İSTANBUL KÜLTÜR UNIVERSITY

INSTITUTE OF

GRADUATE STUDIES

ANALYSIS OF INCOME INEQUALITY IN NIGERIA

THESIS

Ibrahim Babangida Umar

Department: Economics

Programme: International Economics and Finance

Supervisor: Assistant Prof. Dr Nazife Merve Hamzaoğlu

JANUARY 2024

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ABBREVIATIONS

NBS : National Bureau of Statistics

CBN : Central Bank of Nigeria

EMDC : Emerging Market and Developing Countries

GDP : Gross Domestic Product

GNP : Gross National Product

GINI : Gini Coefficient/Index

PPP : Current Gross Domestic Product Per Capita

OLS : Ordinary Least Squares

FMOLS : Fully Modified Ordinary Least Squares

LN : Natural Logarithm

HX : Household Final Consumption Expenditure

UNM : Unemployment

GC : Gross Domestic Product Per Capita

POV : Poverty

PLAB : Professional Linguistics Assessment Board

USMLE : United States Medical Board

GMC : General Medical Council

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LIST OF SYMBOLS

f : Function

β : Beta

% : Percent

^ : Logical conjunction

$: Dollar

+ : Addition

> : Greater than

/ : Division sign

² : Square

= : Equal

- : Subtraction

Üniversite	:	İstanbul Kültür Üniversitesi
Enstitü	:	Lisansüstü Eğitim Enstitüsü
Dalı	:	İktisat
Programı	:	Uluslararası Ekonomi ve Finans
Tez danışmanı	:	Assistant Prof Dr. Nazife Merve Hamzaouğlu

KISA ÖZET

NİJERYA'DA GELİR EŞİTSİZLİĞİNİN ANALİZİ

Bu tez, Nijerya'daki gelir eşitsizliğini, ülkedeki servetin eşitsiz dağılımına katkıda bulunan faktörleri inceleyerek analiz ediyor. Çalışma, yolsuzluk, eğitim, petrol bağımlılığı, göçmen havaleleri ve vergilendirme gibi daha yüksek gelir eşitsizliğine katkıda bulunan faktörleri araştırıyor. Ayrıca, çalışma Nijerya İstatistik Bürosu ve Dünya Bankası dahil olmak üzere çeşitli kaynaklardan alınan verileri kullanır ve gelir eşitsizliğinin işsizlik, yoksulluk, ekonomik büyüme ve insan sermayesi kaçışı gibi belirli faktörler üzerindeki etkisini analiz eder. Araştırma aynı zamanda hükümet politikalarının ve kurumlarının Nijerya'daki gelir eşitsizliğini ele almadaki rolünü de araştırıyor.

Çalışma, Nijerya'daki gelir eşitsizliğinin önemli bir sorun olduğunu, ülkenin dünyadaki en yüksek Gini katsayılarından birine sahip olduğunu, 1996'da 51.9 ile yüksek olduğunu ortaya koyuyor. Araştırma, gelir eşitsizliği, işsizlik, yoksulluk arasında negatif bir ilişki ve beşeri sermaye kaçışıyla pozitif bir ilişki tespit ediyor. Nijerya'daki yüksek gelir eşitsizliğinden, eğitim ve istihdam fırsatlarına erişim eksikliği, cinsiyet ayrımcılığı ve zayıf bir sosyal güvenlik ağı dahil olmak üzere çeşitli faktörler etkilenmektedir. Çalışma ayrıca, eğitim ve istihdama erişimin iyileştirilmesi, Küçük İşletmelerin ve Girişimciliğin teşvik edilmesi ve desteklenmesi ve sosyal refah programlarının güçlendirilmesi dahil olmak üzere gelir eşitsizliğini ele alan hükümet politikalarına ve kurumlarına duyulan ihtiyacı vurgulamaktadır.

Genel olarak, bu tez Nijerya'daki karmaşık gelir eşitsizliği sorununa ilişkin değerli bilgiler sağlamakta ve politika yapıcılar ile paydaşlara bu kritik sorunu ele almaları için öneriler sunmaktadır.

Anahtar Kelimeler: Gelir eşitsizliği, Beşeri sermaye kaçışı, Beyin göçü, İşsizlik, GINI.

University	:	Istanbul Kultur University
Institute	:	Institute of graduate studies
Department	:	Economics
Programme	:	International Economics and Finance
Supervisor	:	Assistant Prof Dr. Nazife Merve Hamzaouğlu

ABSTRACT

ANALYSIS OF INCOME INEQUALITY IN NIGERIA

This thesis analysis income inequality in Nigeria by examining the factors contributing to the unequal distribution of wealth in the country. The study explores the drivers contributing to higher income inequality, such as corruption, education, oil dependency, migrant remittances, and taxation. Further, the study uses data from various sources, including the Nigerian Bureau of Statistics and the World Bank, and analysed the impact of income inequality on certain factors such as unemployment, poverty, economic growth, and human capital flight. The research also investigates the role of government policies and institutions in addressing income inequality in Nigeria.

The study finds that income inequality in Nigeria is a significant problem, with the country having one with a record one of the highest Gini coefficients in the world, high of 51.9 in 1996. The research identifies a negative relationship between income inequality, unemployment, poverty, and a positive relationship to human capital flight. Several factors are affected by the high-income inequality in Nigeria, including a lack of access to education and employment opportunities, gender discrimination, and a weak social safety net. The study also highlights the need for government policies and institutions to address income inequality, including improving access to education and employment, promoting and supporting Small Businesses and Entrepreneurship, and strengthening social welfare programs.

Overall, this thesis provides valuable insights into the complex issue of income inequality in Nigeria and offers recommendations for policymakers and stakeholders to address this critical challenge.

Keywords: Income inequality, Human capital flight, Brain drain, Unemployment, GINI

CHAPTER 1:INTRODUCTION

1.1 Introduction

Income inequality is a common and pressing issue attracting significant attention from researchers, policymakers, and the general public alike. The idea indicates how income is distributed unfairly in a country, emphasizing the considerable disparities in wealth and earnings across people and groups. The issue of income inequality has wide-ranging effects on a society's social, economic, and political aspects, impacting things like poverty rates, social mobility, health outcomes, and the general state of society.

The problem of income inequality poses significant challenges for societies worldwide. A sizeable percentage of the population struggles to meet basic needs and take advantage of opportunities for upward mobility as wealth and income are concentrated increasingly in the hands of a small number of people. The concepts of fairness, social harmony, and equal opportunity are all undermined by inequality in income distribution, which also creates several socioeconomic problems. Additionally, the issue of income inequality has broader macroeconomic impacts. Concentrated wealth can impede economic growth and stability by reducing consumer demand. Furthermore, as wealth becomes disproportionately concentrated in specific industries or among particular persons, it may worsen systemic problems like financial instability and market imbalances.

Both individuals and communities suffer from income disparity. It worsens poverty cycles, restricts social mobility, and makes accessing services like healthcare, education, and other necessities harder. As a result, there are more social tensions, less faith in institutions, and possible confrontations due to the amplified social and economic divisions.

Understanding and addressing economic disparity is vital for creating inclusive and sustainable societies. It poses fundamental issues with fairness, social justice, and resource allocation in a society or country. To develop policies and actions that encourage greater equality and lessen wealth and income gaps, researchers and policymakers have conducted comprehensive studies to investigate the causes, effects, and potential solutions for income disparity.

By addressing the idea of income inequality from various angles, analysing its consequences on people and societies, examining its root causes, and considering potential mitigation measures, this research article seeks to add to the body of knowledge. This study aims to add to the continuing conversation about this critical problem by explaining the complexities of income inequality and offering recommendations to stakeholders and policymakers working to build a more just and inclusive society.

1.2 Background Of The Study

1.2.1 Definition Of Income Inequality

Income inequality has been interpreted and defined by several authors, but they all agree that it implies a growing difference between the top and lowest of social class. As the impacts and potential causes are investigated, income disparity has recently come under close examination. The majority of the population requires more resources and work opportunities while a small percentage of the population controls a sizable share of the income.

The phrase income inequality has been interpreted by many authors. Both the definitions and the fundamental idea indicate a widening of the gap between the income of the rich and the poor. When there is income inequality, there is a significant disparity in wealth across different demographic groups because there is an extreme discrepancy in the distribution of income, with a high percentage of money frequently in the hands of a small percentage of the population Koop (2019). A difference in the allocation of economic resources and income is referred to as income inequality. The term may even be used to describe inequality between nations, although it is primarily referred to an imbalance of individuals and groups within a community.

1.2.2 Concept Behind Income Inequality

The rising economic inequality is the most crucial issue of our day across both wealthy and developing countries. In advanced economies, the wealth separation is at its most significant point in decades. The trends in inequality in emerging markets and developing nations (EMDCs) have been more contradictory, with some countries seeing reduced inequality but continuing differences in access to finance, education, and health care. Unsurprisingly, in most Third World nations, especially Nigeria, where income inequality is quite evident, the level of inequality, its causes, and how to remedy it have become some of the most contentious

discussions among policymakers and scholars alike. Despite the present global recession, Nigeria's economy is still recognized as being the largest in Africa and among the most developing in the world.

Despite this, According to World Bank (2016), more than 50% of Nigerians live in abject poverty. At the same time, a small but wealthy elite group continues accumulating more wealth, meaning the wealth and income of the nation seem to be distributed unfairly. We have a group of people who are extraordinarily wealthy and have decent standards of living. These persons have easy access to the needs of life, like a healthy meal, a comfortable place to live, basic infrastructure, and adequate clothing. Another set of poor individuals, living on USD 370 per year or USD 1 per day, are also present simultaneously. These people tend to have poor health, illiteracy, poverty, uncertain work, and limited access to essentials like food, clothing, and decent housing. The scale and extent of the imbalance are evident, but they are not assessed. The disparity between the rich and the poor doesn't seem to be derived, but it appears significant.

The wealth disparity has expanded over the past 40 years in industrialized and developing countries. In 2015, only 62 people possessed the lower half of humanity's wealth; the wealthiest 1% held more money than the rest of the world combined. The world's poorest half are not receiving their fair share if they have only received 1% of the increase in global wealth since the turn of the century, World Bank (2016).

