The Impact of Economic Growth on Unemployment and Poverty: Evidence from Muslim Countries

A Thesis

Submitted to the Master's Study Program of Economic at the Faculty of Economics and Business in partial fulfillment of the requirements for the degree of

Master of Arts (M.A.)

by:

Name: Tareq Nikzad

Student ID: 03212220012

UNIVERSITAS ISLAM INTERNASIONAL INDONESIA

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ABSTRACT

Economic growth, employment, and poverty are major factors and critical dimensions of development that affect significantly the lives of the people in nations which are members of the Organization of the Islamic Cooperation (OIC). This research is dedicated to exploring the interaction of economic growth, unemployment, and poverty in the context of Muslim-OIC countries. The importance of this study stems from the fact that it carries the prospects for shedding light on the crucial economic phenomena of the growth of economic operations and the effects of this growth on unemployment and poverty with reference to the special conditions of the OIC countries. A detailed research study of correlation between economic growth, unemployment and poverty in Muslim countries has been done with the help of data analysis for the years 1990-2022. The study has been designed to synthesize quantitative data collected and the number of Muslim countries used in the study vary in accordance to the availability of data. The data from OIC countries in Europe, South America, Central Asia, Middle East, south & South east Asia, and Africa and aimed to assess the economic growth impact on these vital socioeconomic indicators. Analyzing the regression results derived from the POLS, Fixed Effects, and Random Effects; it is possible to highlight the following findings that will help to explain the interrelated processes taking place. For instance, FE model estimated shows that the coefficient of GDP per capita (-2.681) has a negative impact on poverty level, meaning that with the increase in GDP per capita, poverty level significantly reduces in the countries. In the same vein, although the coefficient for trade is positive (0.011) when estimated using the results from the RE model, the effect on poverty is less profound compared to what the FE model show. Besides, the findings of the regression analysis have revealed the significance of factors like FDI, the structure of labor force with varying education standard and population growth to unemployment in Muslim countries. The negative coefficients including FDI (-0.031), labor force with Intermediary educational level (-0.022) and population growth (-0.268) assert the unemployment reducing factors. Consequently, the goal of this research, via a literature review, will be to establish the gaps in knowledge regarding the relationship between unemployment and poverty in nations belonging to the OIC in the long-run as influenced by economic growth.

Keywords: *Economic Growth, Unemployment, Poverty, OIC Countries, Panel Methods*

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Tareq Nikzad
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CHAPTER 1
INTRODUCTION

1.1 Background

Almost all countries in the world have experienced poverty and unemployment at some point in their history (Wang et al., 2021a). Economic growth, unemployment, and poverty are important dimensions of development, shaping the well-being of nations and their citizens, mainly in countries that belong to the Organization of Islamic Cooperation (OIC). While tremendous research exists on these topics globally, a significant gap stays in understanding their specific dynamics within OIC international locations. The purpose of this thesis is to investigate the effect of economic growth on unemployment and poverty in Muslim countries. The study will focus at the OIC countries during the last thirty-three years (1990-2022). The OIC international locations are a various organization of countries that share a common faith, Islam. The research will use method of Panel approach to analyse the relationship between economic growth, unemployment, and poverty in Muslim countries. Also, it targets to understand the implications of growth on poverty and unemployment rates inside this precise group of countries.

By investigating this relationship, the field of study seeks to provide valuable insights into the elements influencing the unemployment-poverty link in OIC countries. The findings make a significant contribution to the literature is the inclusion of a discussion on the relationship between unemployment and GDP as well as poverty and GDP. Additionally, the author calculates the elasticity of unemployment and GDP to determine the impact on the unemployment rate of a one percent increase in GDP. A similar analysis is conducted for poverty and GDP. Organization of Islamic Cooperation (OIC) established in 1969 with representing a various tapestry of 57 member states spanning continents and cultures (OIC, 2023). From the bustling cities of the Middle East to the considerable plains of West Africa, these countries share a commonplace thread – adherence to Islamic principles. Yet, beneath this unity lies a rich tapestry of range. Some boast vast oil reserves and modern infrastructure, like Qatar and the United Arab Emirates (World Bank, 2023), at the same time as others face the struggles of developing economies like Somalia and Afghanistan (World Bank, 2023). Political systems range from established democracies to absolute monarchies, and cultural nuances weave distinct identities within each country. This complexity needs a refined knowledge of analysing the effect of economic growth on unemployment and poverty (Chaudhry, 2022).

Furthermore, the financial situation of Muslim countries is complex, marked by each challenge and opportunities. The OIC Economic Outlook 2023 by SESRIC reports an average growth of 2.9% in 2023, following a post-pandemic recovery period. However, this mask significant among members. Resource-rich Gulf states like Saudi Arabia and Qatar higher growth compared to others like Afghanistan and Somalia undergo the scars of struggle and political instability, hindering their economic development (UNDP, 2023). A major obstacle for many OIC countries is their heavy reliance on natural resources, specifically oil and gas. This dependency makes them liable to international commodity price fluctuations and hinders their capacity to diversify their economies for long-term period growth (Ishaq Bhatti, M., & Ghouse, 2023). While a few OIC countries boast extraordinarily low unemployment rates, like Malaysia and Turkey (ILO, 2023), others struggle with underemployment and a loss of formal job possibilities, a challenge faced by Indonesia and Pakistan (World Bank, 2023).

On the other hand, poverty rates paint a similar picture, with versions reflecting various monetary systems, social protection nets, and government models. Recognizing

this heterogeneity is essential to avoid generalizations and tailor policy interventions to specific contexts (Chaudhry, 2020; Kharas & Kohli, 2013). Additionally, intra-OIC trade remains relatively low compared to exchange with non-member OIC countries, due to factors like infrastructure boundaries, trade limitations, and a lack of product diversification within the OIC (UIII Journal, 2023). Attracting foreign direct investment (FDI) also affords a hurdle, as OIC nations need to address regulatory demanding situations and enhance their commercial enterprise environment (SESRIC, 2021).

However, big opportunities exist for the OIC areas. Investing in education sector and skill improvement are critical to build a competitive workforce ability to collaborating inside the worldwide knowledge economic system. Embracing digital technologies throughout diverse sectors can unlock new financial opportunities, enhance efficiency, and foster innovation. Moreover, addressing excessive unemployment rates, especially amongst youth, needs implementing effective social protection nets and promoting job creation through focused guidelines (SESRIC, 2021). Last but not least, in spite of the diverse challenges and situations faced by individual OIC member states, fostering local cooperation, promoting economic diversification, and making an investment in human capital preserve the key to accomplishing sustainable and inclusive growth throughout the entire OIC region.

Çamlibel (2014) investigates the factors driving economic development in Islamic countries and the differences in prosperity across Muslim nations. The study is to explore the factors that influence economic growth in Muslim countries in order to shed light on the development paths of these countries, notwithstanding the notion that Islam impedes economic progress. In order to analyse the reasons that influence economic expansion in Muslim nations, this paper uses quantitative techniques such as cross-country regression, data gathering on important variables, hypothesis testing, statistical analysis, and a review of the literature. The research looks at the relationship between a number of variables and economic growth in Muslim nations using cross-country regression analysis. The influence of independent factors of the dependent variable of economic growth, such as technological adaptation, human capital investment, human development, and economic freedom, may be evaluated using this statistical approach.

Based on the expected signs of the coefficient for each independent variable, the investigation formulates hypothesis. The research seeks to ascertain the importance and influence of variables such technological adaption, human capital investment, and economic freedom on economic development in Muslim countries by evaluating these hypotheses using regression analysis. The main findings are that the economic progress of Muslim countries is not directly impacted by Islam. The economic success of Islamic nations is mostly driven by factors such as; economic freedom, human development, investment in human capital, and technological adaption. Economic disparities among Muslim nations are a result of differences in cultural norms, economic and political freedom, human development, and technological adaption.

Ismaeel Ibrahim Naiya (2014) examined the connection between structural change, economic development, and poverty reduction in four OIC member nations. The goal of the study is to understand how structural transformation has allowed these nations to reach consistent economic expansion and what it means for reducing poverty. The research compares and analyses the structural transformation processes in Nigeria, Indonesia, Malaysia, and Turkey. From 1960 to 2011, descriptive statistics are used to evaluate economic performance metrics, poverty levels, and GPD per capita. Key economic trends and determinants in the chosen nations are compared as part of the analysis. The main findings are that Turkey, Indonesia, and Malaysia have successfully moved from

monoculture to manufacturing and finished product exports, transforming their economies from low to high productivity sectors and resulting in long-term economic development and decrease of poverty.

The analysed countries' persistent growth and structural transformation have been greatly aided by political stability, sound economic management, and human development. The differences in GDP per capita among the four nations, Turkey having the greatest and Indonesia having the lowest, highlight the disparities in economic development and starting places. The study identifies the main factors for consistent economic development and the decline in poverty in the chosen OIC member countries, including political stability, human development, economic management, and demographic shifts. The report makes policy recommendations for other OIC members based on Turkey, Malaysia and Indonesia's positive and successful experiences. To achieve sustainable development and inclusive growth, recommendations include making investments in infrastructure, human capital development, and export-oriented growth methods.

Unemployment and poverty stay substantial problems for many Muslim-majority nations, notwithstanding common GDP increase rates of over 4.9% in recent decades (World Bank, 2020). The ability of broad-based economic growth to create jobs and decrease poverty has come below scrutiny, given constantly high unemployment and poverty levels. Additionally, the effect of spiritual practices on economic growth has attracted long-standing debates. Currently there's a discussion to understand on why Muslim society have a tendency to be incredibly poor. Some scholars factor out that Islamic practices in major of Muslim nations pose have transformed into crucial limitations for economic growth (Kuran 2011). In mainly, a few factors considered primary barriers are rules of regulation and property right protections. Meanwhile political instability is also taken into consideration one of the underlying problems in the back of low investment, leading to lower productivity. Furthermore; Data well-known shows the statistics of lagged Muslim society as compared to widespread global population. Muslim society represent 19% of the world's population. But it only makes up 6 percent of its income (Timmer and McClelland 2004).

Research by Hendrawati, Wahyu Murti, & Yolanda (2022) investigated the impact analysis of various factors on the economic growth and unemployment in the ASEAN member nations is conducted through the methodology of descriptive statistical analysis, stationarity testing, regression testing and panel data analysis. The study gathers quantitative information on FDI, Investment in the manufacturing industry sectors, borrowing interest rates, banking credit, and international tourist data of ASEAN member countries. To assess the effects of economic growth on unemployment, employment statistics of the unemployed are also gathered. Accordingly, the implication of the promoting factors such as FDI, manufacturing industry investment, tourism, and banking credit could be viewed as having positive implications in that they cause conditions of higher economic growth and results in employment creation in ASEAN member countries. The output of this research is that all the aforementioned factors have a positive and significant effect on the economic growth in the region. Also, the analysis reveals that economic growth has a significant and negative relationship with the unemployment rates within the ASEAN countries.

The aim of this thesis is to examine the effect of economic growth on unemployment and poverty rates in Muslim countries for the past 33 years. Also, identify other elements which contribute to growth affects jobs and poverty.

1.2 Problem Statement

The economic growth of Organization of Islamic Cooperation (OIC) member countries has been a subject of significant interest; however, the persistent challenges of unemployment and poverty within these nations necessitate a focused examination of the dynamic connection between these indicators (economic growth, unemployment, and poverty). Despite numerous studies on this topic, there remains a need to comprehensively investigate the long-term effect of economic growth on unemployment and poverty in OIC countries through a panel data analysis approach. This research problem statement seeks to address the intricate interplay between economic growth, unemployment, and poverty within the context of OIC countries, aiming to delineate the specific causal mechanisms and contributing factors that underpin these relationships. By doing so, this study endeavours to provide valuable insights that can inform evidence-based policy interventions and economic strategies tailored to the unique challenges faced by OIC member states.

With respect to the identified gaps, previous work on relationship between economic growth, unemployment and poverty for Muslim countries has utilized regional and country aggregates, variables and shorter time horizons. This approach only gives a partial view of what is happening since the members of OIC are economically and socially different with some countries lack of resources and some countries rapidly developing. In an effort to fill this knowledge gap, this thesis shall focus on an empirical analysis of the 36 OIC countries for unemployment and 29 OIC countries for poverty due to the availability of data through a panel data analysis for the period 1990-2022. It also enables the capturing of important methodical movements and vary important economic changes which has occurred in the OIC region in terms of economic growth, unemployment and poverty levels over time. Seeing such changes in the economy, downturns, and shifts in even this relatively short time frame gains for the observer insight into longer trends that would not be possible to analyse with constant annual data. This research does not approach the OIC as a homogenous subject and focuses more on the account of its members. Due to the variation of these socio-economically and politically explained growth-unemployment-poverty relationship, this paper considers the sub-regional and country specificities that commonly affect the given topic.

This flexible approach seems to understand the diversity within the OIC and is also likely to hinder formation of biases in general that may ignore vital internal differences when it comes to the interconnection with these major snapshots of development. Another gap is that this research uses the strength of panel data analysis approach to determine the trends of multiple OIC countries within the six decades period. This feature helps in the determination of the country effects and the impact of intervention policies on the growth-unemployment-poverty nexus. Unlike the analysis of large regional averages that are inherent to the applied aggregate data, the panel analysis enables to determine the nature of these relationships within a specific context of the OIC region. Moreover, using panel data analysis, this research seeks to focus on specific cases of OIC countries, taking into account the peculiarities of their experience, and thus excludes non-accuracy due to combined evaluations.

Thus, by carefully filling these important gaps in the existing literature by adopting a multi-disciplinary and, thus, methodologically diverse framework to the analysis, this thesis aims to offer a fresh perspective on economic development, poverty, and policies within the OIC area. Through the use of three-decade time horizon, combined with disaggregated information and the application of multidimensional poverty measures, this study provides the rich details of the relationship between the key development indicators. It is this goal that the comprehensive methodology ultimately seeks to aid in the process of

determining the best course of action in the process and help progress towards the pursuit of a brighter, more equal future for the region's inhabitants.

1.3 Research Questions

This research questions wants to clarify the nuanced relation between economic growth, unemployment, and poverty in Muslim-majority countries over the period 1990-2022. Specifically, it looks for response the following key questions:

- How does economic growth impact unemployment and poverty rates in OIC countries from 1990 to 2022?
- What are the other key factors that contribute to poverty and unemployment in Muslim countries?

1.4 Research Objectives

Estimate the impact of economic growth on unemployment and poverty rates in Muslim countries for the past 33 years. Identify key channels through which growth affects jobs and poverty.

1. To examine the impact of economic growth on unemployment and poverty rates in OIC countries.
2. To identify the other key factors that contribute the poverty and unemployment in Muslim countries.

1.5 Hypotheses of the Research

The following hypotheses are developed based on the research questions and objectives:

H1: In Muslim countries there is a negative relationship between economic growth and unemployment rate.
H2: There is a positive relationship between economic growth and poverty reduction in OIC countries.

1.6 Significance of the Study

This paper is significant in several aspects, each of which enhances the worth of the study in apprehending economic challenges in Muslim majority nations particularly those of the OIC. Firstly, it looks at the dynamics of growth, unemployment and poverty picture in the presented countries. However, there is a significant body of literature on economic development while the complexities of the OIC nations' developments have not been fully addressed. This study focuses on long time periods, and major changes in economy regarding unemployment and poverty rates, in 1990 to 2022 meaning a deeper understanding of unemployment and poverty rates change regarding economic improvements. This is important in the formulation of economic theories which can factor the environmental and situations of Muslim majority countries. Secondly, in this study, the researcher intends to identify the factors explaining poverty and unemployment rates in these countries. This is a step further from mere establishment of associations to discovering the real processes at work. In that way, specifying particular reasons ranging from structural characteristics to policy-related factors and external drivers offers a knowledge base for developing targeted policies. It is also helpful in formulating intervention methodologies that would effectively prevent such occurrences in future and not only provide for their treatment.

