvolvimento (PND) is formed with the aim of sustainability, development, and modernization of the country. The PND has a short-term duration, is from 2013 to 2017, and the most recent from 2018 to 2022 which the aim is to promote socio-economic and territorial development of Angola, focus on improving the well-being and quality of life of families in reducing inequalities and poverty. Although, Angola is a developing country, there are more possibilities to become more and more connected with the international financial markets through many mechanisms, the challenges that Angola brings from the twentieth-first century have been affecting the country.

Globalization can stimulate economic development through global economic integration, but because of the high level of growth rates and poor commercial performance, the population of Angola is living in poverty. In any case, total trade liberalization may harm Angola in terms of unemployment and production, above all, there are developing countries that have already experienced these similarities where inequality has seriously increased due to trade and financial policies, the increase in income inequality is correlated with a frequent increase in financial crises worldwide. Angola with a high level of inequality makes economic growth less able to reduce poverty regardless of the rate of economic growth. However, this relationship is observed in developing countries where all income from unproductive families goes to consumption. Continuously, in the short run household income will be affected if the dependence relies on specific factors of production. For instance, a home that earns all of the income from a family-run farm will be dependent on the prices of agriculture, if there is a price decrease, they shall eventually be capable to find other employment, but it might be difficult in the short run.

Angola has a poorly diversified economic structure concentrated in oil activities, low competitiveness concerning imports, and an export structure highly concentrated in oil products. A comprehensive growth strategy should be based on activities provided towards the production of goods that satisfy the basic needs of the population, labor-intensive and job-creating, enhance the use of endogenous natural

resources and streamline the national supply chain, it should also be emphasized that the informal economy still has a very relevant weight in economic activity and a significant share of employment is concentrated in activities with low productivity and, therefore, low compensating wages. For this reason, promoting the competitiveness of companies in the domestic market and exports is an essential precondition for ensuring the diversification of the economic structure, reducing the trade balance deficit, widening the tax base, facilitating integration in the markets to regional scale.

In addition, the dimension of poverty and inequality has some links with the culture and social structure of each sector to solve the problem of poverty and inequality there is a need to focus on general social transformation, because if economic growth is the right key to reduce poverty, there may be a great possibility that growth will delay inequality. After all, high inequality could be detrimental to growth by affecting education. Poverty is related to the insufficiency of having money, which in turn has a very large impact on basic needs. Although it has great elements such as economics, politicians, and societies playing a very important role in its spread, many international organizations explain it as the lack of health, education, security, freshwater, and hygiene. More importantly, these factors have their interference in poverty in terms of advantages and disadvantages, so whatever the discussions about the people's income there are also discussions about the economic well-being of the same people. The advantages of these factors are the quick recovery of the data, the easy measurement of the same, and the normality of improvement of the same. In addition to this, indicators such as education, health, and nutrition are a measure of non-economic well-being and are used in long terms trends. Moreover, absolute poverty is where a household's income is insufficient to afford the primary needs of life while extreme poverty sees the household receiving or holding 50% less income comparing to the average median income.

Angola has progressed and improved in terms of social conditions after the civil war, the country still bears notable difficulties that impede its attempts to reduce poverty and inequalities. In addition to general income inequality, inequality was very visible in rural areas at 0.39 but increased from 0.40 to 0.44 for urban areas. Although Angola demonstrates to have a significant urban-rural separation. The current developments in urban inequality almost compensated for the poverty reduction, attained through rapid growth but in return, this growth did not favor the poor in rural areas only those who are not poor (World Bank, 2020).

3. Analyses of Trade Flows and Income Distribution in Angola

International trade is the transaction of goods and services crosswise, seen with the intent of embodying the world. In the same way that international trade is important for the world, it can also be important for Angola, particularly in terms of economic and social development. There have been too many studies done before to assess the connection between understanding trade and income inequality. Although some are based on collective extension with many similarities. Besides, knowing that many

agents can cause equity, often the choice of variables depends on research with a diverse range of results.