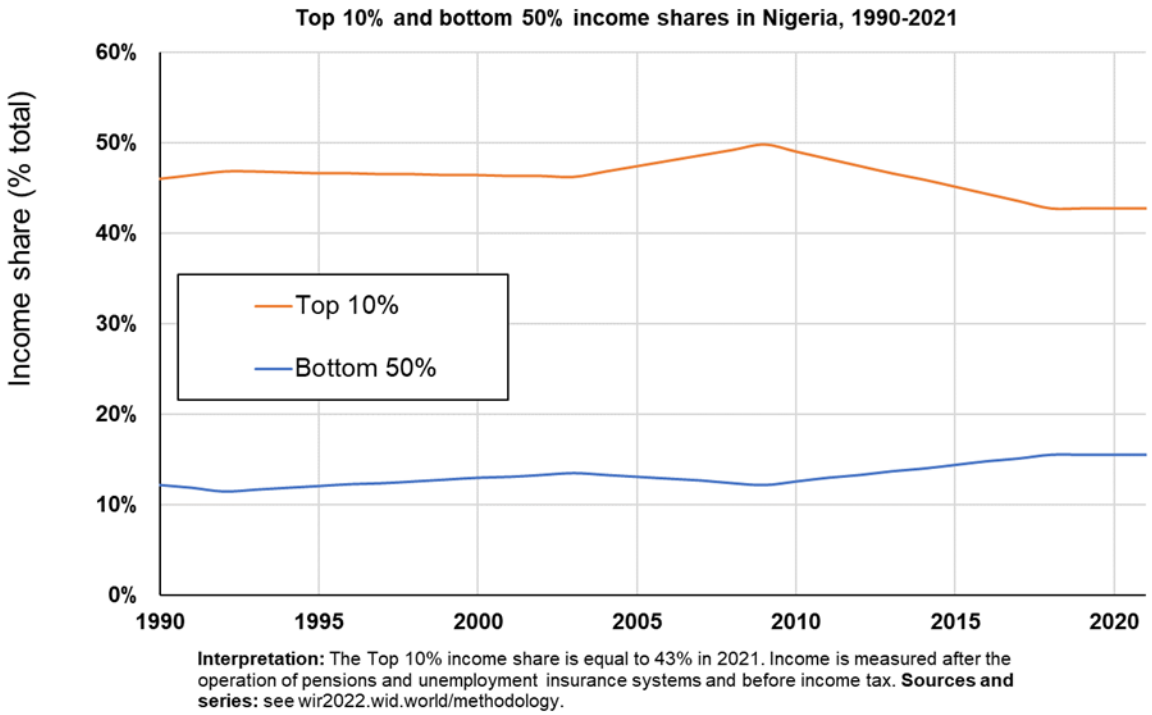

Figure 1. 1 Top 10% and bottom 50% income shares in Nigeria
Source: World Inequality Report (2022)

The majority of people in Nigeria strive daily to overcome the extravagant wealth amassed by a small minority of people whose income disparity has reached unbelievable dimensions. The wealthiest Nigerian citizen would need 42 years to spend all of his wealth at a pace of $1 million per day, according to a 2017 Oxfam report on inequality in Nigeria, the same year that more than 112 million people lived in poverty. Regarding income distribution, Nigeria is one of the thirty most unequal nations in the world, with only 10% of the country's GDP flowing to the poorest 50% of the population (Adegoke, 2013).

The disparity in income distribution between rural and urban areas is also underlined; thereby, Ladipo and Adesimi (1981) found that there was still a disparity in income between rural and urban areas in Nigeria. Their lower income levels are explained by most rural inhabitants being primary producers. In contrast, most urban residents are wage earners who work in private or public organizations, are self-employed or are independent contractors. While urban centres have people with significantly more prospering economies, steadily rising salaries, and employment possibilities, rural populations rely predominantly on somewhat stagnant agricultural economies. The previous discussion noted that several occupational groupings in

rural areas also experienced income inequality. Inequality is seen to be a factor that might erode social cohesion and escalate conflict. The study generally acknowledges that high wealth inequality can potentially cause internal disputes Cramer, (2005).

Various interrelated factors, including education, corruption, technology, skill premium, access to loans, government spending, labour market flexibility, and even political disparities, can be considered when analysing income disparity. These elements result in a similar pattern of income distribution and contribute to effects like poverty, economic growth, unemployment, and human capital flight.

1.3 Statement Of The Problem

Nigeria is in the unusual position of having the best-paid Legislators in the world governed over some of its poorest citizens just over 15 years after returning to democratic rule. A Nigerian senator's base salary is around $118,000, or N37 million, or 63 times the nation's GDP per person (2013). Simultaneously, economic and social suffering issues are becoming more prevalent, including urban slum homelessness, high graduate unemployment, starvation, maternal mortality, and international migration. There have been discussions and opinions investigating the idea, types, magnitude, and economic implications of income inequality in recent years, notably since the middle of the 1990s.

These studies made assumptive mention of income inequality.

For instance, Todaro (1970) created a mythological figure in his well-known book on development to explain the wealth gap between well-off and poorr using the Lorenz curve and Gini coefficient, and this typical case study did not use information from any one nation. The research of several other authors focuses on the trade-off between growth and income distribution, and they claim that growth and a greater GNP were necessary for development.

Despite the focus on economic growth, income inequality's fundamental problems continue to worsen.

1.3.1 Comparison Between Nigeria And India

It is difficult to compare two nations like Nigeria and India because of the complexity of the income gap issue. Both nations have very high populations and similar economies; here is a simple comparison based on the data though:

The Gini coefficient, which measures income disparity, was 36.8 in Nigeria in 2020 and 35.7 in India in 2018, according to the World Bank, which shows that Nigeria and India have slightly different levels of economic disparity. The typical household income in Nigeria was approximately $1,700 in 2020, compared to approximately $2,200 in India in 2019. This shows that Nigeria and India have different average family income levels.

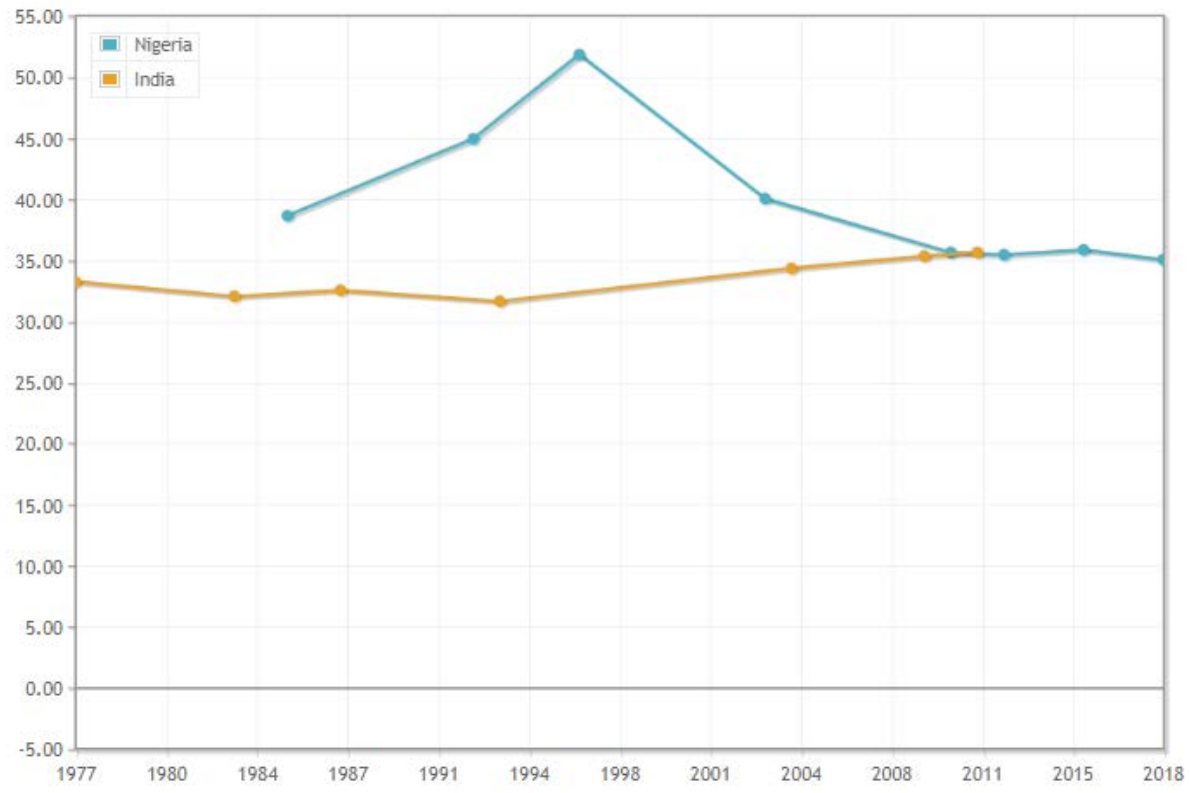

Figure 1. 2 Gini coefficient Nigeria vs. India

Source; Index mundi

Regarding the above Gini comparison, Nigeria was at a very high level of income inequality compared to India until 2005, when they tended to move in a very similar range.

However, poverty is widespread in both nations. According to the World Bank, over 40% of the population in Nigeria and 28% of the people in India lived below the poverty line in 2019. Regarding income and access to essential services, both countries have a substantial disparity between rural and urban areas.

Both the economies of India and Nigeria are expected to rank among the world's largest in the medium term. India and Nigeria are in comparable economic stages and structures, with current GDP per capita (PPP) values of US$ 6,997 and US$ 5,36315, respectively. In India and Nigeria, the contributions of the agricultural, industrial, and service sectors to economic output are equivalent to those in China. There may be more job potential in the manufacturing and service sectors given that sectoral patterns of employment elasticity17 in India and Nigeria are comparable.