The other major source of strength of this research stems from the application of panel data methods. This approach enables one to make a comparison across section and at

the same time enables one to make a comparison over time hence the results are credible. This method assists in presenting a clear enhanced realism of the Dynamic Relationship between economic growth, unemployment and poverty which is very important in formulating policies. Of special relevance, the secondary target to the OIC countries because they are heterogeneous countries and with the common bond of Islamic religion. Analyzing these nations in this specific environment brings knowledge on how culture and religion affect the economic processes. Finally, from the point of view of this work it becomes possible to observe long-term shifts and effects of economic policies and worldwide phenomena within a period of thirty-three years. This period is important in order to capture the dynamics of the short-term disturbances and the long-term policies which dominate an economy. In so doing, the research provides a comprehensive picture of the processes of economic development and cover these research gaps.

1.7 Outline of the Study

The second of the chapters in the dissertation is the literature review chapter. This paper aims at reporting an account of the existing academic literature on the subtopics as well as defining the concepts of economic growth, unemployment, and poverty. Furthermore, this chapter also points out the gaps that are still unexplored in the literature to assist the reader with understanding the importance of the present study. The third chapter of the present dissertation is the research methodology chapter. In this chapter, the operational research used in the collection and processing of data will be introduced. The specifics of the research design, the type and nature of instruments to be used in the study, the sampling strategies which will be utilized, as well as the procedures for analyzing the data collection instruments will also be discussed in this chapter.

The fourth chapter is the results and discussion of the developed software. In this part, the results of data analysis will be described followed by the general discussion on the outcomes of the study. The results will then be shown in tables or charts depending on the most appropriate and easy to understand means. In the discussion, more emphasis will be given to the understanding of the findings in relation to the research questions and the hypothesis of the study. Thus, the fifth and the last chapter of the dissertation shall be the conclusion and the recommendations. The final chapter of this study will include a summary of the work’s results, discussion of the validity of the research hypotheses, and conclusions. Moreover, the conclusion will include the suggestions for the future studies in this area, emphasizing the methodological issues of the study and pointing to the further research prospects.

CHAPTER 2
LITERATURE REVIEW

The literature review explores the significant impact of economic growth on unemployment and poverty within the countries belonging to the Organization of Islamic Cooperation (OIC). By using analytical and econometric research tools, this paper attempts to determine the connectivity that exists between unemployment, poverty, and growth. The review additionally serves as a valuable useful resource and lays a strong foundation for similarly in-depth analysis inside the next sections, establishing up avenues for exploring capability strategies and policies which could successfully deal with the interaction between poverty, unemployment, and economic growth in OIC countries. Similarly, reviewing previous past research on this topic is required in order to meet the study's objectives since it gives us the appropriate conceptual and empirical context for evaluating the study's applicability and contributions. I review relevant researches which investigated the links between unemployment, poverty and growth using different economics data sets methods.

2.1 Theoretical Framework

Therefore, knowledge of theoretical foundations related to effects of economic growth on unemployment and poverty is fundamental in appreciating the variables' connection and designing pertinacious policy intervention. In this context, economic growth is a widely accepted notion when it comes to job generation and poverty eradication, though the linkage is not very direct owing to various conditions. It is noticeable that economic growth influences the occurrence of unemployment in one or another way. Ideally, as the economy grows, companies are expected to provide employment to more people so as to meet the growing needs of the population in the consumption of goods and services. This results in the cutting down of unemployment rates since these people are able to get jobs. In its turn, economic growth may affect unemployment in different ways depending on the type of growth, the structure of economy and the labour market.

On the other hand, research studies show that the level of economic growth has a complex relationship with the poverty level. Although increase in income and better standards of living are the amazing aspects of economic growth, growth benefits may continue to elude groups in society that are most in need. Sometimes though, liberalization of the economy can bring about undesirable effects such as hikes in income disparities in which the few at the top are in a position to amass wealth and the larger part of the population are confined in the poverty stranglehold. Therefore, the idea of inclusive growth plays a significant role towards combating poverty together with economic development. Hence, inclusive growth refers to a concept of economic development that seeks to ensure that positive impacts of development are availed to all people in any society with special consideration on groups or individuals who are usually left behind in most decisions, antipoverty policies and spending on education, healthcare, and social protection have the potential to contribute to inclusive growth in order to lessen poverty and enhance citizens' welfare. Similarly, employment-related challenges in the economy or labour market rigidities, skills gaps and the issue of informal economy must be fixed too if the growth is to help reduce poverty in the society. Thus, through the provisions of conducive environment for creation of employment opportunities and encouragement of enterprise development, as well as investment in people capital, the potential of growth to foster poverty reduction and other cardinal development goals can be harnessed.

Al-Habees and Abu Rumman (2012) offer one of the few attempts to investigate the connection between unemployment and economic growth in Jordan and a few selected Arab nations. The study's objectives focus on understanding factors that lead to high unemployment rates in the regions of interest excluding adequate growth rates. Regarding the methodological approach, the structural and quantitative analysis is used to analyze the data and make relevant conclusions which are based on the secondary data sources. The following sources are UNDP and LAS to compare the unemployment scenario of the Arab countries in the different decades of employment. The study also uses statistical tool to establish the growth percentages that can be used to improve unemployment rates in these nations. Some of the main variables of concern are; unemployment rates in Arab countries across various decades, the growth percentages needed for mincing or reducing the unemployment rates, and policy effects on job creation. Population growth rates are also taken into account and the distribution of resources in the evaluation by the researchers.

The results indicate that the Arab countries have had it pretty tough in their battle to lower the average unemployment instances which stand at an average of 10-11%. percent in the 1980s societies mover as a whole movement grew from 6 percent to 15 percent. 5% in the 2000s. The study also illustrates that for one percentage point of reduction in unemployment rate about 3% increase in some countries is required. Besides, the research also stresses on the distinction between policies to promote growth on the one hand and employment on the other hand. Government expenditure policies are compared with those related to investment to offer employment. Therefore, the research examines the relationship of economic growth to unemployment in Jordan and Arab countries. The study emphasizes the rationale of policies that would foster economic growth and employment creation in equal measure as a way of dealing with high unemployment levels. From these facets of unemployment, policymakers can then formulate the needful measures to compel growth and therefore declining unemployment rates in these areas.

Misini and Mustafa (2022) analyses data from 2004 to 2019 by using nominal GDP as independent variable and unemployment and poverty as dependent variables. The 16-year timeframe is used to examine how Kosovo's poverty, unemployment, and economic growth are related to each other. The study uses the secondary data for the analysis that obtained from publications released by reputable institutions such as the Central Bank of the Republic of Kosovo and Kosovo Agency of Statistics. The data from global institutions like the World Bank and International Monetary Fund are also incorporated in the analysis. Additionally, the authors used two econometric model that Model 1 examined the relationship among economic growth within the GDP and unemployment, while the Model 2 analysed the nominal GDP growth in connection to poverty. Which it includes statistical analysis of graphs, linear regressions, and descriptive statistics to evaluate the variables of interest. The main findings show that unemployment and poverty are negatively correlated with economic growth as shown by nominal GDP in Kosovo.

For countries with few established financial markets, foreign direct investment plays a critical role. FDI has an effect on expanding people's income levels, opening up business choices, and creating job chances. Trade liberalization has resulted in a significant increase in foreign direct investment inflow, which benefits the growth of developing nations. According Irpan et al. (2016) focused the Malaysian economy and investigated how foreign direct investment impacted employment rates, gross domestic product, and exchange rate. The autoregressive distributive lag model is the empirical model used in the study and data uses from 1980 to 2012. The findings concluded that FDI, GDP, and several foreign workers decrease the unemployment rate. While Zdravkovic et al. (2017) studies the link among unemployment rate and FDI per capita in 17 transitional countries between

2000 and 2014. Their paper led to the comprehensive conclusion that there is either no long-term effect of FDI on unemployment or a small one.

2.1.1 Unemployment

Unemployment is a critical economic indicator defined by classical economists as the disparity between labor supply and demand, often influenced by adjustments in real wages. When real wages for jobs are set above the market clearing level, more people seek jobs than there are available positions, a situation known as classical or real-wage unemployment arises. Work is considered an important component defining the self and our primary roles are associated with paid work, as we often refer to as "jobs." That is why unemployment can be regarded as a serious personal event, if we lose our jobs. From the view of governments, unemployment may be construed as a national calamity if a section or many people in the populace are rendered jobless.

In fact, one of the fastest methods, by which an economy's health status can be gauged is to count the number of unemployed individuals. Although there will always be some level of unemployment as it is a norm in any society, increased levels of unemployment in a growing economy are very destructive to the society. In similar terms, unemployment is defined by the International Labor Organization (ILO) as the condition of not having a job although actively seeking one for the previous four weeks. From the research conducted by (Pujoalwanto, 2014), unemployment otherwise known as unemployment is a person without work, actively seeking employment, working under two days per week, seeking a suitable and sufficient employment. Unemployment is one of the macroeconomic issues that impact people indirectly and is the worst issue. A reduction will also be translated unto a reduction in their level of prosperity as well. It will result in a decrease in spending by the unemployed since they have no income; this aspect will also lead to the experience of a negative psychological effect on the individuals and their families associated with joblessness.

According to Michael et al. (2016) unemployment is the condition in which workers who are willing and able to work but are not yet employed are available, therefore the situations surrounding job seekers. The total number of unemployed individuals divided by the total number of persons who are now employed yields the unemployment rate which is expressed as a percentage. It functions as a measure for the unemployment rate. Business Week Reported in 2011 that the number of unemployed persons worldwide has reached a record high of 200 million, as almost two-third of developed countries and half of developing economies witnessing a deceleration in employment growth. As to Jhingan (2001), unemployment can be conceived as the number of people who are unemployed in an economy, often given as a percentage of the labor force. Similarly, Aminu and Anono (2012) conceptualize unemployment as the condition where individuals are willing and able to work at prevailing wages but cannot secure employment. Balami (2006) adds that unemployment denotes involuntary joblessness, where individuals are capable and eager to work but face a lack of opportunities.

Omari (2019) investigates the reasons of Oman's high unemployment rates as well as the relationship among economic growth and unemployment. The study used descriptive statistics, correlation analyses, and a linear regression analysis were all part of the technique. The research's main finding was that, from 2000 to 2017, there was no significant correlation among Oman's annual GDPs and unemployment rates. The results of the regression analysis indicated that there was no statistically significant correlation between unemployment and the annual GDP. Despite a positive relation, however the annual GDP was not a reliable indicator of the unemployment rate. The results contradict

with expectations based on Okun's law, which implies a negative relationship among unemployment and economic development.

Economists generally look at four categories of unemployment: cyclical, frictional, seasonal, and structural. Cyclical unemployment is the level of unemployment that results from a poor economy. It is caused by the ups and downs of the business cycle. During a recession, businesses may cut back on production and lay off workers. This results in a decreased output and hence, fewer people are hired and organizations start dismissing people. This can lead to a significant increase in unemployment. Frictional unemployment: This is the most common type of unemployment and is caused by the natural process of people moving between jobs. For example, someone might quit their job to take a new one, or they might be laid off and then take some time to find a new position. Furthermore; Structural unemployment on the other hand is caused by jobs changing and becoming irrelevant because a company or an entire industry no longer needs individuals with the specific skills that they once used (Akeju and Olanipeun, 2014).

Structural unemployment is when a worker is overqualified and cannot find employment suiting his or her profession or the demand of the profession does not justify the supply. For instance, a cashier operating in a supermarket will likely lose his/her job if his/her company installs self-checkout counters. This can happen due to technological changes, globalization, or other factors. Structural unemployment can be more difficult to solve than frictional or cyclical unemployment, as it may require retraining workers or relocating them to areas where there are more jobs. There is also the case of seasonal unemployment where industries are normally opened for business but are either idle for a certain period of a particular season or have changed shifts. Certain jobs can only be done some certain time of the year while others can be done anytime of the year. For instance, in companies like harvests during some seasons, some companies like harvests may employ many workers, but as soon as the season ends, employees are laid off. We also cannot predict each season all the time. This can affect normal schedule of harvesting since heat, cold, rain, and drought are some of the factors that may advance or delay the ripening of fruits and vegetables. It is commonly believed that a normal level of unemployment is between 4 and 6 percent, although, the figure remains changeable among the economists. This is known as full employment and essentially, nearly everyone who desires employment is employed.

However, one needs to bear in mind that there are employees willing to work in low-skill and low-wage positions although they are capable to work in high-skill positions because the opportunities in high-skill positions are limited. They are one of what economists' term as underemployed, or categories of workers who find themselves working in a field that does not correspond to their level of education or working fewer hours than they would prefer. The discouraged workers are also included; those are people who have given up their search for a job. Because of these factors, distinction between the levels of employment and unemployment becomes difficult, and therefore the unemployment rate becomes somewhat arbitrary. However, one thing is for the sure. Economists highly depend on changes in the level of unemployment as one of the key tools in analysing the condition of a particular country's economy.

2.1.2 Economic Growth

Economic growth entails a sustained increase in real per capita income over time, marked by the expansion of goods and services production within a country. It signifies progress in raising living standards and reducing income inequality. According to Zhattau, N. H. (2013), economic growth is the foundation for greater prosperity and results from the accumulation of more capital and innovations advancing technology. This view is

comparable to Solow's (2002) growth model, which views economic growth as an increase in the GDP as a result of investment, population growth, and technological advancement. Economic growth, according to Jhingan, M.L. (2001), is the process bu which a nation's real per capita income increases over time and is based on a rise in the amount of goods and services produced there.

Fajingbesi and Odusola (1999) highlight the importance of capital accumulation per capita for economic growth, emphasizing the need for effective utilization of capital through appropriate frameworks. Hemming, R. (1991) emphasizes the significance of the combination of expenditures, especially in the construction of infrastructure and legal frameworks, since specific types of spending have more impact on growth than others. Balami (2006) states that economic growth—which is typically measured in terms of GDP and is frequently understood as a rise in an economy's output—is the ability to generate the commodities and services necessary to raise the standard of living for citizens. Growth according to Classical Economist signifies increase in the rate of investment. Moreover, Growth rates were divided into three categories by Khan (2005), as reported by the IMF (2012): high, moderate, and low. A 4% yearly average growth in per capita GDP is considered a high growth rate. 2.5% growth in GDP per capita is considered moderate growth.

Finally, an annual gain in per capita income of 2.5% or less is referred to as a poor growth rate. The quantity of finished items produced and sold inside a nation's borders increases its economic growth. Traditionally, it is expressed as the real gross domestic product (RGDP) as a percentage rate of growth (IMF, 2012). Stated differently, growth is determined by the proportion of profit to the total national revenue. Higher rates of growth in the long run are positively correlated with higher rates of profit. Moreover, as pointed out by (Kuznets, 1971), economic growth is a sustained enhancement of a country's capability to produce the total range of goods and services that a nation's citizens require in a given time. It is an ambiguous kind of increase mainly resulting from the emergence or modification of technology, institutions, and ideological perspectives to handle different existing conditions. In another explanation, economic growth is defined as the capacity of a country to create goods and services will increase in the long run because the factors of production will improve in number as well as quality. This is so because of developments in investment, technological advancement, enhancement of Human Resource and education.

2.1.3 Poverty

Poverty, defined as living on less than $1.90 per day, casts a darkish shadow over the lives of an anticipated 736 million people globally, with many residing in OIC member states (World Bank, 2023). In other words, as stated by (Mubyarto, 2004) Poverty is an issue which spreads across the globe. It is lack of income for basic necessities in life like clothing, food, shelter, education and health. Poor people are those who have monthly per capita expenditure less than poverty rate line. Form the UNDP view point, individual's measure of poverty is if the person cannot or does not have access to basic public amenities to access basic markets and personal well-being is poor irrespective of how much dollar per capita income is earned. One must note that poverty is not a simple phenomenon and is characterized by a number of interrelated aspects. Primary elements are the assets, socio-political structure, knowledge and skills; the secondary elements consist of social relations, financial sources and information (Arsyad, 2010). The outcomes are wide-ranging, impacting get access to to education, healthcare, and fundamental requirements.