Isagiller (1988) argues that inequality will first increase and later diminish as development takes place. He also states that income share of the modern sector increases as development proceeds while the income of the traditional sector remains stable or even falls as population growth demands. He argues that economic growth constantly guides to increase inequality in income concentration and it has well-known roots that go back to classical economists. He also points out that economic growth is not adequate for a more normal distribution of income and that structural determinants and policy attitudes are crucial in the experiences of the countries.

Bohoslavsky (2016) argues that severe economic inequality usually influences the comfort of human rights, political rights, social-economic, and cultural. He mentions that the higher is the inequality among societies, the higher is the violence and the marginalization of diverse groups and people. He also states that there is a positive correlation between child mortality and income inequality because countries with high levels of inequality have more dangerous health issues. Cassete (2012) concludes that the link between international trade and inequalities is placed on trade manufactured goods between countries. The Ricardian framework, free trade predicts that the national income increases due to the autarky situation, in this sense, an increase in trade promote economic welfare and harm the lowest layer. He also indicates that the issue of inequalities is predicted by the Heckscher-Ohlin. Stolper-Samuelson theorem which states that if a country exports the good for which it uses the productive factor completely, trade increase the price of this good, thus causing an increase in the relative price of the abundant factor in the production of the traded goods which in contrast decrease the remuneration in the scarce factor and it rises inequalities through skills.

Naguib (2017) states that economic growth is positively correlated with unequal distribution because it sensitizes more effort on the part of any individual. He also argues that if the perception of the distribution of resources is perceived as unfair, there may be political disorders. Cerdeiro and Komaromi (2017) find a solid relationship between trade and income in his seminal work. Demir et al. (2012) reach a correlation between the composition of trade and the portion of employment on inequality in advanced countries.

3.1. Data and Methodology

For analyses, the period over 2000-2017 is used with time series for a dependent variable Gini and independents variables. Along with this time period, income inequality in Angola initiated to demonstrate some pattern of fluctuation with trade. The study is limited to these date because of certain difficulties in gathering data for some indicators. Variable information like name and sources are given in Table 1.

Table 1 Variable Information

Variable Name	Code	Source	Explanation
Gini Coefficient	GINI	World Inequality Database	Income Inequality Indicator
Export	EXP	BNA	Export of Goods and Services
Import	IMP	BNA	Import of Goods and Services
Unemployment	UNM	IMF	Yearly Unemployment Rate
Debt Stock	DEBT	World Bank WDI	Short Term Debt Stock of GDP

Gini coefficient is used to measure income inequality in this study as the dependent variable. Liberati (2015) claims that the Lorenz curve is extremely used to examine income size remittances and inequality measures. When addressing the inequality Gini coefficient is the most useful variable in the literature. It is well known that the Gini is used to compare income inequality between countries. Differential numbers such as 1 to 0 or even 0 to 100 are used. The smallest number in this case 0 means a perfect equality in income distribution and the largest number 1 means a maximal inequality, indicating only one person gets everything in an economy. Data for Gini coefficient is gathered from the World Inequality Database.

Export and Import have been used in many studies to measure trade and to examine the impact of trade on income inequality. The total values of exports and imports to GDP are collected from the National Bank of Angola (BNA). The unemployment rate used in this analysis is measured as the share of the workforce. The data for unemployment is acquired from the International Monetary Fund (IMF). The data for the Short Term Debt Stock of GDP is obtained from World Bank Development Indicators (WDI). It consists of current liabilities like financial obligation of the company that has to be paid within one year. For instance, bank loans, accounts payable, wages, lease payments, and income taxes payable.

The Ordinary Least Squares (OLS) Method is used in this study in order to show the relationship between dependent and independent variable by using two modes. To have a convenient and robust model results, all variables are used in their logarithmic form. Since the dependent variable is not stationary in level, in the model a differentiated form of the Gini is used (DLGINI).