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According to a report by PwC (2022), In India and Nigeria, the employment elasticity in agriculture is -0.02 and -0.1; in manufacturing, it is 0.29 and 0.3; and in services, it is 0.3 and 0.5. The employment elasticity tells us how many jobs are available in each industry as the economy expands. As a result, it is an essential criterion for determining which sector should receive investment priority to increase productivity. Given the populations of India and Nigeria, both nations will benefit from investments in human capital to boost labour productivity, particularly in the service sector.

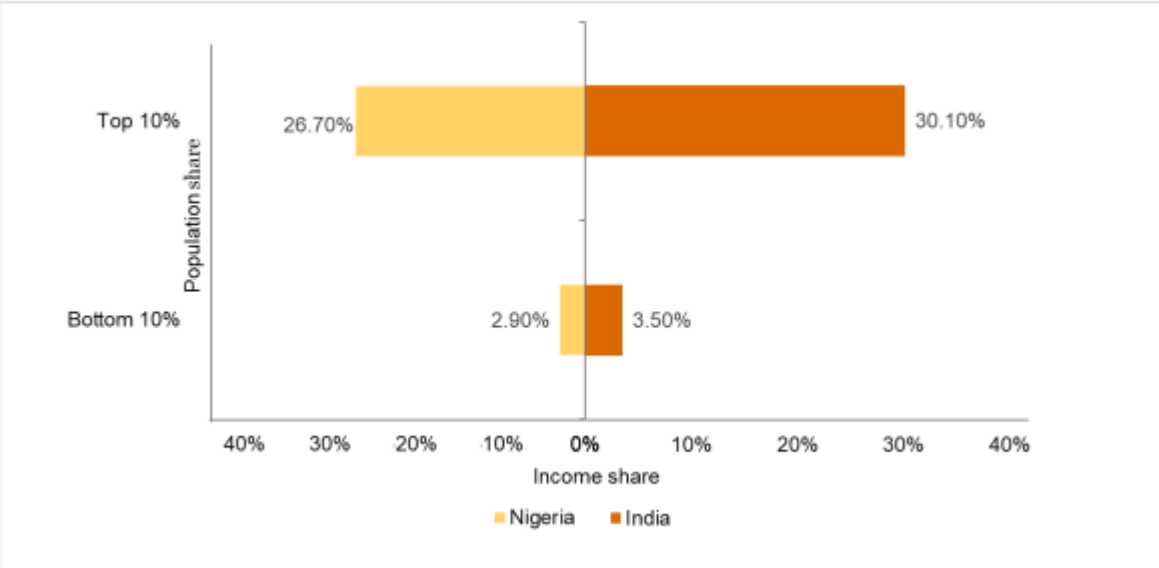

Figure 1. 3 Income share of the most affluent 10% and poorest 10% of the population. Source; PwC learning from two large democracies

To encourage balanced development, it is critical to make equitable investments in human capital. Both nations need to address the numerous issues they have in common, including regional and income inequality and gender inequality. The richest 10% of the population comprise 30.1% (in India) and 26.7% (in Nigeria) of the income distributed across the two nations. In comparison, the lowest 10% make up 3.5% (in India) and 2.9% (in Nigeria). States in India have a lot of regional differences. The North, South, and Western states account for 70% of India's GDP, whereas the Central and Eastern states, home to 52% of the country's people, only contribute 30%. Similarly, in Nigeria, the top three states out of 36 produced 25% of the country's economic output in 2017.

Despite some differences, both countries need to undertake a lot of work to improve income disparity and combat poverty. Despite facing many difficulties, the COVID-19 pandemic has presented both nations with several opportunities that could spur enormous growth.

1.3.2 Comparison Between Nigeria And Ethiopia

Although Nigeria and Ethiopia are African nations with sizable populations and expanding economies, it gives a more correlated comparison, although there are notable differences in their levels of income inequality.

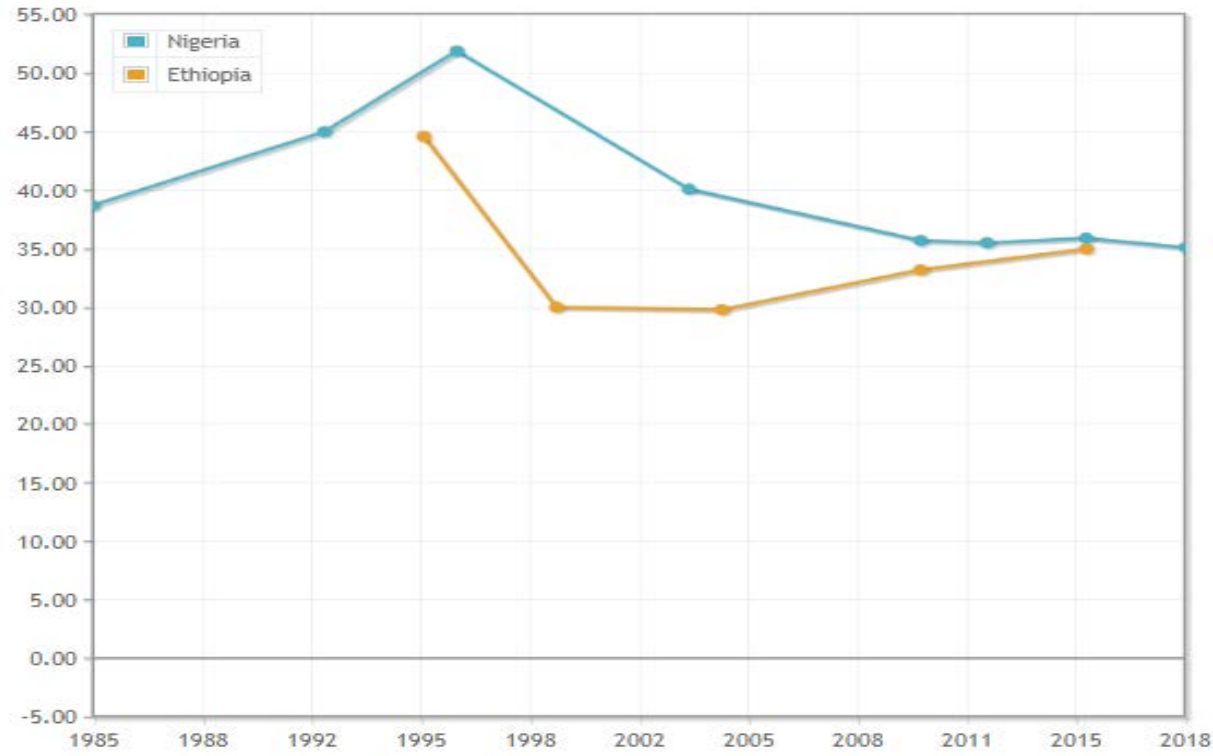

Figure 1. 4 Gini coefficient Nigeria vs. Ethiopia
Source; Index Mundi

Nigeria had a Gini coefficient of 35.1 in 2019, which is a relatively high level of income inequality, per World Bank data. Ethiopia, in comparison, had a slightly lower Gini coefficient than Nigeria in the same year, at 33.6.

It is crucial to remember that income inequality can vary significantly between nations; thus, these data at the national level could not accurately reflect the experiences of people in various areas or socioeconomic classes. Additionally, both nations still have much work to do to fight poverty and advance economic growth, which can exacerbate income inequality.

1.3.3 Drivers Of Income Inequality In Nigeria

Corruption is Nigeria's biggest problem, hindering its economic and social development by weakening the rule of law, decreasing the effectiveness of public services, and deterring foreign investment. Fraud-related crimes have cost Nigeria $25.76 billion annually over the last five years, including daily losses of at least $70,005,342 due to corruption and other associated crimes. This situation has become unsolvable since independence, and every plan devised to

confront or combat the threat has yet to produce desired results. The lack of accountability and the amount and pace of corruption have continued to hinder Nigeria's efforts to develop and are to blame for the country's rising levels of income inequality. The consequences of corruption are grave. For instance, embezzlement of public funds can result in a shortage of funding for social programs and infrastructure expansion, disproportionately affecting communities and people of lower income; the wealthy and well-connected may find it simpler to get an unfair economic advantage due to corruption while making it more difficult for regular people to advance their lives. In addition, corruption can foster a culture of mistrust and scepticism, which can amplify societal differences and threaten the credibility of institutions like the government; this can result in a lack of confidence in the democratic process and a perception that the system is biased against particular groups, which worsens income inequality. The Nigerian government has made progress against corruption, but much to combat this, further work must be done on this pervasive issue.

Education tends to be the most apparent driver in contributing to income inequality; the link between education and income disparity is explored in this form. For example, People with higher education typically earn more money and have less income inequality, while those with less education typically earn less and face more economic disparity. Likewise, education can significantly reduce income disparity due to its impact on career choice, employment availability, pay scale, and as an indicator of aptitude and productivity in the labour market. The human capital model of income distribution explains that the impact of higher educational attainment on income inequality may be either positive or negative depending on the development of rates of return to education. However, there is conflicting evidence regarding the link between educational inequality and income variation. Education can also give people the skills and knowledge necessary to properly negotiate the employment market and make wise career decisions. While it is not the only factor affecting an individual's income and degree of income disparity, education is essential; it can significantly impact the opportunities and results of the economy. Overall, education is crucial in lowering income disparity and improving economic outcomes for individuals and society.

Another critical point is the contribution of migrant remittances as a source of foreign funding for developing nations, including Nigeria. These remittances are sums of money sent by economic migrants back to their home countries. Remittances are the second-largest source of financial input for many developing nations and support global economic development,

improving people's standard of living. They also promote financial and social inclusion for both the sender and recipient. Remittance transfers, however, can increase the economic dependence of receiving countries on the global economy.

According to estimates, Nigerians who reside abroad send home the most money from any African nation, making Nigeria the seventh-largest beneficiary of remittances. The top four international recipients of remittances are India, China, Mexico, and the Philippines. To developing countries the sum of $351 billion in 2011 as inflows and reached $406 billion globally, including transfers to high-income nations. Remittances have been found to lessen inequality and poverty rates in homes where migrant families live. They also favourably impact income growth and slightly lessen inequality in Latin America and the Caribbean.