The International Labor Organization (ILO) estimates that in 2023, over 208 million humans are unemployed worldwide, with developing international locations

disproportionately affected (ILO, 2023). Unemployment breeds despair and fuels social unrest, at the same time as poverty hampers human capital improvement and perpetuates vicious cycles of downside (Sen, 1999). Addressing these challenges is not just an ethical imperative however additionally a key motive force for constructing more stable and prosperous societies (UNDP, 2023). Poverty, a major concern in Muslim countries, can be examined in different ways. These factors include economic poverty, educational poverty, health care poverty, and housing needs. Income poverty focuses on insufficient income to meet basic needs, while educational poverty refers to lack of quality education. Health poverty emphasizes lack of access to health care, while housing poverty and poor living conditions. The impact of economic growth on poverty is examined, as endogenous economic growth has the potential to create employment opportunities and improve living standards but its dimensions need to be considered, the relationship with economic growth, between unemployment and poverty.

Ann-Helen Bay a professor at Metropolitan university Norway (2022) researched that why is so hard to escape poverty? Suppose one has been a job seeker for several months meaning he has been considered jobless for several months now. He has considered and received governmental assistance in terms of paying his rent, utility bills, and even food but that is barely enough. At long last, this is it! He receives a response to a submitted job application. He gets his first check in months and it feels like the ship is turning around and starting to head upstream. But there's a catch, this new job gives him a certain wage that does not entitle him to benefits his need, and has a wage that does not suffice to pay for these benefits. And on top of it all there is the cost of boiling to work and for the children when he is at the office. One way or another, he has less money now than when he didn't have a job and were home all day. This demoralizing effect is known by economists as the welfare trap— one of the many types of poverty traps that are currently plaguing millions of citizens around the world.

Poverty traps are factors reinforce behind the poverty menace since they compound themselves to affect future generations. There are certainly some poverty traps relating to circumstances such as child's inability to receive proper diet or education. Some influence specific individuals or communities like-one year of rains or one government year of corrupt rule. Ironically enough, welfare traps as such are the by-product of their fight against poverty regulation policies. For most of the societies around the world throughout the history, some measures were in place to ensure that the poor that were in society had some ways of having some of their basic needs met. The religious organizations and private charity organizations were some of the only institutions that supported these programs before the twentieth century. Today, these are known as welfare programs and most of the time consist of the taxpayer and the government subsidizing the cost of housing, food, energy and health care. Often times, these are entitlement programs that employ the asymptomatic test whereby only those who are destitute are granted aid. This policy is good for preventing money from going to the wrong places so that the needy people will be assisted. This statement by Nelson Mandala means that poverty elimination is not a one-off kind gesture as we are often made to believe by those who have a lot of money to give to the poor, it is a legal requirement.

2.2 Empirical Literature

This portion of the literature study will also explore the empirical studies conducted by numerous researchers regarding the link among poverty, unemployment and economic growth. Various studies, both regional and international sources demonstrate the reliability of Okun laws, which show the relationship between these variables. Alhdiy et al. (2015) looked at Egypt's growth and unemployment from Q1 of 2006 to Q2 of 2013. By revealing that there was no cointegration relationship between the GDP and unemployment variables,

the findings particularly pointed out there is no long-term connection between the variables. On the other hand, a clear direct relationship has been highlighted in the short run between the unemployment rate and economic growth. Using a panel of ten industrialized nations,

Freeman (2001) tests Okun's Law using recent advances in trend cycle decomposition. According to the findings, Okun's initial estimate for three points for every 1 percent reduce in the unemployment rate for the United States now accounts for somewhat less than two points of real GDP growth on average for the sample nations. Compared to the rest of the sample, the pooled estimates for Europe are lower. Freeman concluded that the law and regulations could still be used to support estimates of the effect of unemployment on GDP. Fuad (2011) investigates the link between economic growth and unemployment in Jordan by looking at Okun's law. Time series techniques are applied to annual data spanning from 1970 to 2008 in order to estimate Okun's coefficient and investigate the relationship between unemployment and economic growth. The paper specifically used the cointegration test, a fundamental regression between the economic growth and unemployment rate, and the Augmented Dickey-Fuller (ADF) for the unit root test. The empirical evidence indicates that Jordan is unable to endorse Okun's law. Therefore, it may be argued that Jordon's unemployment problem is not explained by a lack of economic development.

Khan, M. S., & Senhadji, A. S. (2003) utilize panel data techniques to analyse the impact of economic growth on poverty reduction in Islamic countries. Their findings suggest that sustained economic growth contributes significantly to poverty alleviation, emphasizing the importance of policies promoting income generation and employment opportunities.

Several studies in Nigeria explored the relationship between unemployment and economic growth. Sodipe (2008) found a positive relationship between employment and economic growth, advocating for increased labour-focused policies. The study conducted by Akeju and Olanipeun (2014) evaluated the correlation between economic growth and unemployment rate. The study utilized the Error Correction Model (ECM) and the Johasen cointegration test to ascertain the short-term and long-term correlations between the variables. It is necessary to implement fiscal measures and boost the attraction of foreign direct investment (FDI) in order to lower the high rate of unemployment in the nation. Empirical findings indicate that there is a positive relationship between the unemployment rate and output growth in Nigeria, both in the short and long term. Njoku and Ihugba (2011) observed an increase in unemployment despite economic growth, emphasizing the importance of the agricultural sector in job creation.

Aminu and Manu (2014) employed the OLS technique to investigate unemployment resources and inflation in Nigeria from 1986 to 2010. The authors found that unemployment, the rate of natural resources production (i.e., the rate at which resources are extracted), and total inflation all have a positive effect on Nigeria's economic growth rate. Conversely, Airi et al. (2016) examined how unemployment affected the Nigerian economy between 1980 and 2010, and their results obtained via the use of Ordinary Least Square Regression showed that unemployment had a negative influence on the country's GDP. Bakere (2012) conducted research on economic development, unemployed crises, and stabilization strategies in Nigeria. The researcher discovered by using OLS that there was a negative connection in Nigeria among economic growth, unemployment, and inflation.

Foreign direct investment is the form of capital not only provides employment possibilities for the people of the nation but also introduces a wide range of new skills and

technology to the host country (Miyamoto, 2003). Knowledge builds up by FDI that includes new technology and more resources. This enhanced level of knowledge leads to maximizes capital stock and transferred technology, increasing competitiveness between domestic and international enterprises (Işık, 2013; Le & Pomfret, 2011; Liu et al., 2010; Mazher et al. 2020). By drawing additional multinational corporations, host countries with consistent FDI flows help improve the skill levels of already existing companies. For foreign investors, a better and more appropriate work environment is provided by a workforce with enhanced skill levels and an improved human capital (Ganda, 2021; Zaman et al., 2022). On the other hand, multinational corporations also use foreign direct investment to train employees and give the host nation access to new information and skills (Faria, 2016; Liu et al., 2016; Yi et al., 2020).

According to Sampson et al. (2016), countries that invest a huge amount for research and development tend to create more technology than those that advance slowly and have poor capital creation. Moreover, the availability of the country's infrastructure constantly influences investors' willingness to commit financial resources. Few people are drawn to a nation with inadequate infrastructure, an incapacity to assist investors, and less favorable economic policies. For instance, virtually a small amount FDI was drawn to Pakistan as a result of the servere FDI regulations in place until 1991 (Haq et al., 2017; Latief & Lefen, 2018; Rehman et al., 2020). One of the main factors influencing economic growth in the modern, developed world is trade liberalization. South Asia and Latin America have paid particular attention to the liberalization of global financial flows and commerce (Donghui et al., 2018; Siddiqui, 2015). As a result, trade liberalization policies are thought to influence economic activities and output in an economy and have a major impact in FDI inflow. While trade flow is restricted, economies that are outwardly oriented outperform those that are inwardly oriented.

Pranandari and Wau (2023) examined the impact of innovation, GDP, IT progress, and inflation on unemployment in OIC nations between 20213 and 2021. The study used a panel data regression method with a fixed effect approach to analyse the factors that affect employment in OIC member countries. Purposive sampling is used in the research to choose 20 countries with average unemployment rates under 6% throughout the past a decade. The results show that while ICT advances and innovation have a negative but negligible influence on unemployment, GDP and inflation have a considerable and negative impact on it. The study also highlights how important it is for governments to enact the right laws in order to boost industrial productivity and lower unemployment rates. It could be argued that the OIC countries, especially those in te Middle East, have made significant progress in the field of information technology development. Bahrain really held the top spot in the ICT Index rating, based on data that was released in the Hanis and Zeki (2016) publication. When viewed as a whole, the OIC member nations' average ICT Index score was just 3.18, which was still lower than the global average of 4.16. A few scholars attempted to explain how unemployment and technical development are related.

Another research by Soylu et al. (2018) used panel data analysis in Eastern European countries regarding economic growth and unemployment issues. Also, the study's theoretical foundation is Okun's Law, which posits that unemployment and economic development are inversely correlated. The researchers' goal is to examine if this relationship is valid when considering the countries of Eastern Europe. The study's data came from the World Bank, which included economic growth and unemployment rates for eight Eastern Europe nations such as Belarus, Bulgaria, Czech Republic, Romania, Poland, Ukraine, Hungary, and Slovakia. Since the data were gathered from 1992 to 2014, a thorough investigation of economic patterns across a significant time period was possible. The results show that the jobless rate decreases by 0.08% for every 1% increase in GDP.

The Panel Johansen Co-integration Test is used in the study to test the long-term connection between unemployment rate and economic development. This method provides in establishing if non-stationary series have a stationary connection. For this, the Pedroni cointegration technique is applied, which indicates that unemployment rate and economic growth are co-integrated in Eastern European countries. The research's findings are consistent with existing literature, indicating that measures intended to lower unemployment may also effective in advancing economic expansion. The results highlight how crucial it is to promote economic growth in order to alleviate unemployment rate and accomplish more comprehensive socioeconomic objectives. To sum up, the study's methodology shows that it took a thorough and methodical technique to examining how lack of employment and economic development relate in Eastern European nations. Through the utilizing of panel data tools and comprehensive data collection procedures, the authors provided insightful information on this significant economic problem.

2.3 The relationship between economic growth, unemployment, and poverty

Economic growth, characterized by an increase in a country's GDP, has the potential to reduce unemployment rates and alleviate poverty. As an economy expands, new job opportunities are created, leading to a decrease in unemployment rates. In addition, people and families gain additional benefits from increased income and standardization of living, which reduces poverty levels. However, the effects of economic growth on unemployment and poverty reduction are not equal time all in all countries and depending on a variety of factors including business output. Thus, division of labour and social policy are critical to examine the relationship between economic growth, unemployment and poverty in Muslim countries more fully to identify the specific factors affecting this relationship in an effective manner.

Adelowokan et al. (2019) purpose to investigate the relationship among economic growth, unemployment, and poverty in Nigeria from 1985 to 2015. The research's methodology includes of the Granger causality test for causality analysis, the Augmented dickey fuller test for unit root testing, the Error correction model for establishing short-run connections among the variables, and Johansen cointegration analysis for cointegration test. Provided data for this paper were gather from numerous sources such as; statistics reports, economic databases, and earlier research studies. The time series data methods covering thirty years of Nigerian economic growth variables, poverty levels, and unemployment rates were among the data types employed in the investigation. The study's findings show that there is a lack of integration at the level since the variables measuring economic growth, unemployment, and poverty rates were discovered to be stationary at the first difference. Moreover, no causal link found among poverty, economic growth, and unemployment in Nigeria. No long-term association was there between the variables, according to the cointegration analysis. Although, in the short run, there was a positive and significant relationship among poverty and unemployment on economic growth while unemployment was negatively and substantial connected to growth.

2.3.1 Economic Growth and Unemployment

Several studies have explored the relationship between economic growth and unemployment in Muslim-majority countries. For instance, Ademola and Badiru (2016) investigated the impact of unemployment and inflation on economic growth in Nigeria, emphasizing the importance of addressing these factors to achieve sustainable growth. Akbar et al. (2011) analysed the determinants of economic growth in Asian countries, including several OIC members, highlighting the need for policies that foster economic expansion while effectively managing unemployment levels. However, the study by Stephen, B. A (2012) pointed out the challenges of stabilizing unemployment rates amidst economic growth, emphasizing the importance of targeted policies for addressing

unemployment crises. In other words, sustained economic growth can create more job opportunities, main to a reduction in unemployment rates. However, the quality of jobs created and the efficiency of labour market institutions play a critical function. In some cases, economic growth won't be accompanied through sufficient job creation, leading to continual unemployment or underemployment issues. Factors like; technological improvements, skill mismatches, and labour marketplace rigidities can impact the extent to which economic growth interprets into reduced unemployment. By using Johansen cointegration, Banda et al. (2016) investigated the impact of unemployment on economic growth in South Africa between 1994 and 2012. The findings showed a positive correlation between long-term unemployment and economic growth.

Joseph Eshun (2020) offers insightful and valuable information regarding the theoretical underpinnings and existing state of the research on unemployment and economic growth. In order to find the effect of unemployment on economic expansion in a subset of Ten West African countries such as; Ghana, Nigeria, Liberia, The Gambia, Cote D'Ivoire, Niger, Sierra Leone, Burkina Faso, Benin, and Togo are the subject of the investigation and also the study used macro-level yearly data. The paper employed panel data analysis methods to estimate the relationship between the GDP annual growth and the unemployment rate within the area. To account for the bias resulting from omitted variables and endogeneity concerns in the study, fixed effect regressions were utilised. The World Bank database provided the data for the study for the years 2004 through 2017. In addition, these countries were also chosen in part because of how common unemployment is in their economies and based on data available to shed light on how macroeconomic indicators fluctuate. One significant finding of the study was that high unemployment rates had a detrimental effect on economic growth, especially in emerging West African nations. It shown that times of low unemployment correspond with strong economic growth and that low economic growth in the area is linked to high jobless rates, so validating Okun's Law in West Africa.

The research by Muhammad Imran et al. (2015) emphasises how important Asian labour markets are, given their high rates of unemployment and underemployment. It highlights how the population in the Asian area is evolving in terms of composition, size, and character, emphasising the importance of economic growth and low unemployment rates for the region’s development. Using fixed effect and pooled OLS approaches, the investigation attempts to examine the relationship between unemployment and economic growth in twelve chosen Asian countries during the period 1982 to 2011. While researching the connection between the GDP per capita growth and unemployment rate, the research uses panel data methods to quantify the impacts of individual countries, groups of nations, and time.

The results highlight the significance of reducing unemployment for long-term economic growth and enhanced wellbeing as they show that higher unemployment rates significantly impede GDP per capita growth. The study takes into consideration a number of conventional determinants in addition to unemployment level, including the CPI (consumer price index), trade openness, inflation rate, population growth, real interest rates, government final consumption expenditure, total natural resource rents, gross savings, and foreign direct investment. These key variables play a significant role on how the economies of the countries under study expand, it also emphasises how crucial it is to deal with unemployment as a major policy intervention to promote economic growth in emerging Asian countries. Policies that prioritise reducing unemployment rates may also improve economic expansion and enhance overall welfare in the area.

The paper by Paula Alexandra Roibu Crucianu (2019) aims to give the audience a glimpse of the unemployment impact on the economic development of Romania. In the study, the emphasis will be made on the effects that unemployment has on economic growth in Romania with special reference to the opportunities and costs of high unemployment rates and their significance for the configuration of the labor market and subsequent productivity in the nation. The study employs total occupied population data, gross national product data, data on FDI, and data of unemployed persons for the fiscal year 2000 to 2017. The research method used is the identification of existing statistical information on the state of the labor market in Romania. The variables within the labor market situation in Romania are gathered and transformed to find approximations essential for evaluating the tendencies of the rate of unemployment in Romania.

Additionally, different sorts of data are included in this research, for example, demographic data concerning the whole occupied populace, economic data regarding the Gross National Product and FDI and statistic data of the labor market including number of unemployed persons. According to the study, Romania has been facing a long-term economic crisis and experiences high rates of unemployment that are hard to combat and the unemployed has a small chance of being reintegrated back into the labor market. Economic transformations in activities and needs of products in connection with the economic recession also interfered with the decrease of work expectations.