In order to show the impact of the international trade on income inequality in Angola, we employ two models. In the first model, the relationship between the Gini with export and import values of Angola is analyzed. In the second model, other macroeconomic variables such as unemployment and total debt service along with export and import are added to the first model. The second model is used to assure the relationship between Gini and foreign trade variables. Models and other statistical computations are run with EViews. The models specifications are given as follow:

Model 1:
$$DLGINI = \beta_0 + \beta_1 LEXP_t + \beta_2 LIMP_t + \epsilon_t$$

Model 2:
$$DLGINI = \beta_0 + \beta_1 LEXP_t + \beta_2 LIMP_t + \beta_3 LUNM_t + \beta_4 LDEBT_t + \epsilon_t$$

where β_0 is the constant value, from β_1 to β_4 they represent the coefficient of each variable, and e_t stands for the error term of the models.

3.2. Empirical Results

Before providing econometric results of the models, the descriptive statistics of the variables are given in Table 2 for 17 observations. The mean of Gini coefficient for Angola is calculated 0.613 over the analyze period. It reaches 0.667 as a maximum value while 0.596 minimum. Based on values, unemployment rates fluctuate between 3.61% and 9.43% in the sample period. The correlations between these variables are displayed in Table 3.

Table 2. Descriptive Statistics of Variables

	GINI	EXP	IMP	UNM	DEBT
Mean	0.612488	39231.08	29169.67	5.558353	8.485227
Median	0.595711	35598.04	28256.54	3.875000	7.794657
Maximum	0.667016	71873.28	53537.92	9.430000	30.35991
Minimum	0.595711	6736.384	6696.817	3.612000	2.179528
Std. Dev.	0.024674	22392.96	16016.89	2.015594	6.145263
Skewness	1.106696	0.022564	-0.088752	0.344105	2.762098
Kurtosis	2.727909	1.730027	1.579176	1.540275	10.79085
Jarque-Bera	3.522639	1.143865	1.452260	1.844803	64.60997
Probability	0.171818	0.564434	0.483778	0.397563	0.000000
Sum	10.41229	666928.3	495884.3	94.49200	144.2489
Sum Sq. Dev.	0.009741	8.02E+09	4.10E+09	65.00191	604.2282
Observations	17	17	17	17	17

Table 3 shows that correlation between export of goods and services and Gini is approximately -0.82, demonstrating a negative relationship. These results means that when the Gini displays a positive slope the variable export was presenting a negative slope and by the time the variable export starts increasing along the years, the Gini coefficient exhibit a negative downward sloping. The correlation between import of goods and services and Gini is approximately -0.87, indicating a negative association.

Table 3. Correlation Coefficients of Variables

Correlation	GINI	EXP	IMP	UNM	DEBT
GINI	1.000000				
EXP	-0.820508	1.000000			
IMP	-0.864278	0.925780	1.000000		
UNM	-0.619035	0.548221	0.611522	1.000000	
DEBT	0.720124	-0.650607	-0.616373	-0.337911	1.000000

The correlation between unemployment and Gini is approximately -0.62 demonstrating a negative connection. The correlation between total debt service and Gini is approximately 0.73, representing a positive relationship. It implies that when the Gini values are increasing the values of debt is also rising and vice et versa situation is correct for this data set.

In OLS method, in order to estimate a model all variable should be stationary. To define the variables' stationarity Kwialtkowski-Philips-Shmidt-Shin (KPSS) test statistic are employed. KPSS test represents a Lagrange-Multiplier (LM) test to pass the hypothesis without any effect, that an examined series is stationary around a constant or linear. Considering another alternative that says that if the null hypothesis of stationarity is rejected it is certain that the series has a unit root. Therefore, there is a must to first determine whether the variables are stationary or not, in order to find any level of causality in the relationship between trade flows (Export and Import) to income inequality (GINI). The KPSS test originates from one-sided LM statistics for the test, in other words, if the LM statistics is higher than the critical value in 1%, 5%, 10% then the null hypothesis is rejected causing the series not to be stationary.