In conclusion, the text highlights the importance of migrant remittances in supporting the economic development of developing nations and improving people's standard of living. Remittances have been found to positively affect poverty and income growth in various countries. However, they also have the potential to increase the economic dependence of receiving countries on the global economy.

Oil revenue can contribute to or alleviate economic inequality depending on how it is utilized and distributed. If the government uses oil revenue to fund expensive projects or reward a limited number of elites, it can widen the gap between the rich and the poor. Studies using time series data in Nigeria found a statistically insignificant negative correlation between oil revenue, government spending on social and community services, and income inequality. However, real GDP and income inequality had a statistically strong positive relation; it suggests that oil money may not effectively reduce income inequality due to corruption and an ongoing widening gap between the rich and poor. A similar study on Iran found that although oil revenue positively impacted GDP and negatively impacted the Gini coefficient, the effect was too small to make a significant difference. Recent studies show that higher oil prices can positively affect government spending and subsidize fuel prices, benefiting many Nigerians. However, increasing oil prices can exacerbate inequality, raise food costs, and lead to inflation and poverty

To sum up the main contributors to income inequality in Nigeria, Taxation is a fundamental source of revenue for governments to provide essential services to citizens. However, it should

be designed reasonably. Progressive taxation is a concept that ensures those who are better off pay more taxes, leading to just redistribution of public resources. However, regressive taxation, which disproportionately burdens lower-income earners, is prevalent in Nigeria. Multinational corporations exploit tax rules loopholes to transfer profits made in Nigeria to low-tax jurisdictions, while the informal sector is heavily taxed at the state level. This results in the poorest individuals and businesses paying the majority of the taxes.

Additionally, certain income taxes, such as flat-rate or fixed-sum taxes, can also be considered retrogressive, affecting lower-income earners more severely. Regressive consumption taxes, like sales taxes, can also impact individuals with lower incomes who spend a higher proportion of their income on taxable items. As a result, Nigeria is denied crucial resources for supporting sustainable development. There is the requirement for a fairer tax structure that encourages the well-being of all Nigerians, reduces inequality, and supports sustainable development.

Thus, a number of Third World countries have begun to realise that such prosperity has had no significant effect on the lives of their poor, notably in Nigeria, which experienced very rapid economic growth by historical measures, the standard of living for those millions of people in Nigeria appeared to be dropping in actual terms. Worrisome trends include rising underemployment rates and unemployment in urban and rural areas. Even more concerning, the income distribution is getting less equal every year. It is now clear that rapid economic expansion could not end or even significantly lower the prevalence of absolute poverty.

1.4 Objectives Of The Study

This paper analysis the current economic and social impact of inequality in Nigeria, with a focus on human capital, relying on extensive research, unique case studies, and specific occurrences. Studies on how income inequality affects economic growth and poverty are widely available in the literature, for example, Raheem et al. (2014). Only some studies, as far as we know, have considered the potential influence of income inequality uncertainty on unemployment and brain drain in Nigeria.

However, it is crucial and enlightening to look into the breadth and depth of economic disparity in Nigeria to pinpoint the problem's dimensions. Our fundamental problem-solving method is describing the nature of the Nigerian wealth distribution problem, identifying the income

inequality rate, and exploring the drivers to understand their importance. Assess the effects of income inequality in Nigeria; the correlation between income disparity and the migration of human capital is then established using an empirical framework and several potential policy strategies for eradicating poverty, unemployment, brain drain, and economic growth and narrowing excessively wide income inequalities in Nigeria are briefly examined.

To break it down, examining the factors that contribute to economic inequality in Nigeria is the goal of this study, Identify the rate of income inequality, Assess the effects of income disparity, Discuss and look at the linkage between human capital flight, in other words, brain drain is associated with income inequality, The goal of this work is to treat these essential examples in depth.

1.5 Significance Of The Study

The underlying notions that people accurately perceive the degree of inequality in society and include this perception in their preferences and decisions explain the large variety of research on inequality's personal and societal effects. However, this assumption has been seriously questioned by recent research, which discovered significant errors in people's perceptions of their own socioeconomic status in society and significant discrepancies between the perceived and actual levels of inequality (Engelhardt & Wagener, 2018). Meanwhile, research on people's individuals' perceptions of inequality has yielded many contradictory findings. People have been demonstrated to overestimate and underestimate the extent of different perceptions of inequality depending on how researchers interpret and operationalize them Chambers et al. (2013). This discrepancy between perceived and actual inequality might produce exciting results.

The significance of this research rests in its capacity to identify the origins and consequences of the problems under investigation and suggest potential solutions for dealing with them.

Studying income inequality is necessary in order to raise enough awareness of its effects, which are always detrimental to any human community that experiences them.

The findings of this study will offer information that will contribute significantly to educating the public about the risk that increasing income inequality poses to everyone in society, not just the person experiencing it.

It is an effort to raise awareness of the issue facing young people, particularly when they graduate from secondary and tertiary institutions.

The research will provide additional opportunities for scholars who might or dare to conduct more extensive research on the subject in order to better understand it.

To stop the inner cycle of inequality that imprisons many Nigerians, it is necessary to critically evaluate the topic by carefully analysing the drivers, and the culture of governance and give recommendations on change of laws and customs that accumulate excessive wealth, privileges, and high salaries in a tiny portion of the top earners. Its main goal is to clearly state important policy suggestions that could contribute to the discussion on inequality in Nigeria with a view to eliminating it. This study provides several policy suggestions in addition to outlining the primary causes of economic inequality in Nigeria.

CHAPTER 2:LITERATURE REVIEW

According to Bakare (2012), income inequality is a condition in which the amounts, types, or conditions of money received over a specific period, particularly as compensation for labour or interest on investments, vary. Income disparity is the boundary between the rich and the poor, according to Graham (1995). The lowest income group is characterised by poverty, lower health care and precarious work with an insufficient level of education; whereas the highest income group consists of excellent healthcare or adequate literacy attainment. The medium group exhibits the same qualities as both the low-income and high-income groups.

According to Okatch et al. (2013), income inequality summarizes how individual income is distributed and represents how households share income or assess their wealth. According to Bradley (2013), examining income inequality is a technique to look at the imbalance between the different households' incomes within a certain region, country, or nation.

Divergent interpretations surround the notion of inequality, varying among individuals. It can be perceived as the spread of a range, whether examining income, consumption, or alternative

indicators of well-being or characteristics of a population. Despite their conceptual differences, income inequality is frequently explored within comprehensive examinations that encompass poverty and overall welfare. Unlike poverty, inequality extends beyond a limited scope, as it is defined across the entire distribution, encompassing not only individuals or households falling below a designated poverty threshold Cowell et al (1999).

Obomeile C and Osamwonyi O.I (2015), delves into the connection between income inequality and its determinants in Nigeria, utilizing time-series data spanning from 1980 to 2012. The investigation aims to discern whether a substantial link exists between income inequality and specific macroeconomic factors, such as public expenditure, migrants' remittances, unemployment, inflation, and GDP per capita. The analysis employs Ordinary Least Squares (OLS) regression, unit root tests for ascertaining variable stationarity, Co-integration analysis to explore long-term equilibrium, and an Error Correction Model (ECM) for gauging short-term impacts. The findings highlight noteworthy associations between income inequality and migrants' remittances, unemployment, and inflation, where unemployment displays a positive correlation, and remittances and inflation exhibit negative correlations. Despite GDP per capita and public expenditure showing positive correlations, they do not demonstrate a statistically significant relationship with income inequality. The study recommends prioritizing governmental initiatives to formulate and implement practical employment policies, focusing on industrialization and agricultural mechanization for job creation. Additionally, policies should be devised to optimize the positive effects and mitigate the negative repercussions of remittances, acknowledging their substantial role in narrowing the wealth gap between the affluent and impoverished in Nigeria.

2.1 Theoretical Background

Kuznets (1955) emphasized in his key study on economic growth and income inequality that the initial increases in inequality are followed by increases in per capita income, but as the benefits of increasing income spread, inequality will decline. Simon Kuznets, an economist,

developed the "Kuznets Curve" hypothesis in 1955 in an effort to explain the trend in income distribution. The Kuznets Curve, depicted below in the shape of a bell curve, is meant to demonstrate how, as a developing country's income rises, so does its income inequality. However, as the country develops and its income rises further, the level of inequality peaks and then begins to decline. According to Kuznets' explanation for this phenomenon, when a country advanced from its early stages of development, its economy would shift from being dependent on agriculture to being focused on industry as workers moved from the suburbs to the metropolis. The gap between labour (workers) and capital (owners) would widen as industrialization progressed because owners would earn more money through profits. The degree of income inequality will reach a pinnacle as industrialisation develops and incomes continue to rise. Since there would be more money available for public investments like public health care, public education, and a social safety net simply due to the more significant national income, there would be less income disparity overall, which would cause the Kuznets curve to slope lower.