Another study by Rosdiana Sijabat (2022) investigated data from 2000 to 2019 by using error correction model also analysis of time series data for the variables of interest, namely inflation, economic growth (GDP growth), poverty rate, and unemployment rate in Indonesia and the data sourced from the World Bank Indicators. Well, in order to capture both the short-term departures from equilibrium and the long-term correlations between the economic indicators, the research used the Vector Error Correction Model (VECM) to analyse the relationships between the variables. Finally, it evaluated the stationarity of the variables by using unit root tests, namely the Augmented Dickey-Fuller test. Which it helped to determine the order of integration for the variables. The paper discovered a significant long-term correlation between GDP growth, poverty rate, unemployment rate, and inflation in Indonesia. It shows that these variables are related to one another and have long-term effects on one another. Moreover, it was shown that economic growth and poverty rates has a major negative impact on inflation in the short-term. Which it suggests that short-term inflation rates can be impacted by shifts in poverty and economic growth. Furthermore, the analysis shows a relationship between unemployment rate and economic development, with an estimated 5.91% increase in unemployment over the next five years resulting from economic growth.

Hussain et al. (2010) used time series data from 1972 to 2006 to study the effect of unemployment on economic growth in Pakistan. The Johansen Cointegration Test and the Augmented Dickey Fuller Test were the methodologies used in the investigation. The study verified that unemployment has a negative impact on economic expansion. Villaverde and Maza (2008) looked into how unemployment affected output in Spain between 1980 and 2004 and discovered that it had a negative impact on economic growth. Yelwa et al. (2015) also looked into the connection between economic growth and unemployment in Nigeria between 1987 and 2012. This study demonstrated a negative relationship between economic growth and unemployment. They came to the conclusion that for the economic environment to be under control, the government needed to step in. Using quarterly data from 1994Q1 to 2016Q4, Makaringe and Khobai (2018) examined the patterns and effects of unemployment on economic growth in South Africa. They used the Auto Regressive Distribution Lag (ARDL) bounds test approach, and the model's results indicate that unemployment and economic growth have a long-term relationship. The analysed

empirical data verified that unemployment and economic growth have a negative impact in both the short and long term.

Research on the impact of unemployment on South Africa's GDP was also carried out by Mosikari (2013). He applied cointegration, the Granger causality test, and the enhanced Dickey-Fuller (ADF) stationary test. The analysis showed that there was no correlation between the unemployment rate and GDP growth and that the variables were integrated of order one. Utilizing time series data spanning from 1999 to 2017, Iloabuchi (2019) studied the impact of joblessness on economic expansion inside Nigeria. The data came from two sources: the World Bank's data bank and the Central Bank of Nigeria's database. OLS, Augmented Dickey Fuller, Philip-Perron Unit root tests, Pair-wise Granger Causality, and OLS were all used in the explanatory study. A unidirectional connection between unemployment and Nigeria's economic growth is revealed using the Granger causality test. The population growth component of the model, which is also present, has outcomes that coincide with economic growth. Furthermore, Shah et al. (2022) research on the impact of unemployment on economic growth was carried out in Pakistan. The study's empirical findings show a statistically significant negative connection between unemployment and economic growth.

2.3.2 Economic Growth and Poverty Reduction

The relationship between economic growth and poverty in Muslim-majority countries has also received considerable attention. Ali et al. (2009) provided new empirical evidence on economic growth, inequality, and poverty, emphasizing the importance of inclusive growth strategies to mitigate poverty levels. Ahmed and Nawaz (2014) explored whether economic growth reduces poverty in Muslim-majority countries, highlighting the complex interplay between economic expansion and poverty alleviation. Furthermore, a macro econometric study of growth, unemployment, and poverty in Nigeria was carried out by Osinubi (2005), which provided insight into the multifaceted character of poverty and the contribution of economic growth to its alleviation. Additionally, Chapra (2008) discussed the Islamic vision of development, justice, and poverty reduction, advocating for holistic approaches that address social, economic, and environmental dimensions of poverty.

Similarly, economic growth is generally considered a key driver of poverty reduction in Muslim nations. As economies enlarge, household earning tend to rise, lifting humans out of poverty. However, the extent to which economic growth interprets into poverty reduction relies upon on various factors, including income distribution, get right of entry to basic services such as education and healthcare, and social safety nets. In some instances, economic growth may exacerbate income inequality, leading to marginalized groups being left behind in the process of development. Therefore, inclusive growth policies that prioritize poverty reduction through focused interventions and social programs are crucial to ensure that the benefits of economic growth are extensively shared throughout society.

Oyegoke et al. (2018) explore how economic growth affects to reduce poverty in Nigeria from 1980 to 2016. The study used secondary data from World Bank Indicators, Central Bank Statistical Bulletin, and National Bureau of Statistics. Annual time series data on government spending, unemployment growth rate, GDP (a proxy for economic growth), and poverty indices were gathered. In addition, the study employed econometric methods, time series analysis, and multiple regression analysis to examine the relationship between economic variables and the prevalence of poverty. According to the research, government expenditure and the prevalence poverty in Nigeria are positively correlated. This unanticipated association implies that, contrary to what would be predicted based on

Keynesian economic theory, an increase in government expenditure is linked to an increase in the nation's poverty levels. This discrepancy highlights the need for policymakers to revaluate how government spending is allocated to ensure that it effectively targets poverty reduction and benefits Nigeria's most vulnerable populations. It also raises concerns regarding the effectiveness of government expenditure in reducing poverty in the country.

Downes (1998) examined the variables that might be able to lower Trinidad and Tobago's unemployment rate between 1971 and 1996 using the error correction model and ordinary least square techniques. The study concluded that changes in the unemployment rate over the short and long terms are significantly influenced by real output and average earnings. The coefficients' output shifted from being positive to negative for real average earnings in a similar manner. According to Lindbeck's (1999) findings, structural unemployment has not been eliminated during cyclical booms. His outcomes were consistent with the search model hypothesis, which holds that the labour market reaches equilibrium when the number of people quitting their jobs equals the number of persons who find employment. The study points various factors that impact the level of structural employment that's different in time and place.

Wright & Levin (2000) look at the connection between the rate of unemployment and the replacement of unemployment insurance. The study discovered a correlation between a greater unemployment rate and the replacement rate of unemployment insurance using annually panel data. However, they discover no significant connection between unemployment insurance, employment, and the actual rate of domestic product growth. The connection between poverty, unemployment, and economic progress in Muslim nations has been the subject of several studies. In research published by Khalfaoui (2015) examines the effects of Islam as a system of moral and cultural values on the development and growth of economies in 17 Muslim nations between 1990 and 2014. The empirical analysis demonstrated a statistically significant negative relationship between economic growth and Islam in the countries of the Arab-Muslim world. However, the relationship is still positive for Muslim nations that are not Arab.

Osinubi (2005) investigated the potential connection between poverty, unemployment, and economic growth in Nigeria, a member of the OIC. By gathering time series data for 31 years, from 1970 to 2000, the results showed that economic expansion had a significant impact on lowering unemployment and poverty in the nation. Osinubi came to the conclusion that more jobs will boost output, which will in turn spur economic development. Conversely, a declining employment rate will result in lower output and eventually slower economic development. Additionally, Blanchard (2006) conducts research on the development of knowledge and perceptions regarding unemployment in Europe. Based on survey data, he found that European unemployment began increasing in the 1970s, continued to rise in the 1980s, hit a plateau in the 1990s, and is still high now. He discovered that the growth in total factor productivity began to slow down when he took into account the 30-year data from 15 European countries.

Additionally, Wang, S., & Abrams, B. A. (2007) used data from 20 OECD nations over the last three decades, beginning in 1970 and ending in 1999, to create a straightforward model of government spending, growth, and unemployment. They looked at the possibility that government spending is the additional factor contributing to the inverse link between growth and unemployment. As The U.S. Treasury Department "Government outlays are the money a government spends, similar to a household budget. This money funds vital services like infrastructure (roads and bridges), social programs (Social Security, Medicare), national defense, and public services (education, healthcare) to keep the country functioning and provide for its citizens' well-being.

Adjemian et al. (2010) examine how labour market features (regulations, unions) affect unemployment and economic growth in European regions. Their model suggests that high labour costs and strong unions lead to higher unemployment and slower growth. The model incorporates frictions like high labour costs that disincentivize hiring and strong unions that influence wages. The researchers applied their model to data from 183 European regions (1980-2003) and found results supporting their predictions, suggesting a link between labour market institutions, unemployment, and economic growth in this context. It's important to remember that these findings might not apply universally, as the impact of labour market institutions can be complex and vary depending on the specific context.

In Kosovo, a country with a significant Muslim population, Misini and Badivuku (2017) conducted an empirical evaluation of the effect of economic growth on unemployment and poverty. Their analysis noted that financial expansion within the nominal GDP had promoted the discounting of poverty and unemployment; however, an empirical analysis conducted two years prior, comparing economic growth to the unemployment rate over an 11-year period, indicates that economic growth has not significantly reduced unemployment in Kosovo. With over 23% of the population living in poverty, it is still among the poorest nations in Europe. The GDP per capita of Kosovo is merely 25% of the average for the European Union (EU). Similarly, Kosovo only dedicates 8.5% of its GDP to social protection, while the EU average allocates 28%. Furthermore, the pandemic has led to job losses as well. In 2021, the youth unemployment rate was 48.6% overall, and nearly 30% of 15-year-olds did not have a job, an increase of 10% from the previous year (UNICEF, 2022). After analyzing this data, we have rejected Okun's Law by concluding that economic expansion has had a low impact on lowering unemployment (Misini and Badivuku, 2017). Notwithstanding Kosovo's annual economic progress, the two main issues facing the nation today are unemployment and poverty; in fact, a significant portion of the black population is considering leaving Kosovo due to the lack of job opportunities. The writers suggested concentrating on promoting the expansion of investments in order to convince Kosovo's government to lower unemployment, poverty, and emigration.

Hussin, Lim, and Azam (2019) examined the connection between fiscal policy and economic growth in the ASEAN-5 during the years 1970–2016. The methodology employed was Autoregressive Distributed Lag (ARDL). The findings indicate that government expenditure, a tool of fiscal policy, is statistically significant in the ASEAN-5 economies, with the exception of Indonesia. The findings also demonstrate that, with the exception of Indonesia, the ASEAN-5 has large expenditures over the long term as a result of non-tax implementation; the Philippines, Thailand, and Singapore have significant tax and non-tax expenditures; and Indonesia and Thailand have significant debt. The strategy pushes Thailand and the Philippines to increase non-tax rates to offset growing spending. Although, many researchers conducted related unemployment, poverty and economic growth, there is no sufficient researches regarding OIC Countries in the general context. This research aims to fill this gap by analysing the impact of economic growth on unemployment and poverty in Muslim countries over 63 years (1960-2022) using panel data methods.

CHAPTER 3
RESEARCH METHOD

3.1 Research Methodology

In terms of methodology, the aspects to be addressed in this study are the method of design, the method of data collection, the variables to be investigated, and the evaluation approaches relevant to the topic of the relationship between economic growth and unemployment as well as poverty in Muslim countries. Secondary data in the form of panel data will be gathered from sources such as the World Bank Data, while The Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) will also be used in the course of this study to establish relationships between gross domestic product (GDP) growth rate, unemployment rates, and the poverty levels in a selection of Muslim countries. There will be fixed effects and Random effects models to analyse the data (Panel Data) covering the period of last 33 years (1990-2022). While the fixed-effects model shall help control for any unique country characteristics that might have a bearing to the three variables of interest, the random effects model shall help control for time dummies that would determine the nature of relationship between economic growth, unemployment and poverty in these countries. Analysis of economic indicators, such as GDP growth rates, unemployment rate, and poverty headcount ratio, unemployment with basic education level, unemployment with intermediate education level, Population, Population Growth, and Trade of GDP.

3.2 Types and Research Approaches

This research employs quantitative analysis of data in determining the level of the effect of economic growth on unemployment and poverty in Muslim countries. According to Sugiyono (2014) defines quantitative method as a scientific approach that uses a reality which is concrete, observable, and measurable and of a causal relationship of the variable of the research data is in the form of numbers, equations, tables, and so on. The data used is secondary data which has been collected from official websites from different countries such as; World Bank data and Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC). Besides, it is associative research. Associative research is employed to establish the extent to which certain variables or factors affect one or the other variables (Sugiyono 2014).

3.3 Data Description

Data applied in this research involves 36 Muslim countries for unemployment and 29 Muslim countries for poverty due to the availability of data across the following regions; Europe, South America, Central Asia, Middle East, South & Southeast Asia, and Africa. The datasets are given for the time period from 1990 to 2022, they present varieties and economic indicators during 33 years (over three decades). To ensure the provided data is reliable, several sources have been used so that data collected from the field is accurate. Some of the organizations that played role to accredit the dataset are International Labour Organization, World Development Indicators (WDI) and Statistical Economic and Social Research & Training Centre for Islamic Countries (SESRIC). This list of data sources enlarges the study's robustness and helps to get as complete a picture of the chosen economic indicators and factors connected with unemployment and poverty as possible. The dependent variables in this study are the unemployment rate and poverty rate. The independent variable is GDP per capita, which represents economic growth. Control variables include trade, FDI, labor force with intermediate education, labor force with advanced education, and population, which are included to isolate the effects of GDP per capita on the dependent variables.

Table 3.1. Description of Variables

Variables	Description	Time	Sources
Unemployment	Unemployment, total (% of total labor force)	Annual	World Bank & ILO
Poverty	Poverty headcount ratio at $2.15 a day (2017 PPP)	Annual	World Bank
Foreign Direct Investment	Total net investment (% of GDP)	Annual	World Bank
GDP Per Capita	GDP per capita (constant 2015 US$)	Annual	World Bank
International Trade	Total amount of exports and imports including goods and services (% of GDP)	Annual	World Bank
Population	Population, total	Annual	World Bank
Labor force with advance education	Labor force with basic advance (% of total working-age population with basic education)	Annual	World Bank
Labor force with intermediate education	Labor force with intermediate education (% of total working-age population with intermediate education)	Annual	World Bank
Crisis Asia (1997)	Dummy Variable: 1=year of Crisis of Asia in 1997: 0=years without Crisis of Asia	Annual	Dummy Variable
Crisis Globe (2008)	Dummy Variable: 1=year of Crisis of Globe in 2008: 0=years without Crisis of Globe	Annual	Dummy Variable

Source: World Bank

$$Lnuemp_{it} = \beta_0 + \beta_1\, lngdppercapita_{it} + \beta_2\, trade_{it} + \beta_3\, fdi_{it} + \beta_4\, lfi_{it} + \beta_5\, lfa_{it} + \beta_6\, lnpp_{it} + \beta_7\, crisisasia97_{it} + \beta_8\, crisisglob08_{it} + v_i + \varepsilon_{it} \quad \ldots\ldots\ldots (3.1)$$

Where:

- lnunemp_it: Natural logarithm of unemployment rate for country i in year t.
- lngdppercapita_it: Natural logarithm of GDP per capita for country i in year t.
- trade_it: Trade openness (e.g., trade to GDP ratio) for country i in year t.
- fdi_it: Foreign Direct Investment (FDI) for country i in year t.
- lfi_it: Natural logarithm of labor force with intermediate education for country i in year t.
- lfa_it: Natural logarithm of labor force with advance education for country i in year t.
- lnpp_it: Natural logarithm of population growth rate for country i in year t.
- crisisasia97_it: Dummy variable for the Asian Financial Crisis (1 for 1997, 0 otherwise).
- crisisglob08_it: Dummy variable for the Global Financial Crisis (1 for 2008, 0 otherwise).
- v_i represents the country- unobserved heterogeneity
- ε_it represents the error term capturing unobserved factors affecting unemployment.

$$Lnpoverty_{it} = \beta_0 + \beta_1\, lngdppercapita_{it} + \beta_2\, trade_{it} + \beta_3\, fdi_{it} + \beta_4\, lfi_{it} + \beta_5\, lfa_{it} + \beta_6\, lnpp_{it} + \beta_7\, crisisasia97_{it} + \beta_8\, crisisglob08_{it} + v_i + \varepsilon_{it} \quad \ldots\ldots\ldots (3.2)$$

Where:

- lnpoverty_it: Natural logarithm of poverty rate for country i in year t.
- lngdppercapita_it: Natural logarithm of GDP per capita for country i in year t.
- trade_it: Trade openness (e.g., trade to GDP ratio) for country i in year t.
- fdi_it: Foreign Direct Investment (FDI) for country i in year t.