The calculated LM statistic at level is 0.484 and asymptotic critical values are computed for 1% level, 5% level and 10% level respectively; 0.739, 0.463, 0.347. Based on the KPSS test results, GINI is found not to be stationary at level, for this reason the first difference of the variable is taken to make this time series stationary. After taking the first difference, LM statistic at difference becomes 0.087, staying under the critical values which are calculated 0.216, 0.146 and 0.119 respectively for 1% level, 5% level and 10% level. It causes the variable name to change from LGINI to DLGINI in the model. Export, import and unemployment variables are stationary at their level but debt variable is differentiated in order to make this series stationary, changing the name from LDEBT to DLDEBT in the model.

3.3. Model Results

There is a strong relationship between the international trade and the income equality. With this study, it is aimed to contribute to the ongoing literature by giving example of Angola. For that purpose, there are two models. The results of the Model 1 are firstly discussed. In this model, DLGINI is the dependent variable and export and import are the independent variables. The outcomes of the econometric analyses are given in Table 4.

Table 4. Model 1 Results

Dependent Variable: DLGINI				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.04076	0.007654	-5.3251	0.0001
LEXP	-0.01489	0.005708	-2.6083	0.0206
LIMP	0.02385	0.006175	3.8629	0.0017
R ²	0.68209	-	-	-
F-statistic	15.01888			0.0003

According to the Table 4, all variables are statistically significant at different levels. The constant value is calculated -0.041, being significant at less than 1%. There is a negative relationship between export and Gini coefficient, indicating when export increases by 1% then the Gini coefficient will be decreased by 0.015%. It means that when export value is rising up, the effect of this increase over Gini value is negative. In any rate, the finding can help the country understand and implement more

dynamism into exports since it thus reduces the level of inequality in the country. This finding might be supported by the work of Yasushi (2017) that the increase in the share of exports in GDP can minimize income inequality in low-income developing countries rather than in high-income countries. He also argues that an increase in mineral exports could possibly further increase inequality because it could concentrate export earnings within a capital-intensive industry instead of producing jobs for unskilled workers.

The coefficient of import is computed positive 0.0024, meaning changes in import affects positively Gini coefficient. Based on this value, it can be said that if import value increases by 1% then Gini coefficient will increase 0.0024%. This statistical significant econometric outcome indicates that the country should not focus on importing since it does improve income equality which is the fair distribution of income throughout the population. Ciani (2021) also finds that the income inequality of the country that matters is negatively affected by the quality of imported manufactured products. As Reuveny and Li (2003) argue that trade is an easy mechanism for companies in the least developed countries and that unauthorized labor from cheap imports undermines the power of the business to reduce wages. In turn, trade increases economic competition and shortens the prices of basic consumer goods while the competition also lessens the upper-class monopoly and also reduces income inequality.

In the second model, DLGINI is the dependent variable and export, import, unemployment and debt are the independent variables. The econometric results of the Model 2 are specified in Table 5.

Table 5. Model 2 Results

Dependent Variable: DLGINI				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.028755	0.003754	-7.660494	0.0000
LEXP	-0.007642	0.002762	-2.767151	0.0171
LIMP	0.01137	0.003224	3.526689	0.0042
LUNM	0.00614	0.000876	7.005665	0.0000
DLDEBT	0.00162	0.000486	3.327421	0.0060
R ²	0.94597	-	-	-
F-statistic	52.52266			0.0000

Table 5 shows that all variables are statistically significant at different levels. As it shown in the first model, export has a negative coefficient and import has a positive sign in this model. However, in the second model there are other macroeconomic variables adding to the first model, the signs of export and import did not change. It states that the relationships between Gini coefficient and trade flows are robust and consistent. The value of R squared is about 95%, indicating the high capacity of the explanatory variables in the model.