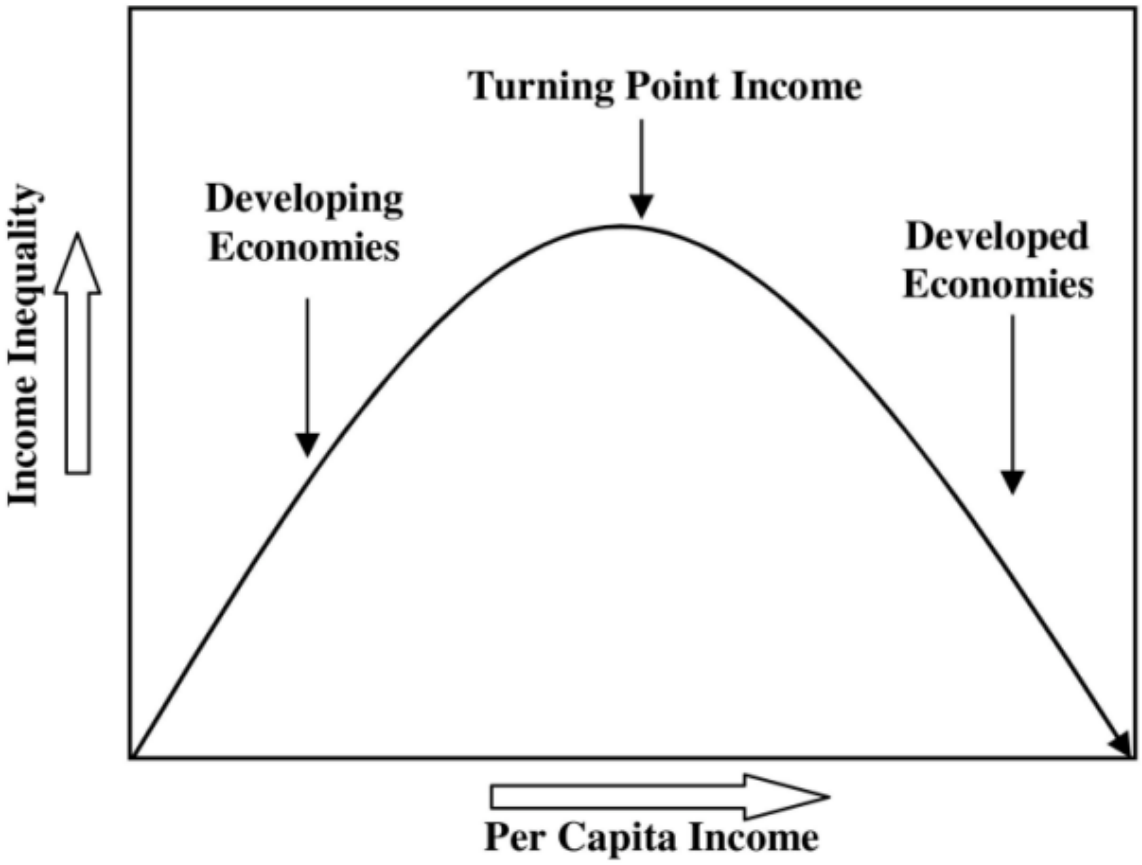

Figure 2. 1 The Kuznets Curve

Source: Northeastern University Economics Society

As published by the Northeastern University Economics Society (2016), the strongest upticks of inequality came from the US and the UK. Nevertheless, even societies considered more egalitarian, like Canada, Australia, and Sweden, also experienced notable increases in inequality starting around the same time, presenting increasing inequality in advanced nations as a systemic global phenomenon rather than a unique national one.

Similarly, Bouillon et al. (2001) used an empirical simulation approach to pinpoint how Between 1984 and 1994, the rise of income differences in Mexico could be attributed to micro economic factors. Subsequently, after identifying a series of regression equations concerning variables that had an impact on Per capita income between 1984 and 1994, they proceeded to calculate the effects of changes in visible and invisible features. The observed changes in the income distribution are broken down by the micro-simulation approach into "return effect, population effect, and unobservable impact." According to these findings, a 50% increase in income inequality can be attributed mainly to changes in household size.

Galor and Zeira (1993) disagreed with this assertion, pointing out that while countries with higher per capita incomes have a more equitable income distribution, nations with more equal initial distributions of income expand more quickly and have a higher income level over the long term. According to Ehrhart (2009), economic and politico-economic issues can be broadly categorized as the causes of income disparity. The existence of a weak capital market, an increase in fertility rates, and a small domestic market are only a few examples of the economic causes of income disparity. On the other hand, redistributive tax pressure and the socio-political climate are political and economic factors that influence income disparity.

2.2 Empirical Literature

There has been some existing literature on the issue of income inequality in Nigeria. Income inequality has also continued to receive wider attention among scholars in various economies of the globe. A number of recent studies have concentrated on income inequality and its relationship to poverty, unemployment, and mostly with economic growth. However, we can see a fitting together of the pair from the theoretical paper.

For example, the Sandmo 2013 paper by the Norwegian School of Economics is just looking at how much income can be divided among wages, profits and rents. He had conducted his studies solely in theory and there was no experimental evidence.

Even Bakare (2012), who attempted to use an empirical approach, could not link income inequality to unemployment. In his research, he applied a classical Lorenz curve and Gini formula to establish the level of income inequality. Using OLS, he had found the Nigeria Gini coefficient to be between 0.46 and 0.60. He concluded that the Gini coefficient would increase by 3 % when the rate of illiteracy increased by 1%. Bakare tried to calculate the Gini coefficient for the Lorenz curves that were obtained from the previous section. Figure 2 showed that each large square in the graph has an area of 25 cm2, while the smaller squares contains an area of 1 cm2. Gini = A/A+B Where A = shaded portion on the graph, meaning between the line of equality and Lorenz curve B is the area below the curve; A + B = 1250.

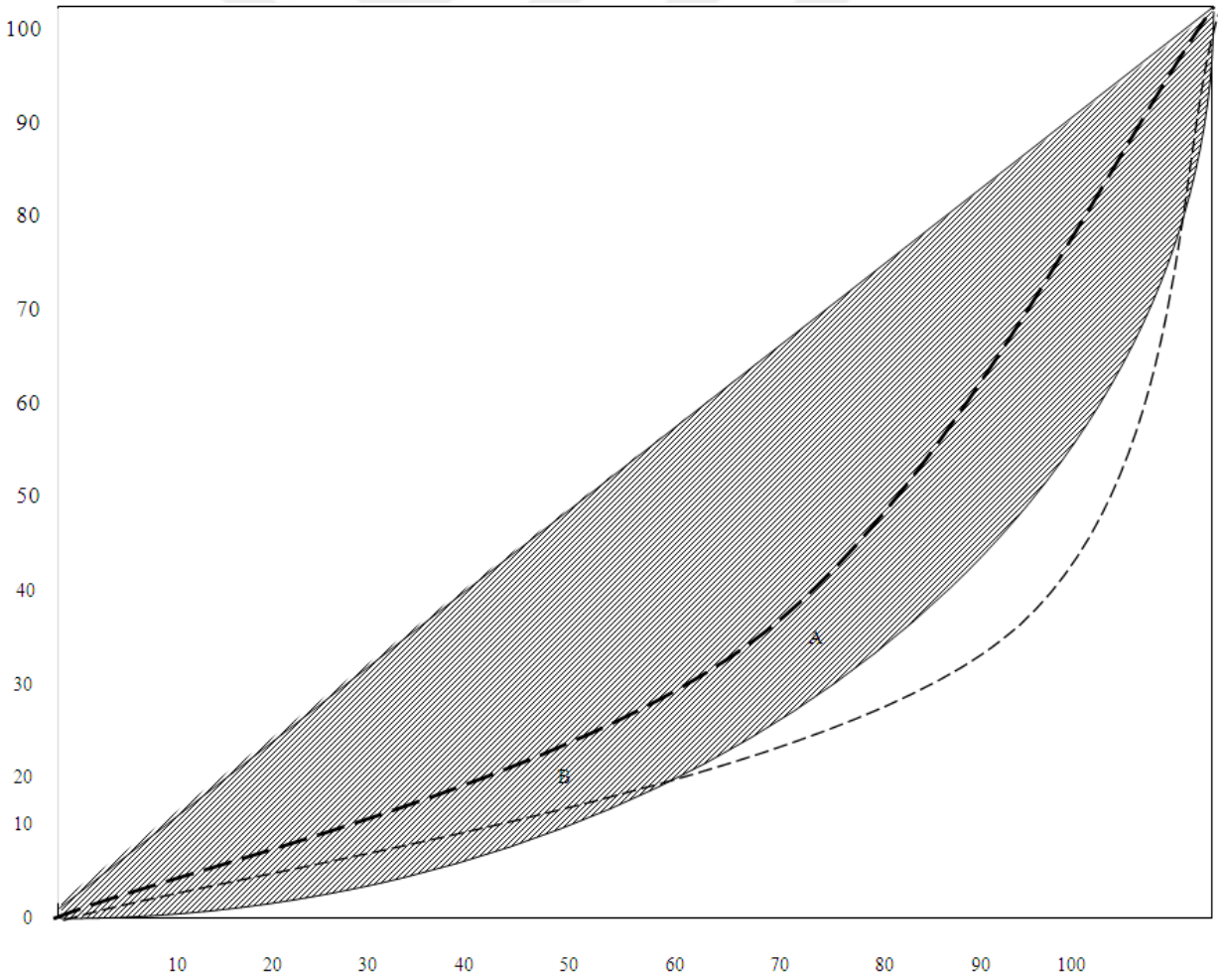

Figure 2. 2 The Lorenz curve for Nigeria

Source: Bakare A.S; American Journal of Economics

In addition, the following conclusions have been made by research such as Kelechi (2020) which analysed Nigeria's labour market situation and income inequality on the basis of household survey data from the National Bureau of Statistics and information received from the World Bank and Nigerian central bank.; First, the unemployment rate for men in the labour force is higher than for women. Second, the unemployment rate is greater for young people aged 15 to 34. Third, the post-secondary labour force is the predominant class of the unemployed, in addition to social and demographic factors. Fourth, an increasing wealth gap between Nigerian states and geographical clusters was discovered. Increasing unemployment worsens income disparity; this was finally discovered.

Nesta et al. (2021) used annual time series data from 1981 to 2018 and examined the critical determinants of the increase in income inequality experienced in Nigeria. The data were estimated using the fully modified ordinary least square (FMOLS) technique. Income inequality has been influenced by factors such as the level of economic development attained, technology, globalization, fiscal policy, rural-urban drift, and financial access. The findings also demonstrated that the relationship between income growth and income inequality over time was linearly monotonic rather than the inverted U-shape predicted by the Kuznets hypothesis.

Ukpere (2011) asserts that unemployment heightens the degree of income disparity and poverty in a society. He makes a compelling case for the connection between globalization, unemployment, income disparity, and poverty in Africa. The alarming issue of unemployment, vast income inequality, and widespread poverty is related to globalization.

Based on panel data from 2000 to 2012, Yumna et al. (2014) examined the effects of different types of inequality on economic development and unemployed in Indonesia. They used the OLS methodology and discovered that income inequality had a negative impact on growth, whereas education inequality had a damaging impact on subsequent unemployment.