- lfi_it: Natural logarithm of labor force with intermediate education for country i in year t.
- lfa_it: Natural logarithm of labor force with advance education for country i in year t.
- lnpp_it: Natural logarithm of population growth rate for country i in year t.
- crisisasia97_it: Dummy variable for the Asian Financial Crisis (1 for 1997, 0 otherwise).
- crisisglob08_it: Dummy variable for the Global Financial Crisis (1 for 2008, 0 otherwise).
- v_i represents the country- unobserved heterogeneity
- ε_it represents the error term capturing unobserved factors affecting poverty.

Although this thesis employs two dependent variables with the same independent variable and control variables, the purpose of this thesis is to look at these two areas poverty and unemployment as partial equilibrium which means looking at both separately. This analysis assumes that the error terms for the unemployment equation and error terms for poverty equations are uncorrelated.

3.4 Definition of Operational Variables

A variable is a quality or characteristic that conveys the nature or worth of a thing or a particular form of work. It is concerned with a certain variation selected by the researcher for study with a view of making inferences about it. It outlines the variables applied in the research with regards to the effect of economic growth for unemployment and poverty rates prevailing in the OIC nations. Independent, dependent, control, and dummy variables are the four types of variables applied in this paper. In this respect, the dependent variable used in this study is unemployment and poverty rate, while economic growth rate as independent variable, and the rate of foreign direct investment, population rate, the advance education of the labor force, the intermediate education level of the labor force, and trade of GDP as the control variables, and Crisis Asia (1997) & Crisis Globe (2008) as dummy variables. Additionally, the selection of variables is based on theoretical and empirical considerations. GDP per capita is chosen as a measure of economic growth, while trade, FDI, and educational attainment levels are included as key factors influencing unemployment and poverty. Population is included to control for demographic effects.

Unemployment indicator: The unemployment rate is one of the most known measure of unemployment obtained from a population. It depicts the proportions of the undetermined populace who are in the working age bracket and capable of working but are not employed. It is mostly prepared and published either monthly or on a quarterly basis by government departments. As table 3.3 the mean unemployment rate for the samples is rounded up to approximately 8.929 percent with natural log of unemployment is 2.067 percent, with a standard deviation 6.419 and in natural log is 0.902, indicating moderate variability. It is thus important to note that, the variability in the labor market conditions in the OIC countries implying that, while some countries have good labor market others have high unemployment levels. Recognizing these differences is crucial when developing interventions for combating unemployment because the latter is not constant.

Poverty rate: Common measures of poverty include proportion of the population living within a specified measurement of the poverty line, where the poverty line is global poverty which is $1.90 per day (using 2011 PPP). It calculates the level of poverty concerning the income and the ability of purchasing the necessities of life. According the descriptive statistic table 3.5 the mean poverty level stands at about 14.410 percent and in

natural log is 1.849 percent, and the standard deviation is 18.718 and in natural log is 1.422 which highlighted the high volatility of poverty in the context of countries. Such a broad magnitude is attributed to the level of development of the poverty issue in the OIC countries, the results of some countries have been good enough to get them out of poverty while some countries have persistent poverty problems.

GDP Per Capita: GDP per capita is the gross domestic product divided by the size population at mid of the year. It measures the amount of goods and services that are produced within a country yearly on average per person and is widely used to compare the standards of living and the level of development of the economy. The measurement is per capita GDP, Converted to US $ at 2015 constant prices. Furthermore, the mean for natural log GDP per capita in table 3.3 is (7.801) and in table 3.5 is (7.739) with a standard deviation of (0.820) and (0.807), indicating moderate level of economic development across the OIC nations. That is why we see the variability of economic development within OIC countries; some of them have high GDP per capita meaning the indicators of living status are high, while the others have lower GDP per capita proving less economic development.

International Trade: It is defined as the total value of exports and imports of goods and services on a country's GDP. They express the extent of liberalization and globalization of an economy. Additionally, the average of the level of trade openness is found to be about (66.578) percent of GDP in table 3.3 and about (66.886) percent of GDP table 3.5 with a standard deviation of (33.685) and (35.950), indicating significant variability. The results depicted by both tables shows that all the countries under study indicate a diversified level of trade openness. This variability clearly shows the variation of openness to international economy among the OIC nation, some are highly open while others are closed. It is important to look at these differences in order to evaluate the effects that trade has on unemployment and poverty.

Foreign Direct Investment: FDI is defined as the net increase in the international ownership of assets through investment with the aim of obtaining a lasting management interest in the acquired assets of an enterprise resident in a different economy to that of the investor. It is a measure of countries' openness for global trade and flow of capital. The average of FDI inflow is around (2.620) percent of GDP in table 3.3 and approximately (2.641) percent in table 3.5, while the standard deviations are also comparatively high at 3.041 and 3.393, indicating significant variability. This variability is as a result of the level of attractiveness of the different OIC countries towards foreign investors depending on the political stability, policy factor, and other business environment standards in the country. These differences are important for determining the effects or otherwise of FDI on unemployment and poverty.

Labor Force with Intermediate Education (Lfi): This variable is the proportion of the working-age population with intermediate education that is secondary education. It measures the quality or skill level of labor, and its adequacy to generate employment and other economic results. As table 3.3 and 3.5 the average percentage of the labor force that is qualified as having intermediate education level are found to be around 54.283 percent and 56.055 percent, with the standard deviation of 12.512 and 12.832, indicating moderate variability. The variation, therefore, shows the differences in the education and requirements for secondary education in OIC countries. This differentiation is necessary to evaluate the effectiveness of intermediate education in dealing with the unemployment and poverty challenges.

Labor Force with Advanced Education (Lfa): This variable is the proportion of the working age population which has an education level equal to or higher than tertiary. This captures the sector's relation to the higher skill level of the labor force and its effects on employment and the rest of the economy. The average mean values of the both parameters advanced education of the labor force is equal to 72.288 percent and 72.208 percent in both tables, and for standard deviation 11.557 and 12.652, indicating moderate variability in advanced education levels among these countries. Such variability shows the disparities concerning the availability and standards in tertiary education in the member-countries of OIC. Understanding these differences is important to estimate the influence that advanced education on unemployment and poverty.

Population: Population on the other hand is the total human beings that are living in a given country. This variable is one of the basic demographic characteristics that drive the supply of labor, the size of the market, and economic processes. According the descriptive statistic table 3.3 the average natural log of population is 17.137 and table 3.5 is around 17.285, with standard deviations of 1.523 and 1.710 which highlighted a large population size among the OIC nations. This variability indicates the demographic diversity within Muslim countries. It's important to understand these differences for assessing the effect of population growth on poverty and unemployment.

Crisis Asia (1997): This dummy variable analyzes the effects of the Asian Financial Crisis of 1997 on OIC countries' economies. This variable takes the value of 1 only for the year 1997 and 0 for all the other years in the study. It assists in reducing the influence of the Asian Financial Crisis shocks to unemployment and poverty levels thus enabling a better estimation of the other variables' relationships.

Crisis Globe (2008): Consequently, this dummy variable highlights the effects of the Global Financial Crisis of 2008 on the OIC countries' economies. It equals 1 for the year 2008 and 0 for any other year in the analysis of the present study. It helps in identifying possible shocks to unemployment and poverty rates due to the Global Financial crisis, and hence its inclusion to filter shocks to this variable improves identification of the other relationships.

Table 3.2. The sample selection of countries (Unemployment)

No	Country	Freq.	Percent	Cum.
1	Albania	15	5.84	5.84
2	Algeria	1	0.39	6.23
3	Bangladesh	6	2.33	8.56
4	Benin	2	0.78	9.34
5	Burkina Faso	3	1.17	10.51
6	Cameroon	3	1.17	11.67
7	Chad	1	0.39	12.06
8	Comoros	3	1.17	13.23
9	Cote d'Ivoire	5	1.95	15.18
10	Djibouti	1	0.39	15.56
11	Egypt, Arab Rep.	14	5.45	21.01
12	Gambia, The	2	0.78	21.79
13	Guinea	2	0.78	22.57
14	Guinea-Bissau	1	0.39	22.96
15	Indonesia	31	12.06	35.02

16	Iran, Islamic Rep.	17	6.61	41.63
17	Iraq	3	1.17	42.80
18	Jordan	3	1.17	43.97
19	Kyrgyz Republic	8	3.11	47.08
20	Malaysia	14	5.45	52.53
21	Mali	7	2.72	55.25
22	Mauritania	3	1.17	56.42
23	Morocco	4	1.56	57.98
24	Niger	4	1.56	59.53
25	Pakistan	15	5.84	65.37
26	Senegal	6	2.33	67.70
27	Sierra Leone	3	1.17	68.87
28	Sudan	3	1.17	70.04
29	Tajikistan	4	1.56	71.60
30	Togo	5	1.95	73.54
31	Tunisia	15	5.84	79.38
32	Turkiye	19	7.39	86.77
33	Uganda	8	3.11	89.88
34	Uzbekistan	1	0.39	90.27
35	West Bank and Gaza	23	8.95	99.22
36	Yemen, Rep.	2	0.78	100.00
Total		257	100.00	

Source: Author's calculation

Table 3.3. Descriptive Statistics (Unemployment)

Variable	**Mean**	**Std.dev.**
Unemployment rate	8.929	6.419
GDP per capita	3384.867	2891.047
Natural log of Unemployment	2.067	0.820
Natural log of GDP per capita	7.801	0.820
Trade	66.578	33.685
Foreign Direct Investment	2.620	3.041
Labor Force with Intermediate Education	54.283	12.512
Labor Force with Advance Education	72.288	11.557
Natural log of Population	17.137	1.523
Observations	257	

Source: Author's calculation

Table 3.4. The sample selection of countries (Poverty)

No	Country	Freq.	Percent	Cum.
1	Albania	10	7.87	7.87
2	Bangladesh	3	2.36	10.24
3	Benin	2	1.57	11.81
4	Burkina Faso	2	1.57	13.39
5	Cameroon	3	2.36	15.75
6	Chad	1	0.79	16.54

7	Comoros	2	1.57	18.11
8	Djibouti	1	0.79	18.90
9	Egypt, Arab Rep.	5	3.94	22.83
10	Guinea	1	0.79	23.62
11	Guinea-Bissau	1	0.79	24.41
12	Indonesia	28	22.05	46.46
13	Iran, Islamic Rep.	14	11.02	57.48
14	Iraq	1	0.79	58.27
15	Kyrgyz Republic	8	6.30	64.57
16	Malaysia	5	3.94	68.50
17	Mali	1	0.79	69.29
18	Mauritania	1	0.79	70.08
19	Niger	2	1.57	71.65
20	Pakistan	7	5.51	77.17
21	Senegal	2	1.57	78.74
22	Sierra Leone	2	1.57	80.31
23	Tajikistan	3	2.36	82.68
24	Togo	3	2.36	85.04
25	Tunisia	3	2.36	87.40
26	Turkiye	5	3.94	91.34
27	Uganda	2	1.57	92.91
28	West Bank and Gaza	8	6.30	99.21
29	Yemen, Rep.	1	0.79	100.00
Total		127	100.00	

Source: Author's calculation

Table 3.5. Descriptive Statistics (Poverty)

Variable	**Mean**	**Std.dev.**
Poverty rate	14.410	18.718
GDP per capita	3156.742	2748.904
Natural log of Poverty	1.849	1.422
Natural log of GDP per capita	7.739	0.807
Trade	66.886	35.950
Foreign Direct Investment	2.641	3.393
Labor Force with Intermediate Education	56.055	12.832
Labor Force with Advance Education	72.208	12.652
Natural log of Population	17.285	1.710
Observations	127	

Source: Author's calculation

3.5 Panel Data Method

The cross section, whose unit is measured at separate times, and the across time series are combined to provide the Panel date. One dependent variable and one or more independent variables are observed using panel data analysis. Panel data regression is a type of regression analysis that incorporates both cross-sectional and time-series data; as a result, it contains more observations than each type of data alone Gujarati (2004). Furthermore, each current sector's response variable is predicted using panel data

regression. But in order to anticipate it, forecasting for each sector's predictor factors must first be completed. Pooled time series is a combination of time series with regular temporal observations at a unit of analysis and cross-section data with observations at a certain point of analysis. Applying Panel Data Regression Analysis can help estimate the impact of specific policy interventions and changes that do not touch everyone simultaneously and, in the same way, are joint in empirical economics. For the quantitative analysis, this research applies econometric and statistical tools using Stata for applications.

According to Gujarati (2009), the use of panel data regression provides many advantages, including: Individual heterogeneity can be taken care of directly in panel data with help of individual specific variables. Also, by use of panel data, research hypotheses can be tested as well as behavioral models can be developed and explored. Moreover, panel data uses cross-sectional data (time series) and is based on it repeatedly, so it is ideal for the study of dynamic adjustment. Panel data is suitable for gaining more information, it's more diverse data and minimizes the problem of multicollinearity can be gained more degree's freedom (df) to get more efficient results in terms of estimation. In addition, when analyzing panel data, one can avoid the possible bias arising from aggregation of individual data. Impact separately can more effectively detected and measured by the panel data than time series or cross data section.

3.5.1 Data Model Estimation

There are three techniques for regression panel data, namely with Pooled Ordinary Least Squares (POLS), the Fixed Effect Model (FEM), and the Random Effect Model (REM), which are described as follows:

3.5.1.1 Pooled Ordinary Least Squares

Pooled Ordinary Least Squares (POLS) is the foundational method of regression analysis. It helps in the estimation about the impact of a set of independent variables on a dependent variable by using the assumption of identically and independently distribution. Therefore, POLS combines potential different groups (e.g., time periods in panel data) into one regression model whereby the extent of average causal effects can be estimated. POLS assumes that intercept and slope coefficients are fixed and homogeneous for all individual (no individual specific) and fixed time periods (constant over time). The error term measures any fluctuation in the dependent variable not explained by the other independent variables or in other words it measures the unpredictability of the dependent variable.

3.5.1.2 Fixed Effect Model

The Fixed Effect Model is a statistical approach used in panel data analysis to account for individual-specific heterogeneity or in this model is v_i. It allows for controlling individual-specific characteristics that are constant over time but may vary across different units or entities. The Fixed Effect Model assumes that while individual-specific impacts and independent variables are connected, they remain static over time. A regression technique called the Fixed Effect Model adds dummy variables to panel data in order to estimate it (Gujarati, 2004).

This model took into account of the possibility that the researcher may faces the problem of omitted variables to showed the constant differences between objects, even with the same regression coefficient. This situation might bring changes to the intercept cross section or time series. The Fixed Effect Model is useful for panel data analysis when there is concern about unobserved heterogeneity and the desire to control for individual-specific effects. It allows for the examination of the relationship between variables while accounting for unit-specific characteristics that may influence the outcome of interest.

3.5.1.3 Random Effects Approach (Random Effect Model)

The Random Effect Model is a statistical approach used in panel data analysis to account for unobserved heterogeneity across individual units. Unlike the Fixed Effect Model, the Random Effect Model assumes that the individual-specific effects are uncorrelated with the independent variables and are treated as random variables. This model is used to overcome the weakness of the fixed effect method so that the model experiences uncertainty. In the Random Effects Model, the individual-specific random effects (αi) are assumed to follow a specific distribution, typically a normal distribution. These random effects are estimated alongside the other parameters of the model. The inclusion of random effects allows for capturing the unobserved unit-specific characteristics that may influence the dependent variable.

3.5.2 Panel Data Test

According to (Gujarati, 2009), the selection of the right model with panel data can be done using several tests, namely:

3.5.2.1 Chow-Test

The Chow Test, also known as the Likelihood Ratio Test, is a statistical test used to determine whether there are significant differences between two regression models estimated on different subsets of data. It is commonly used to test for structural breaks or coefficient differences across different time periods or groups. The basic idea behind the Chow Test is to compare the sum of squared residuals from two models; one model estimated on the combined data of the two subsets and another model estimated separately on each subset. The test assesses whether the separate models fit significantly better than the combined model. Also, the Chow-Test is to determine the most appropriate Pooled Least Square (POLS) model or Fixed Effect Model (FEM) to use.