There is a positive relation between unemployment and Gini coefficient, in other words when the unemployment rate increases by 1% then Gini coefficient will increase by 0.0061%, demonstrating a statistically significant influence of unemployment to

Gini. When there are more people seeking a job, income equality will not change in favor of these individuals. They will have difficulty to access revenues for their needs and the share of the income taken by these people in the economy will shrink. A positive relationship is also found between debt and Gini in the model. It states that if the debt rises by 1% then Gini will also grow by 0.0016%. As it is concluded by Arslan (2019) it is not easy to define a clear relationship between the debt and income distribution, based on these results debt also plays an important role to increase the income inequality in Angola. When the debt stock is increasing it will lead to a higher debt burden with its interest payments and it could be a vicious circle while finding new expensive financial sources.

3.4. Diagnostic Tests

The diagnostic test results are given for Model 2 in Table 6, supporting robustness of the model. According to Jarque-Bera test result, there is no normality problem in the model. Breusch-Godfrey Serial Correlation LM test outcomes indicates the model has no serial correlation trouble. As for the Heteroscedasticity issue in the model, Breusch-Pagan-Godfrey Heteroscedasticity test values specify that the model does not have any problem related to the changing variance. The Ramsey Regression Equation Specification Error Test (RESET) is a general specification test for the linear regression model. Based on the RESET conclusion, it is stated that the model specification is correct.

Table 6. Diagnostic Test Results

Test	Coefficient	Probability
Jarque-Bera Normality Test	2.14505	0.3421
Breusch-Godfrey Serial Correlation LM Test	0.60905	0.7375
Breusch-Pagan-Godfrey Heteroskedaticity Test	5.52801	0.2373
Ramsey RESET Test	0.11171	0.7445

4. Conclusion

The aim of this study is to examine the effects of trade flows on income inequality. In this sense, using the OLS regression to analyze the time-series data of the relationships between trade flows and income inequality in Angola is verified. The results obtained from the model using Gini as an indicator for a measure of income distribution reveal that some variables have a negative effect and some have a positive effect. The highest result is reflected in the export variable because among all variables it is the only variable that has a negative impact on Gini. In fact, the Heckscher-Ohlin 2×2×2 model of international trade stresses that the export of goods requires factors of production, which only encourages people and companies to have more markets for their consumer goods. Yet, it is also a component of job creation and decrease income inequality. The second result is the import variable which reflect a positive result towards Gini which is also emphasized by Hecksher-Ohlin that a nation cannot manufacture in such an efficient way and defends that the visionary thing to do is to export materials and resources that they produce in abundance, while on the import

side they do it proportionally based on what they need. However, theoretically, some factors related to trade liberalization and the reduction of tariff aid for products and services, because of the unskilled labor, which will cause their wages to be reduced in relation to the wages of qualified workers and, as a result, income inequality increases.

On the other hand, what was said just reflects on the variable unemployment which is another variable that affects income inequality positively. In this study, a number of scientific articles were used as an index to mark this variable. The coefficient for these variables was positive and significant. In fact, although Angola has experienced rapid economic growth for some years and the economy is based on natural resources, it is necessary to say that for some years it had a negative observation and in others a positive one in terms of unemployment.

It is possible to improve the frequency of income inequality related to the lack of economic development in general. In addition, just like anywhere in world, inequality and poverty in Angola can be generated by a miscellaneous source such as inadequate high-quality education, accountable institutions, lack of political equalities and government rules, health insurance, gender, corruption and payment systems for wages and income that have no effect in the country and that are related to economic indices based on knowledge. Thus, if Angola wants to resolve its barrier to development and end successfully, it will have to comply with coordinated policies on the demand side with those on the supply side, in order to attract an economic order based on understanding. In any case, these decisions will have a positive impact on employment for low-income economic agents today. In this regard and due to the fact that in Angola the supply side of knowledge factors is active, therefore greater attention should be paid to the demand for knowledge factors in order to avoid the loss of resources and this is exactly the point that is missing. Human capital is necessary for a knowledge-based economy, so it is necessary to generate infrastructure and conditions to prevent brain drain, for this reason, it is necessary to adopt coordinated demand and supply-side economic policies in order to control the information of the knowledge-based development model so that those who are low-income producers can seek better opportunities to acquire money.

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