Among the studies that focused on the relationship between Income inequality and poverty are those of; Adeoti and Oyekale T (2006) on measurement and Sources of Income Inequality Among Rural and Urban Households in Nigeria (December 2006). Between 1998 and 2004, they concluded that poverty increased due to income growth and redistribution. Poverty and

income inequality are intimately related. Their analysis of Nigeria's income disparity using the Shapley, regression-based, and Gini decomposition methods revealed that 2004 income inequality was greater in rural than in urban areas. The study also found that while agricultural income reduces inequality, employment income increases inequity. The World Bank's (1996) survey revealed that people experiencing poverty likely lack literacy, are in poor health, and have shorter life spans. In support of the assertion, according to Olayemi (1995), the income disparity in Nigeria is characterized by a scarcity of access to basic needs and requirements such as goods, clothing or decent housing, an inability to comply with social and economic obligations due to lack of professional skills and productive employment. In that reasoning Kuh et al. (1997) have identified education as the primary mediator. Family circumstances that influence one during childhood are a major determinant of income inequality in adulthood.

Akinbobola, et al. 2004, made a research which focused on the basic trends like; human development indices, per capita income, public expenditure on infrastructure and Nigeria's unemployment rate. A lower unemployment rate leads to better human development, which in turn lowers poverty, according to a vector autoregressive model.

Babatunde (2010), analysed income inequality among a sample of farm households in rural Nigeria, and his results showed that the entire Gini coefficient of income inequality is 0.40, showing that while income earned on farms reduces economic inequality, income earned off farms increases inequality. Agriculture-related wages, non-agricultural wages, and self-employment income among off-farm activities' components contribute to income inequality, although remittances and other sources of income (pension and capital income) do the opposite. According to Saunders (2002), unemployment increases the risk of poverty and inequality. As a result, he advocated for welfare reform focusing on job creation.

According to Ilaboya and Ohonba (2013), the issue of income inequality is addressed through public policies like social spending, taxation, and good governance, as exemplified by transparency and accountability, public expenditure on health, housing, and education, as well as policies of more comprehensive growth.

According to Igbuzor (2017), regressive taxes, an inadequate budgetary system, resource mismanagement, substandard policy implementation, high government cost, corruption, and favouritism are the leading causes of inequality and poverty in Nigeria. The government has found it challenging to lessen economic inequality because of these factors.

Jose and Teilings (2002) carried out a study to determine the reasons behind significant changes in income inequality over time. They used a model that included several explanatory variables to reflect changes in income inequality or how income is distributed in transitional nations. In particular, real GDP per capita, inflation rate, employment rate, government consumption as a share of GDP, industrial output as a share of GDP, private sector share of GDP, percentage of people over 60, and government social employment have been identified as the Gini coefficient of income inequality. The regressions revealed that the inequality of income correlated very negatively with GDP per capita, which could increase during a recession.. The regression model was generated using 24 transitional nations.

Additionally, a negative association between the squared GDP per capita and economic development (Kuznets' Hypothesis) indicated the typical U-shaped relationship between income inequality and economic development. While employment rates and government consumption had no discernible impact on income disparity, inflation was found to enhance it. Given the substantial negative correlation between industrial sector output and GDP, this occurs when industrial output declines and income inequality rises. Contrarily, it was revealed that the size of the private sector correlates positively with income disparity, whereas government social spending will cause income inequality to decline. Finally, it was discovered that the percentage of the population 60 years and older significantly impacted income disparity.

In terms of how inequality is generally perceived, the advantages and disadvantages of disaggregation between income streams have been examined by Morduch and Sicular (2002). In addition, they have introduced a new regression method for the disaggregation of inequality indices based on household level data, while using estimates of revenue streams from variables in the Linear Income Equations, this method disaggregates aggregate inequality indices. In a multivariate environment, the integrated approach offers a practical and adaptable way to measure the contributions of variables, including education, age, infrastructure, and social status. The evidence from China indicates the benefits of the suggested integrated method and highlights the stark disparities that might occur when using decomposition techniques with different features. The empirical findings demonstrated the significance of regional segmentations in escalating inequality: a town of residence in the sample greatly influences inequality, A partial counterweight to this force is the relatively equitable distribution of human

capital, in particular demographic factors. Affiliation with the communist party and indicators of social standing, in contrast to previous recent studies, play a very small influence in predicting inequality.

Within-country income inequality and the strategies of internal liberalization and external globalization were examined by Cornia (2005). He predicted a drop in inequality using a variety of models, including the Hecksher-Ohlin model. Results from Cornia's study showed that the introduction of such measures frequently increases inequality. To combine prior disparate statistical and human capital theory approaches to the study of the income distribution, Awoyemi (2005) used a regression-based decomposition method. The Gini coefficient was used as a measure of income inequality. According to his findings, the degree of home consumption is negatively and most strongly impacted by household size. The study also demonstrated that the level of income will be positively impacted by education, age, and the number of productive hours put toward one's principal work. In his study, Oyekale (2005) attempted to estimate the degree of income disparity using information from the Federal Office of Statistics' National Integrated Households Survey (FOS, 2003). To gauge income disparity, Use has been made of the mean including standard deviation and coefficient of variation. The ordinary least square (OLS) regression approach was used to derive the socioeconomic determinant of per capita income, a measure of well-being, thereby, In his study, he noted that income inequality is detrimental to economic development and growth in Nigeria's rural and urban areas as a result of the growing prevalence of poverty.

Additionally, Oguntuase (2007) used co-integration and error correction estimating techniques to perform an empirical examination of the factors influencing income distribution in the Nigerian manufacturing sector. The study's empirical findings demonstrated that government social spending, education level, manufacturing sector GDP share, and employment rate were the key factors that truly determined how income was distributed in the Nigerian manufacturing sector. According to the study, the employment rate and GDP share of the manufacturing sector in Nigeria's manufacturing sector both showed an inverse relationship with the Gini coefficient of the income distribution. In contrast, the Gini coefficient of income distribution within Nigeria's manufacturing sector has been directly linked with government social expenditure and literacy rates as an alternative to education. It also showed that all explanatory factors in the Nigeria manufacturing sector were linked to income distribution for a long period of time.

CHAPTER 3:METHODOLOGY

This chapter provides a description of the methods used to analyse the impact of income inequality on the explanatory variables using the Gini coefficient as the dependent variable. The analysis is based on time series data covering 1997-2021. The chapter is divided into five sections: the method used in the analysis, sources of data collection and data preparation, definition and justification of variables, model specification, estimation procedures, and techniques for evaluating the result.

3.1 Methodology

This study's research design is ex post facto because this research

relies on historical data. The study will employ multiple linear regression estimation to test the hypothesis postulated in the study. The Gini coefficient is acknowledged as a dependent variable that proxies for income inequality because it is the widely accepted measure of income inequality; the coefficient ranges from 0 to 1 (or 0% to 100%). A coefficient of zero indicates perfect equality, while a coefficient of one represents perfect inequality. While poverty level, unemployment rate, economic growth, and human capital flight are the explanatory variables. Numerical data are raw materials for statistical investigation, and therefore, Time series data is used for all variables over the period 1997-2021.

3.2 Nature And Sources Of Data

For this, the research will use empirical clarification and analysis of secondary data. The study will make use of data from secondary sources,

mainly the world bank, National Bureau of Statistics (NBS), Nigeria Central Bank of Nigeria (CBN) journals (such as the CBN statistical bulletin, CBN reports, and statement of accounts), and other available works.

3.3 Definition And Description Of Variables

The Gini coefficient has been considered the dependent variable in this study, and explanatory variables have carefully been chosen based on literature reviews and the gaps to be filled in previous research. Our model comprises four explanatory variables: poverty measured by household expenditure, unemployment rate, economic growth in terms of real GDP, and human capital flight measured by net migration.

Income inequality, as the Gini index, is our dependent variable.

Considered as our dependent variable, we will see how all other independent variable affects it and if there are any correlations.

3.3.1 Definitions

Gini coefficient; defines the Gini index as the ratio of area (A) between the perfect equality line and the Lorenz curve divided by the overall section beneath the perfect equality line (A + B), and the Gini index only accepts values inside the unit interval. The closer the index is to zero in case of region A's small size, the more equal distribution of income. The closer the index is to one (where area A is enormous), the more uneven the income distribution. In an economy, the Gini Index assesses how much income and expenditure distribution deviates from what is completely comparable in certain circumstances. The Lorenz curve shows average cumulative percentages for total income received compared to overall number of beneficiaries, beginning with the lowest individual or family. The Gini index, which measures the area between the Lorenz curve and the hypothetical line of absolute equality, is a percentage of the most important area under the line. A Gini score of 0 represents perfect equality, while a Gini index 100 is the perfect inequality.

Poverty; Poverty is a multidimensional topic that can be described in various ways, but in economics, poverty is frequently defined as a lack of access to the resources required for a basic level of living.

Poverty is sometimes defined in income or consumption levels, with persons living below a given income or consumption threshold deemed poor. The precise definition of poverty varies by country or location and is frequently changed for differences in costs, living standards, and other factors.

Unemployment rate; The fraction of the labour force that is both unemployed and actively looking for work is used to calculate the unemployment rate, it is a widely used indicator of the economy's overall strength and the health of the labour market.

The unemployment rate can be used to compare unemployment rates between areas, industries, and demographic groups and monitor changes in the labour market over time. A high unemployment rate typically denotes a sluggish labour market, with few job openings and fierce competition for available positions. On the other hand, a low unemployment rate often denotes a healthy labour market, with comparatively more job openings and lower levels of job applicant rivalry.

Economic growth; The production and consumption of products and services within an economy rise over a specific period is called economic growth. Typically, it is expressed as a percentage change in the gross domestic product, which shows the entire value of all products and services generated in an economy over a specific time period, generally a year.

Human capital flight; The emigration or loss of highly trained or educated people from one country or region to another that offers more excellent prospects and/or remuneration is referred to as human capital flight, additionally referred to as brain drain. Political unpredictability, a lack of job possibilities, poor pay, or a lack of infrastructure to promote innovation and research are just a few causes of this problem.