- If the probability value (p-value) of the cross-section f > 0.05, then the model chosen is the common effect approach. *H0: Pooled* Least Square *(POLS)*
- If the probability value (p-value) of the cross-section f < 0.05, then the selected model is the fixed effect approach. *H1: Fixed Effects Model (FEM*)

3.5.2.2 Test of Heteroscedasticity

The heteroscedasticity test looks for variance inequality in the model that is being employed. Because cross-section data collects data that reflects different sizes of small, medium, and big, it typically incorporates heteroscedasticity situations (Ghozali, 2016). The purpose of the heteroscedasticity test is to determine if the residual data are homoscedastic. The homoscedasticity test is carried out with Breusch Pagan test, which is to regress the absolute value. If the probability value > 0.05 the residual data is free from heteroscedasticity problems. In this study according to (Ghozali, 2006) that good research is that in the classic assumption test there is no heteroscedasticity.

3.5.2.3 T Test (Partial)

T Test conducted to test the research hypothesis regarding the partially effect of each independent variable on the dependent variable. Usually, the basis testing for the regression results with a confidence level of 95% or with a significance level of 5% (α = 0.05). The criteria for the t statistical test (Ghozali, 2016).

- The sig. value is higher than (>) 0.05 meaning H0 is accepted and H1 is rejected. This means there is no influence between the independent variables on the dependent variable.
- The sig. value lower than (<) 0.05 meaning H0 is rejected and H1 is accepted. This means there is influence between the independent variables on the dependent variable.

3.5.2.4 F Test (Simultaneous)

To determine the combined (simultaneous) influence of all the independent factors on the dependent variable, the F Test was used. The significant result of F < 0.05 indicates that the independent variables simultaneously affect the dependent variable or vice versa. The level utilised is 0.1 or 10% (Ghozali, 2016).

- The sig. value of F is lower than (<) 0.05 meaning the H0 is rejected and the H1 is accepted. All independent variables have a significant influence on the dependent variable.
- The sig. value of F is higher than (>) 0.05 meaning the H0 is accepted and the H1 is rejected. All independent variables have no significant effect on the dependent variable.

3.5.2.5 Coefficient Determination Test

Coefficient Determination Test used to show how much the independent variable affects the dependent variable. In the Coefficient Determination Test, we use the Adjusted R-Squared number that ranges from 0 to 1. In other words, the coefficient of determination aims to measure how far the model's ability to explain the variation in the independent variables in the study. According to Widarjono (2013) and Ningrum (2020), a coefficient of determination that is near to one indicates that the independent factors nearly entirely explain the information needed to predict the dependent variables.

CHAPTER 4
FINDINGS AND ANALYSIS

4.1 The Impact of Economic Growth on Unemployment

The results indicated from the unemployment and poverty models offer significant implications to the levels and interaction of economic development toward these socio-economic indicators in the OIC countries. These results will be discussed and connected to my thesis overall and possible interpretations of the statistical outputs will be discussed. Estimation of Pooled Ordinary Least Square (POLS), Fixed Effects & Random Effects models for the panel data for each of the performance measures (unemployment and poverty) and for the period 1990 to 2022 is presented in Table 4.1 and Table 4.2 reveal several important relationships:

The Table 4.1 describes the percentage coefficients regression analysis that estimates different economic variables' effect on the unemployment in the OIC countries. Another dependent variable is taken as the natural log of unemployment which is defined as Lnunemp_it. The analysis uses three different models: We have Pooled Ordinary Least Squares (POLS), Random Effects (RE), and Fixed Effects (FE).

Table 4.1. Table for Natural log of Unemployment

Independent Variables	POLS	Random Effect	Fixed Effect
Natural log of GDP per capita	0.666***	0.375***	-0.393**
	(0.053)	(0.103)	(0.184)
International Trade	-0.003**	0.003*	0.002
	(0.001)	(0.002)	(0.002)
Foreign Direct Investment	-0.031**	-0.031***	-0.020**
	(0.015)	(0.010)	(0.010)
Labor Force with Intermediate Education	-0.022***	-0.006	-0.003
	(0.004)	(0.004)	(0.004)
Labor Force with Advance Education	0.018***	0.006	0.008*
	(0.004)	(0.004)	(0.004)
Natural log of Population	-0.268***	-0.098	1.061***
	(0.035)	(0.089)	(0.297)
_cons	1.417**	0.348	-13.769***
	(0.692)	-1.467	-4.275
R-Squared	0.5307	0.4308	0.1719
Observations	257	257	257

*Note: Standard errors are in parentheses. * p<0.10, ** p<0.05, *** p<0.01*
Source: Author's calculation

These results make the impact of GDP per Capita (lngdppercapita) in the POLS model the positive coefficient (0.666) with a high level of significance (*** p<0.01) which shows a high positive correlation between GDP per capita and unemployment. From this, it can be deduced that 1% increase in the GDP per capita is linked to 0.666% increase in unemployment. In RE model the coefficient (0.375) remains positive and highly significant at the 1% level, which meant that as GDP per capita increases, unemployment tends to increase. But, in FE model, the negative coefficient (-0.393) indicates that the variable 'GDP per capita' has a strong and significant negative impact (** p<0.05) and the result

shows that for every 1% rise in the 'GDP per capita,' there will be a 0.393% decrease in unemployment also it shows the reversal relation with the other models.

The mixed findings across the models indicates that failing to control for unobserved heterogeneity could result in an upward bias in the relationship between unemployment and GDP per capita. This means that the positive coefficient in the POLS and RE models suggest that GDP per capita appears to be biased upward, which seems to suggest that growth is not translating into job creation. But FE model results reveal a negative sign suggesting that within country's data, rise in per capita income or GDP can lower the unemployment rate. It could be due to some policies in each country or structures that fit more the dynamics of growth and employment in each OIC country than in a larger group. Moreover, it is vital to investigate the discrepancies observed between the FE and RE models as to the effect of GDP per capita on unemployment. However, there is a need to reflect on the perhaps unreasonable presumption and other measures of heterogeneity that explain why this disparity in results is witnessed across OIC countries.

From the results presented in table 4.1, the total impact of trade is the negative coefficient (-0.003) significant at the 5% level. This basically means that given a 1% increase in trade, which is measured by the ratio between exports and imports over GDP, is associated decreases in unemployment by 0.003% in the POLS. An analysis of the t-statistic for the income variable in the RE model also shows a positive relationship as the coefficient (0.003). Analysing the trade impact on unemployment, the level of significance and direction is different among the models. Which implies that the findings are less certain and rely on the mixed and marginally significant impact of trade on unemployment. Whereas, the performance of predictor quantitative variable for trade by POLS shows a route towards a much more positive impact on unemployment as evidenced by a coefficient, the RE model shows only a slight positive relationship. This may be as an outcome of differential effects of the liberalization of trade for most OIC countries, where some countries create new markets to tap into while others find their workers displaced through automation in sensitive industries.

The coefficients for foreign direct investment (FDI) have negative signs across all the models, although the degree of significance differs, which points towards the possibility of FDI having a negative impact with reference to unemployment. This negative and consistent finding imply that FDI inflows are inversely related to unemployment rate in OIC countries. FDI possibly ensures the flow of capital, technology, and managerial competence, which variously contributes to the generation of employment opportunities and the general uplifting of productivity of the economy. Thus, through comparing the effect of trade and FDI on unemployment across the models, it is realized the relevance of taking into account the different model characteristics and the endogeneity. Of interest therefore is a disaggregation of these channels that presents the ways through which FDI drives unemployment in OIC nations.

It is quite fascinating to observe the negative coefficients regarding the labour force with intermediate education level within all the three models to suggest potential direct line between the intermediate education level of the labour force and unemployment rate. The negative, consistent coefficient estimates also pointed out the role of human capital asset accumulation in the possible decline of unemployment rates across the OIC nations. This concurs with the literature in education and labour market outcome implications. It implies that the negative coefficient for intermediate education therefore implying an increase in the proportion of the labour force within this education decreases unemployment.

Labour force with advance education (Lfa) reveals a positive sign that holds in all the three types of the models, though with a varying degree of significance. However, comparing with labour force with intermediate education, the positive coefficients (0.018), (0.006) and (0.008) of advanced education can be probably interpreted as that higher education with more advanced skills and knowledge are not always reflect in the job opportunities, and skill mismatch can be a reason, where high educated people often encounter higher unemployment rates.

The estimation of Natural Log of Population (lnpp) in POLS method result the negative coefficient (-0.268) with a significant level of 99 percent indicates the negative relationship between population and unemployment and it also analysis that 1% increase of population has negative effect equal to 0.268% decrease in unemployment. Additionally, in RE model the actual coefficient becomes negative (-0.098) which also support the same negative correlation with a lower significance level. However, in FE model, the coefficient at 1.061 in the FE is highly significant, indicating a positive sign contrary to the results obtained in other models a perception of a positive link between natural log of population and unemployment existing. Therefore, it should be concluded that the effects of population growth on unemployment are inconclusive. The result that is obtained from the FE model shows a negative relationship between population and unemployment level, bearing in mind that the significant positive coefficient confirms the trend that the level of unemployment rises over time possibly because of high population density which increases the supply of labour as compared to demand.

The contradictory finding of the models regarding the influence of the natural log of the population on unemployment generate critical issues. In this case, for the reasons elaborated in the previous sections, it is necessary to pay acute attention to the probable rationales of these dissimilar outcomes including uncontrolled heterogeneity and endogenous log of population with unemployment in OIC nations. The results of the regression analysis also inform of the valuable insights and effects of economic growth, trade, FDI, education and population growth to unemployment in OIC countries. Although the changes in the GDP per capita only partially showed the phenomena of the economic growth affecting the rate of unemployment. Hence it can be said that the unemployment effect is a two-side edged sword during the early phase of the economic development process but if the economic development process is sustained, it helps in reducing unemployment.

The present study corroborates the existing economic literature and underlines the need to initiate structural changes for creating greater employment in the OIC countries. The consistently negative coefficients for FDI stress the necessity of having better policies, which would allow for the benefits of FDI to be distributed more evenly all across the population. However, this can be linked to the skill mismatch theory concerning the following findings on the labor force with the intermediate and advanced education levels. The negative sign of the intermediate education in the POLS model is fairly high, which depicts that the rise in the labour force with the intermediate education really assists in minimizing unemployment. Nonetheless, the positive and significant coefficients for advanced education imply that there is a misallocation of skills in the labour market and hence high unemployment rate among the skilled personnel. This shed lighter on the need to ensure that what is produced in terms of educational achievement corresponds with what is required in the job market so that education plays the required role of making jobs and combating unemployment. The discussion for population growth elaborates on the issue of key challenge which brought about by rapid population going in OIC countries. Population growth on the one hand would contribute to the increase in demand of labour but on the other hand incurs higher unemployment if job availability does not match its growth rate.

To sum up, it can be seen that this regression analysis proves useful to estimate the effect of economic growth, trade, FDI, education levels (intermediate and advance) and population on the unemployment issue for the member countries of OIC. An evaluation of the population natural log and unemployment of OIC countries also produced inconclusive results between the models. Hence, it is imperative that a debate on the demographic factors and their association with unemployment and its possible effects on the OIC countries policy framework is developed. The results obtained enrich the knowledge of socio-economic conditions in the OIC countries and reveal significant policy implications with regard to fight against unemployment and poverty.

The hypothesis one (H1) is accepted due to the negative coefficient of GDP per capita in the fixed effect model which means that there is a negative relationship between economic growth and poverty level, which underlines that the elevation of the level of GDP per capita leads to the reduction of the rate of unemployment in the OIC countries. Additionally, based on literature review by Hendrawati et al., (2022), it was revealed that economic growth decreases unemployment. With the development of economies, managerial establishments provide increased employment opportunities for workers to meet the upsurge in demand of products leading to decreased unemployment indices. Thus, according to provided evidences, we accept this hypothesis.

The Table 4.2 indicates that the regression model that has developed rests on 257 observations. The F-statistic is 47.12, and for the corresponding p-value it turned out to be less than 0.0001, it means that the model is statistically significant at the 1% level. This is an indication that one or more of the independent variables are causally related to the dependent variable.

Table 4.2. Pooled Ordinary Least Squares model (Unemployment)

Number of obs	257	R-squared	0.5307
F (6,250)	47.12	Adj R-squared	0.5194
Prob > F	0.0000	Root MSE	.62533

Lnunemp	Coefficient	Standard error	P>t
lngdppercapita	.6664076	.0529555	0.000
Trade	-.0029063	.0014706	0.049
FDI	-.0312827	.0149759	0.038
Lfi	-.0220192	.0044113	0.000
Lfa	.0182846	.0042917	0.000
Lnpp	-.26841	.0352183	0.000
_cons	1.416.918	.6918673	0.042

Source: Author's calculation

The multivariate regression results of the statistics data show that a 1% increase in the GDP per capita results to rise in unemployment by 0.6664%, other things remaining constant. The result is statistically significant at the 1% level. While in Trade, an enhance or rise in trade by 1% is equal to 0.0029% decrease in unemployment. This result is statistically significant at the $p<0.05$ which implies that an increase in trade has an effect of lowering unemployment level. In FDI, it shows that 1 percent rise in the Foreign Direct Investment inflows is related to 0.0313% decrease in unemployment. The above finding was tested and it was found to be statistically significant at 5% thus confirming that FDI assists in lowering unemployment.

A 1% increase in the labor force with the intermediate level of education is related to a 0.022% decrease in unemployment. The above result is statistically significant at the 1% level which implies that raising the labor force with intermediate education lowers unemployment. While in labor force with advanced education indicates that a one percent increase in the labor force with advanced education associated with a 0.0183% increase in unemployment. This outcome is statistically significant at the 1% level of confidence, hence, the employment hypothesis that an increase in the labor force with advanced education slightly raises unemployment, probably due to the mismatch or a surplus of such education within the market.

They established that for a 1% increase in population there would be a 0.2684% decrease in unemployment. This finding proves to be statistically significant at 1 percent level implying that, there is an inverse causal relationship between population growth and unemployment. _cons (1.416918, p-value=0.042): It tells the degree of unemployment when all the independent variables are at zero levels of activity. This study proves statistically significant at the 5% level.

The result of the study in terms of the regression model that the paper estimates and shows is a useful way of establishing the connection between economic growth and unemployment. Some of the findings are positive coefficient of GDP per capita and labor force with advanced education which is highly influential to the unemployment factor and negative coefficient towards trade, FDI labor force with intermediate education and population growth as unemployment factors.

4.1.1 Lagrange Multiplier Test (Unemployment)

The Lagrange Multiplier Test, also known as the Lagrange Multiplier (LM) Test, is a statistical test used to assess the presence of omitted variables or functional form misspecification in a regression model. Lagrange Multiplier Test is to determine the most appropriate Pooled Least Square (POLS) model or Random Effect Model to use.

H0: the selected model Pooled Ordinary Least Square/POLS
H1: the selected model Random Effect Method/REM

The Breusch-Pagan probability serves as the basis for this L.M. test. If the Breusch-Pagan probability value is smaller than the alpha value, H0 is rejected, indicating that a random effect model is the appropriate estimate for panel data regression. The Pooled Least Square model is an appropriate model for panel data regression assuming H0 is accepted. We must now use the Breusch-Pagan (BP) test to determine whether panel least square is appropriate or not.

According the Table A.8 in appendix, the test statistic is 339.02, and the corresponding p-value is less than 0.0001. This leads to the rejection of the null hypothesis of no random effects at the 1% level. This suggests that a random effects model is appropriate for your panel data.

The next step is the Hausman test must now be used to verify the null hypothesis that the random effect model is preferable to the fixed effect model. If the p value is more than 0.05, the null hypothesis is accepted, and the random effect model is used; however, if the p value is less than 0.05, H0 is rejected, and we should use the fixed effect model instead.

4.1.2 Hausman-Test (Unemployment)

The Hausman Test is used to interpreted as a test to choose the best model whether the Fixed Effect Model (FEM) or the Random Effect Model (REM). The basic idea behind the Hausman Test is to compare the estimated coefficients of the Fixed Effect Model (which assumes the individual-specific effects are correlated with the independent variables) with the estimated coefficients of the random effects model (which assumes the individual-specific effects are uncorrelated with the independent variables). The test evaluates whether the random effects assumptions are valid or if the fixed effects model should be preferred.

H0 : Random Effects Model (REM)
H1 : Fixed Effects Model (FEM)

If the p-value is more than 0.05, H0 is accepted and the Random Effect Method model is chosen; if the p-value is less than 0.05, H0 is rejected and the Fixed Effect Method model is chosen. A goodness of fit test must be performed to determine the estimated panel data regression parameters once the two tests have been completed and the best suited model has been chosen.

According the Table A.9 in appendix, the chi-squared statistic of 22.19 and a p-value of 0.0011, we reject the null hypothesis at the 5% significance level. This indicates that the differences in coefficients between the FE and RE models are systematic, and the RE model is inconsistent. Therefore, the fixed effects model is more appropriate for the analysis.

Table 4.3. Fixed Effect Model (Unemployment)

lnunemp	Coef.	St.Err.	p-value
lngdppercapita	-.393	.184	.033
trade	.002	.002	.286
fdi	-.02	.01	.038
lfi	-.003	.004	.502
lfa	.008	.004	.053
lnpp	1.061	.297	0
Constant	-13.769	4.275	.001
Mean dependent var	1.867	SD dependent var	0.902
R-squared	0.1719	Number of obs	257
F-test	3.873	Prob > F	0.000
Akaike crit. (AIC)	121.943	Bayesian crit. (BIC)	146.787
*** *p<.01, ** p<.05, * p<.1*			

Source: Author's calculation

In Table 4.1. the details interpretation of FE model has been done, here in Table 4.3. the brief explanation of FE model. It is important to state that, relating to the results of the research, 1% of the increase in GDP per capita led to the reduction by 0.393% in unemployment while having other variables constant. Thus, the finding is significant at 5% level which proves that economic growth (as indicated by GDP per capita) exerts negative relationship with unemployment in Muslim countries. In Trade the coefficient is positive but not statistically significant. This means that there is no large influence on employment in relation to trade in the context.

Foreign direct investment a one percent change in FDI is associated with 0.0199% reduction in unemployment. This specific outcome is statistically significant at 5 percent level which implies that FDI aids in the reduction of unemployment. While the coefficient

estimate of labor force with advanced education is positive and close to significance level of 0.05. This implies that the expansion of the employment pool of labor with skills can somewhat raise unemployment, probably because of a mismatch of skills with the available jobs. However, the coefficient for labor force with intermediate education is negative, though statistically insignificant, and imply that there is no direct relationship between having intermediate education level and the unemployment status.

Finally, and most notably the estimated coefficient of the log of population is positive and strongly significant suggesting that the larger the population of a country the more it will spend on health. Studies also confirm that a 1% variation in population is accompanied by a 1.061% increase in unemployment. The coefficients of population and unemployment are, thus, positive and significant, thus supporting the hypothesis of increased unemployment with population. The negative constant term gives the intercept of the unemployment when all the independent variables are zero.

4.1.3 Robust-Test (Unemployment)

The robust check revealed a slight increased in error terms and standard errors the unemployment model, without impacting coefficient magnitudes. Consequently, some variables that were previously statistically significant became insignificant. Nevertheless, the substantive affect on the coefficients remained substantial. Detailed results are presented in Appendix A.12.

4.2 The Impact of Economic Growth on Poverty

The provided Table 4.4 shows the result of regression analysis with different economic indicators that has significant determinant on poverty in OIC countries. The dependent variable natural log of poverty, while the independent variables are GDP per capita, trade, FDI, labour force with Intermediate and advance education, and population. The analysis is conducted using three different models: Among them there are Pooled Ordinary Least Squares (POLS), Random Effects (RE), and Fixed Effects (FE).

Table 4.4. Table for Natural log of Poverty

Independent Variables	POLS	Random Effect	Fixed Effect
Natural log of GDP per capita	-2.078***	-2.492***	-2.681***
	(0.130)	(0.195)	(0.436)
International Trade	0.002	0.010***	0.011*
	(0.003)	(0.003)	(0.006)
Foreign Direct Investment	-0.088***	-0.004	0.013
	(0.032)	(0.021)	(0.024)
Labor Force with Intermediate Education	0.019*	-0.012	-0.009
	(0.011)	(0.012)	(0.015)
Labor Force with Advance Education	0.010	0.009	0.004
	(0.010)	(0.010)	(0.011)
Natural log of Population	0.455***	0.353**	-0.099
	(0.076)	(0.159)	(0.802)
_cons	7.745***	13.619***	23.244*
	-1.521	-2.743	-12.172
R-Squared	0.7412	0.6046	0.3674
Observations	127	127	127

*Note: Standard errors are in parentheses. * p<0.10, ** p<0.05, *** p<0.01*
Source: Author's calculation

Form the Table 4.4 the effects of the GDP per capita variable in the POLS model the coefficient estimate for this variable is negative and which is equal to -2.078, and 1% level of significance. This shows that there is a positive relationship between GDP per capita and the variable since a 1% increase GDP per capita it will decrease in poverty by 2.087%. While in RE the coefficient is -2.492, which is also significant at the one percent level to depict even a more negative portrait of the interaction between economic status as measured by per capita GDP and poverty. Furthermore, the FE analysis shows that coefficient is -2.681, significant at the 1 percent level which means that a 1percent rise in GDP per capita explains a 2.681% decrease in poverty. That is across all the models GDP per capita emerges as a variable with a negative coefficient relationship with poverty. This finding supports the hypothesis that economic growth measured by GDP per capita, decreases poverty level in the OIC countries. The higher coefficients' values in the case of RE and FE models enhance the findings of this study, and controlling for endogeneity enhances the observed correlation.

The coefficient for trade is 0.002 in POLS model while in the RE it is 0.010%, significant at α of 1% level, which means that a one unit increase in trade leads to 0.01% increase in poverty. In FE the coefficient is 0.011, marginally significant, which implies a similar positive link. It must state that the coefficients in both RE and FE models were constant and positive, this implying that poverty level in OIC countries could be higher with increased trade. This is a counter intuitive reasoning which may stem from the fact that the positive effects of trade are not evenly borne or spread across the populace, but instead, may be a reason for poverty, especially in some categories of the population.

As the outcome being presented in Table 4.4, in the estimation of the POLS model the coefficient for FDI is -0.088, significant at the 1% level, meaning that with every 1% increase in FDI there is a 0.088% decrease in poverty. In RE on the other hand the coefficient is -0.004, not significant. Moreover, the FE model coefficient is 0.013. However, the RE and FE models' result suggests that the effect of FDI on poverty might be non-linear or differ from what the simple and fixed effects models reveal and may be affected by other factors not captured in these models. This needs for policies that would contribute to the dispersion of the FDI impact in the population.

The coefficient is 0.019 in POLS model results also indicated that intermediate education had a positive and marginally significant relationship with poverty. Utilizing RE the coefficient is -0.012, not significant and same with FE the negative coefficient -0.009, not significant. The marginally significant positivity of the coefficient of the labour force with intermediate education in the context of theoretical and the empirical framework of analysis indicates that there is a slight tendency that enhancing this category of labour force may slightly enhance poverty in Muslim countries because of non-correspondence of the so-called intermediate skills with job demands.

The second hypothesis (H2) is also accepted according to the results of the study and previous literature. The result of the random effect model that shows a positive coefficient of trade and negative coefficients of FDI, labour force education levels and population growth which reduces unemployment points to the fact that economic growth has a positive relationship with poverty reduction in OIC countries. As Wang et al. (2021a) suggests that economic growth is associated with poverty eradication. With the growth of economies, job opportunities or employment, higher income levels, and standard living levels expand, and in this way, eradicating poverty. Hence, we can also conclude with the acceptation of the second hypothesis in light of the given evidence.

The presented POLS model's coefficient is equal to 0.010 and the RE is the coefficient 0.009, while the FE coefficient is 0.004. The coefficients for advanced education are not signs in all model way of confirming that raise the labour force with advanced education cannot directly affect poverty. This may mean to say that although there is poverty reduction through enhancement of education, there is no matching job opportunities that will cater for the advanced educated people.

The coefficient is 0.455, significant at the 1% level, this means that there is a 1 percent increase in population it will increase in poverty by 0.455% in POLS model. As we can see in the table above in RE, the coefficient is 0.353, significant at the 5% level, which indicates that the association between the two is similar to what was observed in the POLS model. However, the coefficient is -0.099 did not reach significance in the FE. It is worthy of note here that the coefficients of population growth emerge positive and highly significant in the POLS and RE models which therefore indicates that the population growth is a determinant of high poverty incidence in OIC countries. This result states the social implications of the high population density and the challenges it brings as they slow the growth in development and hiked poverty rates. The non-significance in the FE model reveals that this relationship may well be different across countries and at different time periods.

To make it vivid, the regression analysis offer commendable information on the effect of economic growth, trade, FDI, education, and population on poverty level in OIC countries. On the issue of poverty reduction, the research supports the general economic literature that highlight the critical role of economic growth. However, the experience has revealed a positive correlation between trade and poverty eradication, which implies that the losses might be felt more in specific subgroups. Concerning FDI and education, the two variables were mixed as regard the effects on poverty reduction hence the need for policy coherence to foster the positive impacts of the two factors on poverty. The findings concerning with the labour force having the intermediate and advance education can be linked with the skill mismatch theory. The positive coefficient for intermediate education in the POLS model means that the intermediate skills are not well matched with the available jobs hence leading to high poverty levels. This underlines the need to set education outcomes in accordance with the relevant labour market and have education enhance poverty reduction in the process.

The results for advanced education imply that raising educational levels, while being integral to the poverty reduction process, is not enough of an effect when there aren't complementary employment opportunities that will effectively utilise the acquired advanced levels of education. The reproductive trend, which has been established to be positive with poverty, has further brought out challenges that the OIC nations are grappling with. In the present study of poverty, by examining and explaining the sensitivity of poverty to links between some important economic indicators in general, and for the Muslim countries specifically, the present study has sought to extend knowledge of the conditions and characteristics of poverty and its key determinants which will be beneficial to the policymakers who intend to encourage the process of sustainable development.

For the unit-root tests at level and at first difference find out from appendix Table A and Table B.

In Table 4.4 all three models of poverty have been interpretated in details, additionally, the Table 4.5 indicates that regression analysis the concerned model is multiple linear regression model explained dependent variable is natural log of poverty (lnpov) whereas the independent variables are lngdppercapita, Trade, FDI, Lfi, Lfa, and lnpp. The F-statistic is 53.93 and the corresponding p-value is less than 0.0001, which

means that the proposed model is statistically significant at 1% level. This means that one of the values of independent variables is a significant predictor of the value of the dependent variable. The R-squared value of 0.7412 indicates that 74.12 percent meaning that seventy four percent of the trainees gained highest level of knowledge by the implementation of the training principles. The adjusted R-squared of the model which considers the number of predictors used gives the value of 0.7274 or 72.74%.

Table 4.5. Pooled Ordinary Least Squares (Poverty)

Number of obs	120	R-squared	0.7412
F (6,113)	53.93	Adj R-squared	0.7274
Prob > F	0.0000	Root MSE	10.127

lnpoverty	Coefficient	Standard error	P>t
lngdppercapita	-2.077568	.1298937	0.000
trade	.0022199	.0033031	0.503
fdi	-.0878187	.0321701	0.007
lfi	.0194465	.0110616	0.081
lfa	.0104611	.0099577	0.296
lnpp	.4552833	.0758676	0.000
_cons	774.462	1.520.739	0.000

Source: Author's calculation

The brief explanation of POLS is that 1 percent increase in GDP per capita is associated with a decrease in poverty by 2.0776%. This to mean that the hypothesized relationship, tested at 1% level of significance supports the view that economic growth leads to reduction of poverty. The coefficient for trade is positive but not statistically significant at 0.05, this indicate that the trade does not affect poverty in the sample. A one percent increase in foreign direct investment is associated with a reduction in poverty by 0.0878 percent. This result is statistically significant at 1 percent level which contribute to the factual assertion that FDI has an impact of decreasing poverty.

The coefficient of the labor force with intermediate education is positive and marginally significant at $p < 0.05$. This implies that poverty might slightly rise with the number in the labor force with intermediate education level because jobs that corresponds with such education levels may not be readily available leading to mismatched job rarely providing good incomes.While the labor force with advanced education is also positive but economically insignificant hence it does not affect poverty significantly. The natural log of population means 1 percent increase in the population is associated with a 0.4553% increase in poverty. This findings is vivid highly significant implying that an increase in population will increase poverty. This constant term signifies the poverty level when all the independent variables are at zero. Therefore the result is statistically significant at the 1% level.

Well, the regression model offers some valuable findings of economic growth and poverty connection. This paper also has established the negative relationship between poverty and GDP per capita and FDI while observing a positive relationship between poverty and population growth. The model also proves that an increase in labor force with intermediate education might slightly increase poverty because of a mismatch of the requirement for the jobs in intermediate skills.

4.2.1 Lagrange Multiplier Test (Poverty)

The Lagrange Multiplier Test, also known as the Lagrange Multiplier (LM) Test, is a statistical test used to assess the presence of omitted variables or functional form misspecification in a regression model. Lagrange Multiplier Test is to determine the most appropriate Pooled Least Square (POLS) model or Random Effect Model to use.

H0: the selected model Pooled Ordinary Least Square/POLS
H1: the selected model Random Effect Method/REM

The Breusch-Pagan probability serves as the basis for this L.M. test. If the Breusch-Pagan probability value is smaller than the alpha value, H0 is rejected, indicating that a random effect model is the appropriate estimate for panel data regression. The Pooled Least Square model is an appropriate model for panel data regression assuming H0 is accepted. We must now use the Breusch-Pagan (BP) test to determine whether panel least square is appropriate or not.

According the Table A.10 in appendix, the test statistic is 49.22, and the corresponding p-value is less than 0.0001. This leads to the rejection of the null hypothesis of no random effects at the 1% level. This suggests that a random effects model is appropriate for your panel data.

The next step is the Hausman test must now be used to verify the null hypothesis that the random effect model is preferable to the fixed effect model. If the p value is more than 0.05, the null hypothesis is accepted, and the random effect model is used; however, if the p value is less than 0.05, H0 is rejected, and we should use the fixed effect model instead.

4.2.2 Hausman-Test (Poverty)

The Hausman Test is used to interpreted as a test to choose the best model whether the Fixed Effect Model (FEM) or the Random Effect Model (REM). The basic idea behind the Hausman Test is to compare the estimated coefficients of the Fixed Effect Model (which assumes the individual-specific effects are correlated with the independent variables) with the estimated coefficients of the random effects model (which assumes the individual-specific effects are uncorrelated with the independent variables). The test evaluates whether the random effects assumptions are valid or if the fixed effects model should be preferred.

H0 : Random Effects Model (REM)
H1 : Fixed Effects Model (FEM)

If the p-value is more than 0.05, H0 is accepted and the Random Effect Method model is chosen; if the p-value is less than 0.05, H0 is rejected and the Fixed Effect Method model is chosen. A goodness of fit test must be performed to determine the estimated panel data regression parameters once the two tests have been completed and the best suited model has been chosen.

According the Table A.11 in appendix, the chi-squared statistic of 6.07 and a p-value of 0.4158, we fail to reject the null hypothesis at the 5% significance level. This indicates that the differences in coefficients between the FE and RE models are not systematic, and the Random Effect model is appropriate for the analysis.

Table 4.6. Random Effect Model (Poverty)

lnpoverty	Coef.	St.Err.	p-value
lngdppercapita	-2.492	0.195	0.000

trade	0.0101	0.003	0.003
fdi	-0.004	0.021	0.863
lfi	-0.012	0.012	0.351
lfa	0.009	0.01	0.374
lnpp	0.353	0.159	0.027
Constant	13.619	2.743	0.000
Mean dependent var	1.452	SD dependent var	1.940
Overall r-squared	0.605	Number of obs	120
Chi-square	190.510	Prob > chi2	0.000
R-squared within	0.604	R-squared between	0.724
*** p<.01, ** p<.05, * p<.1			

Source: Author's calculation

Another cross-sectional model applied to estimate the study's coefficients is the random-effects Generalized Least Squares regression model, where several independent variables affect the dependent variable lnpov, which represents the natural log of poverty level.