3.4 Model Specification

Constructing on the theories and observed reviews earlier made in this paper.

To determine the model for a relationship between income inequality and the explanatory variables, we first state the functional relationships; given the above consideration, we can specify a four-predictor model of income inequality activities in a linear function as:

$$GINI = f(HX, UNM, GDP, NM) \quad (3.1)$$

GINI = Gini coefficient

HX= Household and NPISHs final expenditure data

UNM = Unemployment, total (% of total labour force) (modelled ILO estimate) - Nigeria

GC= GDP per capita $

NM = calculated as the difference between the number of foreign nationals who migrate to a country and those who emigrate from that country.

Transforming equation (1) into an econometric model gives;

$$GINI = \beta 0 - \beta 1 HXt + \beta 2 UNMt + \beta 3 RGCt - \beta 4 NMt + \mu t \quad (3.2)$$

Where μt is the error term, βi are parameters.

Other variables are as previously defined. Converting equation (2) into the semi-log form, we have:

$$LNGINI = \beta 0 - \beta 1 LnHXt + \beta 2 LnUNMt + \beta 3 LnRGCt - \beta 4 NMt + \mu t \quad (3.3)$$

CHAPTER 4:DATA ANALYSIS AND RESULTS

4.1 Presentation Of Findings

Modelled results; supposedly, they are four variables in our model, but running the correlation matrix among the variables, the following result in table4. shows there is a strong link between GDP per capita (LnGC) and Household expenditure spending and NPISHs (LnHx) so one of the variables was dropped in the model estimation to avoid Multicollinearity.

Table 4. 1: correlation coefficients, using the observations 1997 – 2021

	NM	L_GC	L_UNM	L_HX
NM	1.0000	-0.6007	-0.4381	-0.6368
L_GC		1.0000	0.2832	0.9794

L_UNM			1.0000	0.4028
L_HX				1.0000

The table above shows the results from the correlation coefficients, using the observations 1997 - 2021

5% critical value (two-tailed) = 0.3961 for n = 25

The correlation coefficient analysis shows the linear correlations between the variables NM, L_GC, L_UNM, and L_HX, along with their relationships and strengths.

For the variable L_GC:

Correlation coefficient with NM: -0.6007 (moderate negative correlation)

Correlation coefficient with itself: 1.0000 (perfect positive correlation)

Correlation coefficient with L_UNM: 0.2832 (weak positive correlation)

Correlation coefficient with L_HX: 0.9794 (strong positive correlation)

As the result shows, the strong positive correlation between L_GC and L_HX is the one that is very critical and is necessary to be dropped in order to achieve a better result for the estimate.

Table 4. 2 OLS result, using observations 1997-2021

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	4.46957	0.172015	25.98	<0.0001	***
l_GC	−0.103837	0.0191781	−5.414	<0.0001	***
l_UNM	−0.0643233	0.0757066	−0.8496	0.4051	
NM	5.82007e-08	2.37292e-07	0.2453	0.8086	

Mean dependent var	3.621739	S.D. dependent var	0.085257
Sum squared resid	0.049194	S.E. of regression	0.048400
R-squared	**0.718011**	**Adjusted R-squared**	**0.677727**
F(3, 21)	17.82364	P-value(F)	5.51e-06
Log-likelihood	42.41238	Akaike criterion	−76.82476
Schwarz criterion	−71.94926	Hannan-Quinn	−75.47251
rho	0.529602	Durbin-Watson	0.539509

4.2 Explanation Of Results

4.2.1 Goodness Of Fit

The model is in SEMI-LOG form because the variable NM has negative figures in its data, making it impossible to take the log.

$$LnGINI = 4.47 - 0.104LnGC - 0.064LnUNM + 0.000000058NM \quad (4.1)$$

R-squared 0.718011

Adjusted R-squared 0.677727

The R-squared with a value of 0.718011, the regression model's independent variables can account for roughly 71.80% of the variation in the LnGINI. This means that the model can explain a relatively high percentage of the variation in the dependent variable, which is a good indication of the model's strength.

An examination of the result shows that about 72% of the systematic variation in income inequality [Log (GINI)] has been explained by all the regressors, namely: GDP per capita [Log (GC)], unemployment rate [Log (UNM)], and Net migration (NM), The coefficient of determination, in other words the r-squared shows a value of 0.72. While about 28% of the systematic variations in income inequality [Log (GINI)] were left unexplained by the model, and the error term captures this, which implies that other factors apart from the regressors also determine income inequality in Nigeria in the long run. The model explained, with adjusted R-Square of 0.677, about 68% of systemic differences in income inequalities following the adjustment to a level of freedom..

The Adjusted R-squared value of 0.677727 considers the number of independent variables in the model. It penalizes the R-squared value if additional variables are not contributing to the model's explanatory power. This adjusted value is slightly lower than the R-squared value, indicating that some of the independent variables in the model may not be contributing significantly to the model's ability to explain the variation in the dependent variable. However, an adjusted R-squared value of 0.677727 still suggests that a sizable percentage of the variation in the dependent variable is being depicted by the model, which is a positive sign.

Certainly! This regression model predicts the natural logarithm of the Gini coefficient (a measure of income inequality) for Nigeria based on three explanatory variables:

LnGC: The natural logarithm of gross domestic product (GDP) per capita. This variable has a negative coefficient of -0.104, which suggests that as GDP per capita increases by 1%, income inequality tends to decrease by 0.104%.

LnUNM: Taking the natural logarithm of the unemployment rate, which is originally expressed as a percentage, serves two key purposes in this regression modeling. Firstly, it enhances interpretability by transforming the relationship into a form where coefficients represent percentage changes in the dependent variable associated with 1% changes in the independent variable. This facilitates a more meaningful understanding of the economic impact. Secondly, this transformation aids in linearization, simplifying the modeling process by converting potentially nonlinear, multiplicative relationships into an additive and more manageable form for regression analysis.

The natural logarithm of the unemployment rate. This variable has a negative coefficient of -0.064, which suggests that as unemployment increases by 1%, income inequality tends to decrease by 0.064%.

NM: The net migration variable has a positive coefficient of 0.000000058, which suggests that as the net migration value, which means as the number of persons migrating into the country increases by one head (one person), GINI tends to increase by 0.0000058% and vice versa.

The intercept of the model is 4.47, which represents the predicted value of the natural logarithm of the Gini coefficient when all of the explanatory variables are equal to zero.

Overall, the model suggests that GDP per capita and the unemployment rate are negatively correlated with income inequality. In contrast, the population size of net migration has a positive relationship with income inequality.

4.2.2 Model Significance

L_GC: The p-value of <0.0001 means that the coefficient for L_GC is statistically significant. The probability of observing the data if the coefficient for L_GC were zero is very low, indicating that L_GC has a statistically significant effect on the dependent variable.

L_UNM: The p-value is 0.4051. This indicates that the coefficient for L_UNM is not statistically significant. The probability of observing the data if the coefficient for L_UNM

were zero is relatively high (40.51%), suggesting that L_UNM does not have a significant effect on the dependent variable at the conventional levels of significance 0.05.

NM: The p-value is 0.8086. Similar to L_UNM, this indicates that the coefficient for NM is not statistically significant. The probability of observing the data if the coefficient for NM were zero is very high (80.86%), suggesting that NM does not have a significant effect on the dependent variable at the conventional levels of significance.

Overall model significance suggests that;

The test statistic: F (3, 21) = 17.8236, with p-value = 5.50599e-006

Standard error of the regression = 0.0852575

In this case, the F-test statistic is reported as F (3, 21) = 17.8236, with a very small p-value of 5.50599e-006.

The first number in parentheses (3) represents the degrees of freedom for the numerator, which is the number that is calculated in the model as the parameters (in this case, there are three explanatory variables). The second number (21) represents the degrees of freedom for the denominator, which is the total number of sample size minus the number of parameters estimated (in this case, there are 25 observations and three parameters, so the degrees of freedom for the denominator is 21).

The F-test statistic measures the ratio of the explained variation in the model to the unexplained variation. A large F-value (as in this case) indicates that the explained variation is much larger than the unexplained variation, which suggests that the model provides a good fit to the data. The p-value of 5.50599e-006 is very small, indicating strong evidence against the null hypothesis that all regression coefficients are equal to zero.

Overall, this suggests that the regression model is statistically significant and provides an excellent fit for the data.

4.2.3 White Test For Heteroscedasticity

Test statistic: TR^2 = 16.615830,

with p-value = P (Chi-square (9) > 16.615830) = 0.055083

White's test for heteroskedasticity is used to check whether the error terms in a regression model have a constant variance across all observations. The null hypothesis for the test means the error terms have constant variance (i.e., the model satisfies the assumption of homoskedasticity), while the alternative hypothesis is that the error terms have non-constant variance (i.e., the model violates the assumption of homoskedasticity).

In this case, the test statistic TR^2 is 16.615830, and the p-value is 0.055083. If the null hypothesis is true, the p-value indicates the likelihood of observing a test statistic that is equally extreme as or more extreme than the one calculated from the sample data. In other words, if the null hypothesis is true (i.e., the error terms have constant variance), then the probability of observing a test statistic as large as 16.615830 or greater is 0.055083.

Since the p-value of 0.055083 is greater than the commonly used significance level of 0.05, we fail to reject the null hypothesis, insufficient evidence to conclude that the regression model suffers from heteroskedasticity. Therefore, we can assume that the error terms have a constant variance across all observations and that the regression model satisfies the assumption of homoskedasticity.

4.3 Result Discussion

4.3.1 GDP Per Capita And GINI

The negative relationship between the GDP per capita is impacted by income disparity in various ways. One way is through its effects on investment and consumption. A smaller percentage of the population is likely to have the resources to purchase goods and services when income is concentrated among a small section of the population. This result in a decrease in aggregate demand and a slower rate of economic expansion. Conversely, more people will have the means to consume when income is divided more fairly, increasing demand and economic growth.

A study by Odedokun and Jeffery (2001) provides a thorough analysis of a nation's wealth and income inequality. They conducted an empirical analysis of the factors contributing to income disparity and its effects on economic growth, using data from African nations, to identify how the factors interacted in a much more thorough way, necessary efforts were put in place. They used the OLS method to analyse data from 35 countries collected over the course of the last

four decades. Their findings showed that the degree of economic development, as well as the size of the government budget and the amount allocated to transfers and subsidies, the stage of the economy, the percentage of labour force in the agriculture, and the endowment of human and natural resources, all have an impact on how income is distributed. They argued that a rise in income disparity would lessen economic output.

The influence of income disparity on the growth of human capital is another manner in which it creates an impact on economic expansion. People from lower economic origins have less access to education and training options as a result of high-income disparity, which limits their capacity to gain the qualification and exposure needed to engage in the modern economy. This result in a workforce that is less qualified and effective, which could hinder economic progress. High income disparity also contributes to social unrest and political instability, which deter investment and harm economic progress.

4.3.2 Unemployment and GINI

Nigeria is one of the nations in the world with one of the high unemployment rates. Statistics revealed that Nigeria has the highest percentage of youth unemployment when compared to other African nations; however, the result from the analysis shows that it is also clear how this gets affected by wealth disparity.

A decrease in unemployment is often associated with a positive effect on income inequality, as it provides more people with job opportunities and can lead to a more equitable distribution of income. However, in our case study, there are certain essential circumstances in which a decrease in unemployment contributes to income inequality and cannot be explained without looking at some factors.

An important start to the factors is Skewed job growth in the sense that the majority of new job opportunities created during a period of decreasing unemployment are concentrated in high-paying industries or sectors, which exacerbates income inequality directly. For example, if there is a surge in high-skilled jobs that require advanced education or technical skills, individuals without access to such opportunities are automatically left behind, leading to a widening income gap.

Wage stagnation, where a decrease in unemployment does not guarantee higher wages for all workers. If wages remain stagnant or grow at a slower pace compared to the overall economic growth, which is the case in Nigeria, it can contribute to income inequality. In such cases, the benefits of economic growth may be disproportionately captured by those at the top of the income distribution, while wages for lower-income workers may not keep up with the cost of living.

Economic structural variables like the existence of discriminatory practices in Nigeria or unequal access to education and training also have an impact on income disparity. Even with a decrease in unemployment, if certain groups face systemic barriers to employment or lack the necessary skills to compete for higher-paying jobs, income inequality will also persist or worsen.

4.3.3 Net Migration And GINI

The relationship between human capital flight and income inequality in Nigeria is complex and can vary depending on a number of factors. When there is a significant income disparity between different segments of society, highly skilled people may choose to leave the country or region for better prospects elsewhere. This brain drain may result in a shortage of skilled individuals in the country, which may have a detrimental influence on economic growth and development.

Individuals with greater levels of education and skills are frequently more mobile and have more work possibilities; thus, they may be more tempted to emigrate if they believe their skills are undervalued in their home nation. Furthermore, wealth disparity can impede lower-income individuals' access to education and training options, limiting their capacity to develop the skills required to compete in a global job market.

This raises the subject of recent controversy in Nigeria. Lack of financing, poor salaries for workers and terrible working conditions had been a problem with Nigeria's health system before the pandemic. But these challenges have been compounded by the outbreak of COVID-19 pandemic, creating a climate in which Nigeria's health workers are becoming less and less satisfied with their jobs. Before the pandemic, when working conditions are not improved, according to the International Journal of Equity in Health, 88% of Nigerian physicians and about 50% of nurses were expected to seek foreign employment. Unfortunately, the pandemic

stressed Nigeria's already frail healthcare system, with significant consequences for its workers. The total number of doctors leaving Nigeria to work in the United Kingdom between January 2017 and December 2019 was approximately 2,000 according to the General Medical Council's UK Register, which covers three years prior to this pandemic. Comparing this to a lot of people are presently writing or intend to write foreign licensing examinations like the Professional Linguistics Assessment Board (PLAB) exam and the United States Medical Board (USMLE), which were only 3,000 between January 2020 and September 2022.

In addition, the Nigeria Medical and Dental Consultants Association in recent days has criticised the departure of over 100 medical specialists to Saudi Arabia and other countries by 2020, as well as hundreds of junior doctors from Nigeria. Similarly, prior to the COVID-19 pandemic, data from the Nursing and Midwifery Council of the UK shows that immigrants who are Nigerian nurses and midwives increased from 56 in March 2018 to 276 in March 2019 compared to the pandemic period. This statistic fell slightly from 695 in March 2020 to 685 in March 2021, probably because of the multinational lockdown, before skyrocketing to an all-time high of 3,010 in March 2022 (a more than 1000% rise).

Individuals from lower-income groups may encounter financial constraints in societies with substantial income inequality, limiting their capacity to obtain excellent education and training, stifling skill development, and diminishing prospects for economic mobility which can rise to feelings of inequity and unfairness among individuals who feel disadvantaged or excluded from economic opportunities. As a result, migration becomes an option to some, moving to other nations or regions where they believe they have better access to education and training and a better chance of improving their economic prospects contributing more to the problem of brain drain in the country.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Conclusion

In conclusion, this thesis has successfully achieved its objective of investigating income inequality in Nigeria. The key findings of this study shed light on several crucial aspects within the field, yielding significant implications and valuable insights.

Through rigorous analysis and comprehensive data collection, the research uncovered to what extent the size of income inequality in Nigeria and the role of unemployment, GDP per capita,

and human capital flight. These findings show important implications that arise from high income inequality in Nigeria. Moreover, they provide new perspectives and enhance our understanding of income inequality.

It is impossible to understate the relevance of these findings since they add to the body of knowledge on income inequality in Nigeria by analysing brain drain and human capital flight, considered as the relevant gap that was left untouched by previous researchers. These contributions expand not only empirical frameworks but also offer practical implications for relevant stakeholders like; government and policymakers, employees and labour unions, businesses and corporations, non-governmental organisations and advocacy groups, academic and research institutions.

The main insights gained from this research highlight the need for further research and policy changes, emphasizing the importance of specific actions to be taken. These insights provide a foundation for future studies and have the potential to guide decision-making processes in addressing economic policies, wealth distribution, and economic development.

5.2 Research Limitations

University projects and dissertations are always limited, irrespective of the university rules and program. Data limitations are among the biggest restrictions to better understanding income inequality. Specifically, studies on income inequality are very scanty; the primary sources of data on a country's income distribution are usually surveys from households and administrative records, and none of these household surveys accurately reflects incomes, especially concerning Nigerian case studies. Despite these limitations, our analysis points to a policy role in tackling inequality.

5.3 Policy Recommendations

Combating economic disparity is a difficult task that needs a thorough and multifaceted approach. A few specific steps that can be made to address income inequality are listed below:

Progressive Taxation: By imposing higher tax rates on higher-income individuals and offering tax credits or advantages for lower-income individuals, a progressive tax system can aid in

wealth redistribution. This can offer funding for social welfare services and help narrow economic gaps.

Minimum Wage Policies: By setting and periodically raising minimum wage levels that are enough to cover employees' essential requirements, governments can raise low-income workers and lessen wage inequality. Furthermore, it is critical to ensure that minimum wage rules are effectively enforced.

Education and skill development: Investing in high-quality educational and skill-development programs can boost human capital and give people more possibilities to land better jobs with greater salaries. By closing the skills gap and giving disadvantaged people an upward mobility, can aid in reducing income disparity.

Strengthening Social Safety Nets: Social safety net services like healthcare, affordable housing, and food assistance can offer a safety net for vulnerable populations and contribute to the reduction of poverty. These programs can also be expanded and improved.

Promoting Gender and Racial Equality: Addressing racial and gender wage discrepancies and advancing equal opportunities can help close the gender and ethnicity differences in income, which may involve enacting laws requiring pay parity, taking anti-discrimination steps, and implementing affirmative action plans.

Regulation of the labour market: Labor laws that safeguard workers' rights, guarantee fair working conditions, and encourage collective bargaining can help avoid exploitation and lessen economic disparity if implemented and enforced. Better pay and benefits for employees may result from strengthening worker protections.

Promotion and Support of Small Businesses and Entrepreneurship: By fostering and encouraging small business ownership and entrepreneurship, communities may generate more income and job possibilities. Access to financing, training programs, and assistance with business development can all help with this.

Improving access to financial services can help marginalized populations build assets, manage risks, and participate more fully in the economy.

Overall, this thesis has made substantial contributions to the field of study, offering key findings, implications, and insights. The results have broadened our understanding of income disparity, advancing theoretical, empirical, and practical aspects of labour economics and income distribution. Building on these results, we must continue to investigate the intriguing and intricate facets of the income gap as we move forward.

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APPENDICES

Table 3. 1: List of regression variables and their symbols

Variable name	Measurement of variable	Symbol
GINI coefficient	The Gini index calculates how much farther away from being evenly distributed the income is distributed across people or households within an economy. Source: World Bank, Poverty, and Inequality Platform. Data come from official statistical agencies and country offices of the World Bank, which employ primary household survey data.	GINI
Household and NPISHs	Household and NPISHs' final consumption expenditures are the market value of all goods and services purchased by households, including durable. It excludes housing purchases but includes estimated rent occupied by an owner's house. It also involves payments to governments for permits and licenses. Even when published individually by the country, this statistic includes the expenditures of non-profit institutions servicing households. Source: OECD and National Accounts data files world bank.	HX
Unemployment rate	unemployed as the percentage of the labour force that is looking for work. Source: International Labour Organization. "ILO Modelled Estimates and Projections database (ILOEST)" ILOSTAT. It was accessed on February 21, 2023.	UNM
Economic growth (GDP/C.)	GDP per capita is calculated as the GDP divided by the midyear population, depicted from the total gross value added by all producers who are residents of the economy, plus any applicable product taxes, less any subsidies that are not shown in the prices of the goods.	GC

	source: World Bank national accounts data and OECD National Accounts data files.	
Net migration	Net migration includes all migration during the time, including both citizens and noncitizens in Nigeria, calculated as the number of immigrants minus the number of emigrants. Source: United Nations Population Division. World Population Prospects: 2022 Revision.	NM