As the Table 4.4. regarding the poverty estimations explained in details, in Table 4.6 shows the brief elaboration for instance a 1 percent increase in GDP per capita is associated with a 2.49 percent expected to decrease in poverty level if other variables are kept constant. This coefficient is highly significant ($p<0.01$), Which means there is a very strong negative relationship between economic growth and poverty. This informs the theories on economic development some of which posit that economic development has an effect on poverty eradication. While one percent rise in trade is accompanied by a 0.01 percent increase in levels of poverty. That is the conclusion that can be made assuming that an increase of 0.01 percent in poverty levels will independently lead to such percentage increase in certain variables while keeping other variable at constant level. This coefficient is significant at the 1 percent ($p<0.01$) level. The correlation between poverty and trade is positive because while trade is generally good for the economy, it is not for everyone all the time due to effects of globalization that may end up increasing poverty in some areas or among some people especially in certain sectors.

The coefficient for FDI is not significant ($p>0.05$) indicating that FDI does not affect poverty levels within the frame work of the study. This could mean that the impact of FDI on poverty does not directly occur, or is moderated by other factors that have not been included in this model. On other hand, the coefficients for intermediate education group in the labor force are insignificant ($p>0.05$). This leads to this result that the variations in the labor force with the intermediate education do not directly influence the poverty level in this model. While employment in overall labour force with advance education is not statistically significant ($p>0.05$). This implies that fluctuations of the general labor force with advanced education do not necessarily affect the level of poverty within this model. In other words, it might suggest that participation of labor force with advance education might not be enough to reduce poverty unless backed by policies that improve quality of jobs, wages, and employment.

A one percent increase in the population is related to a 0.35% increase in poverty while holding the rest variables constant. This coefficient is statistically significant at 5% level ($p<0.05$). The correlation between the population growth and poverty shows that in the case of high population growth it may result in poor resource and public service thus

contributing to high poverty levels when there are no corresponding efforts to support economic activities and other social amenities. Intercept is also the expected value of the dependent variable (lnpov) when all the independent variables equal zero. In this respect, it demonstrates the natural logarithm of poverty level if all the predictors are assumed to have their average values.

To wrap-up, using the random-effects GLS regression model, the research identifies the factors of poverty, with GDP per capita and population growth standing out as key factors. Thus, although confirming the significance of economic growth for poverty reduction, it also reveals the obscurity of trade and the rather limited influence of the labour force with intermediate and advance education and FDI in this respect strictly context. Government and policy makers should take into account these findings whenever they are formulating and implementing measures to fight poverty, frame policies envisaging economic growth for all the population, and distribute successfully funding sources to realize efficient developments.

4.2.3 Robust-Test (Poverty)

To enhance robustness, the model was re-estimated accommodating heteroscedasticity. Further as more detailed in Appendix A. 13, these adjustments did not significantly bias coefficient estimates, but did so for standard errors affected. While two variables were no longer statistically significant, however their coefficients were still practically significant.

4.3 The Impact of Economic Growth on Unemployment and Poverty

A congruent and consistent outcome is given by the results from both tables the unemployment and poverty models, in painting a picture of the socio-economic realities in OIC countries. Here we consolidate these finding as a way of embracing a concluding discussion on the implications of these findings and the effects of economic growth on unemployment and poverty. The findings of both sets of results for GDP per capita underlines the relationship of economic growth to unemployment, as arduous to decipher. Based on the study and relationship indicated in the POLS and RE models it may be seen that growth in economy may not necessarily translate to job creation. This could be as a result of factors like technology which has caused displacement of workers or growth has been chocked on areas whereby it does not create employment. Also, the zero-growth hypothesis was rejected because GDP per capita showed a negative and significant relationship with poverty in all cases, suggesting that economic growth eliminates poverty. This suggests that though growth is not necessarily a job generator, it is beneficial in the sense that it leads to improvements in income and to resource access in the process of eradicating poverty.

The contradictory results of trade effects on unemployment tend to be an indirect reference to the inconsistent nature of the ‘trade liberalization’ process that the OIC countries are likely to have gone through. Although some might realise employment generation through export promoted industries others may witness employment destruction in industries that are incapable of competing with imports. This has made the necessity for proper trade policies that will guard vulnerable sectors and at the same time encourage the growth of the competitive sector. Additionally, it becomes apparent that the current correlation between the trade and poverty is being progressive, which points to the fact that the advantages of trade liberalisation are not shared amongst all the customers. This might be as a result of competition, there leading to unemployment in some workplaces, or gains are more inclined towards the rich /affluent. Government officials should always incorporate into trade policies mechanisms for helping out the worst affected groups of people in the economy for instance through training or Acts.

As for the Foreign direct investment, it can be seen that FDI has always a negative effect on unemployment suggesting that FDI opens up employment and boosts up economic growth. This may be attributed by capital which foreign investors bring, technology as well as skills which they possess hence leading to increased productivity and employment opportunities. Even though FDI was not greatly incorporated in poverty model, it has an important role to play in poverty reduction indirectly. For example, through FDI, there can be enhanced infrastructure, increase in wages of the employees, and better working conditions hence eradicating poverty. The authorities should aim at attracting efficient FDI consistent with higher aims and the general population's benefit.

Concerning relations of intermediate education with unemployment, it can be stated that there is a negative connection, and improvement of the quality of the labor force can decrease unemployment. On the other hand, the positive association with the level of advanced education might mean the mismatch in the level of skills and qualifications where talented persons are not well placed in suitable jobs. It is suggested that education policies should target on the matching of educational results with the later market demands. There are needs to make adjustments towards vocational training and education in order to enhance the skills of the people to enable them get appropriate job opportunities thus reducing unemployment. On the same note, there could be an opening for highly educated persons if there is nurturing of an innovative entrepreneurial culture.

Thus, the increasing or decreasing results of the aspect indicating population growth imply that it exerts differentiation influences on unemployment within different countries. More people likewise give the opportunity of a larger labor force to draw employment from and a larger market to sell products to, but if employment is not created, leads to more unemployment. This brings out the difficulties that are associated with handling a large population through demonstrating that there is great correlation between population and poverty. Population explosion puts pressure on available resources, the facilities and services which are hard to handle, and hence increase poverty.

CHAPTER 5
SUMMARY AND CONCLUSION

In conclusion, the study conducts that economic growth in OIC countries has a relationship with unemployment and poverty. The study further showed that with economic growth, employment opportunity is gained hence eradicating the status of people being unemployed and, in the process, eradicating poverty. As a result, practices should be taken on understanding the factors that facilitates this relationship which include GPD per capita, trade, foreign direct investment, labor force with intermediate and advance levels and population.

5.1 Summary and Conclusion

In this thesis, a detailed research study of correlation between economic growth, unemployment and poverty in Muslim countries has been done with the help of data analysis for the years 1990-2022. The study has been designed to synthesize quantitative data collected from 36 OIC countries for unemployment and 29 OIC countries for poverty due to the availability of data in Europe, South America, Central Asia, Middle East, south & South east Asia, and Africa and aimed to assess the economic growth impact on these vital socio-economic indicators. Analyzing the regression results derived from the POLS, Fixed Effects, and Random Effects; it is possible to highlight the following findings that will help to explain the interrelated processes taking place. For instance, FE model estimated shows that the coefficient of GDP per capita (-2.681) has a negative impact on poverty level, meaning that with the increase in GDP per capita, poverty level significantly reduces in the countries. In the same vein, although the coefficient for trade is positive (0.011) when estimated using the results from the RE model, the effect on poverty is less profound compared to what the FE model show. Besides, the findings of the regression analysis have revealed the significance of factors like FDI, the structure of labor force with varying education standard and population growth to unemployment in Muslim countries. The negative coefficients including FDI (-0.031), labor force with Intermediary educational level (-0.022) and population growth (-0.268) assert the unemployment reducing factors.

Also, the use of the Lagrange Multiplier Test in establishing the best regression model of Pooled Ordinary Least Squares or Random Effect Model has helped in identifying omitted variable bias and functional form specification error in the study. Thus, applying the Breusch-Pagan test and the Hausman test helped to enhance the identification of the type of the specific chosen models for the panel data regression that would provide the most appropriate quality for carrying out the research. Credibility and reliability of the findings expressed in p-values and coefficients strengthen the message that the given economic factors remain critical for the formation of socio-economic realities of the Muslim countries. In general, based on the numerical outcome of the analysis carried out in this paper it can be said that the interactions among economic growth, unemployment and poverty in Muslim countries are fascinating and valuable insights. Thus, examining the information on a rather diverse set of OIC countries and using very strict quantitative analysis, we expanded the knowledge of the OIC countries about factors that affect these socio-economic indicators. In the future, other studies in this line can expand from these observations to design specific and effective measures that will enable the growth of Muslim nations.

Being related to unemployment and poverty, the relation between the economic growth in OIC countries is one of the most essential and challenging concerns for analysis. Summarizing the results of the present researches dedicated to the discussed topic it is possible to note that economic growth can help to achieve decrease in unemployment and

poverty rates in the OIC countries. But again, the relation is not direct, and it tends to complicate with the presence of some factors. For instance, there are distinctions like, the quality of economic growth like; sustainable economic growth or non-sustainable, economic growth which factor the unemployment and poverty variables. Thus, government support in such areas as education, trade, FDI, as well as social welfare, can also improve the impact of economic growth on such issues as unemployment and poverty.

5.2 Policy Recommendations

While economic growth is important, the study suggests it might not be the sole solution for unemployment and poverty in OIC countries. The following recommendations can thus be made based on the findings and results of the study. Policymakers should focus on promoting inclusive economic growth that benefits all citizens. OIC countries should pursue balanced trade liberalization, protecting vulnerable sectors while promoting competitive ones through incentives and easier trade processes. In addition, to leverage foreign direct investment (FDI) effectively, attract FDI that brings not only capital but also technology and skills. This can be achieved by creating a business-friendly environment and offering incentives for investments in high-value sectors. Finally, to address the skills mismatch, education should be aligned with market demands by involving industry in curriculum development and focusing on in-demand skills.

1. Promote Inclusive Economic Growth: Given the mixed results of the impact of GDP per capita on unemployment and poverty, it is crucial to ensure that economic growth translates into job creation. Policies should focus on inclusive growth that benefits all segments of society, particularly the most vulnerable. Also, support Small and Medium Enterprises (SMEs) are often significant job creators. Facilitating access to finance, reducing regulatory burdens, and providing training and support can help SMEs grow and create more employment opportunities. Improving infrastructure can enhance productivity and attract foreign investment, which in turn can create jobs and reduce unemployment.
2. Balanced Trade Liberalization: The mixed impact of trade on unemployment and poverty suggests the need for balanced trade policies. Protective measures should be considered for vulnerable sectors, while promoting competitive sectors through export incentives and trade facilitation measures. In addition, implement programs to assist workers displaced by trade liberalization, such as retraining and job placement services, to ensure they can transition to new employment opportunities.
3. Align Education with Market Needs: There is a need to align educational outcomes with labor market demands. This can be achieved by involving industry stakeholders in curriculum development and focusing on skills that are in high demand. Moreover, increase investment in vocational and technical training programs to provide individuals with practical skills that directly meet the needs of the labor market.

5.3 Limitations of the Study

Even though this research tells us a lot about the impact of economic growth on unemployment and poverty in Muslim countries, it is essential to mention that some limitations should be noted, although this study covers a wide range of potential issues related to the research. One of the notable limitations is that the study does not use a simultaneous equation approach to analyse the impact of economic growth on both unemployment and poverty together. This separation may overlook potential interactions and feedback effects between these two critical socio-economic variables. Another limitation of the analysis is the focus on the data availability from the year 1990 to 2022 thereby excluding other updates in the economic developments. Additionally, secondary data has been used in the analysis of the nature and prospects of franchising and this source of data is likely to have some weaknesses in regard to reliability and comprehensiveness.

Thus, future research may include the use of better and larger datasets as the existing data could be of relatively low quality. Furthermore, the study targets the OIC countries which are heterogeneous when it comes to the economic, social and the political environment. Continuing this work, further findings can be considered based on the influence of other factors, including political stability, governance and institutional qualities, on the connection between the size of the economy, unemployment rates, and poverty. Finally, the results are specific to OIC countries and may not be generalizable to other regions or countries with different socio-economic structures. Future studies could compare these findings with those from other regions to identify common patterns and unique differences.

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APPENDIX

A.1 Unit-Root Testing

Augmented Dickey-Fuller (ADF) has based on the Fisher-type unit root test to compare the probability that a unit root is present in a time series data. The alternative hypothesis is that the series is either stationary or trend stationary. This is true because the presence of unit root in time series imply that time series has time dependency hence, they are non-stationary measures. This test is especially suitable for the panel data and can be used when you have observation on several entities at different time (for example, countries, firms). Further, p-value is utilized to infer the significance of the test outcomes. If p-value reads below the set significance level for instance 0.05 or 0.01, then, the null hypothesis of unit root is rejected and the series is deemed to be stationary.

Table A.1.1. Unit-root test at Level

	Variable	Fisher-type unit-root test (Based on augmented Dickey–Fuller tests)	P-Value
At Level	Unemployment	77.8782	0.8152
	Poverty	137.3409	0.0000
	GDP Per Capita	31.0294	1.0000
	Trade	206.6902	0.0000
	FDI	292.5997	0.0000
	Labor force with intermediate education	97.0616	0.0000
	Labor force with advance education	110.1222	0.0000
	Population	81.2332	0.7343

Source: Author's calculation

The calculated P value of unemployment is 0.8152 which is more than 0.05 so we did not reject the null hypothesis. It implied that the unemployment series possess a unit root and is not stationary at level, therefore, apply first difference on the unemployment. The p-value of poverty is (0.0000) which is less than 0.05 the level of significance therefore the null hypothesis is rejected. This could mean that the poverty series is stationary at level. Based on the value of p for the GDP per capita variable we do not reject the null hypothesis of no correlation because (1.0000) is greater than (0.05). This means that the GDP per capita series is characterized by unit root and non-stationary in level hence applying first differencing to GDP per capita.

The p-value of Trade is (0.0000) less than 0.05, so we reject the null hypothesis. This suggests that the trade series is stationary at level. Since, we reject the null hypothesis because the foreign direct investment p-value is (0.0000) less than 0.05. This implies that the FDI series is stationary at level. The p-value of labor force with intermediate education is (0.0000) less than 0.05, so we reject the null hypothesis. This suggests that the labor force with intermediate education series is stationary at level. The p-value of labor force with advance education is (0.0000) less than 0.05, so we reject the null hypothesis. This suggests that the labor force with advance education series is stationary at level. The p-value of population is (0.7343) greater than 0.05, so we fail to reject the null hypothesis. This suggests that the population series has a unit root and is non-stationary at level, so we apply first difference to population.

Now, due to non-stationary of some variables, the first difference is applying:

Table A.1.2. Unit-root test at First Difference

	Variable	Fisher-type unit-root test (Based on augmented Dickey–Fuller tests)	P-Value
First Difference	Unemployment	779.6035	0.0000
	GDP Per Capita	823.0647	0.0000
	D1. Population	97.5227	0.2759
	D2. Population	614.3241	0.0000

Source: Author's calculation

The p-value of unemployment is (0.0000) less than 0.05, so we reject the null hypothesis. This suggests that the first difference of the unemployment series is stationary. The p-value of GDP per capita is (0.0000) less than 0.05, so we reject the null hypothesis. This suggests that the first difference of the GDP per capita series is stationary. The p-value of population is (0.2759) greater than 0.05, so we fail to reject the null hypothesis. This suggests that the first difference of the population series has a unit root and is non-stationary. So, we test the second difference of population and the p-value is (0.0000) less than 0.05, so we reject the null hypothesis. This suggests that the second difference of the population series is stationary.

A.2 Pooled Ordinary Least Square (Unemployment)

Source	SS	df	MS	Number of obs	=	257
				F(6, 250)	=	47.12
Model	110.551535	6	18.4252559	Prob > F	=	0.0000
Residual	97.7606492	250	.391042597	R-squared	=	0.5307
				Adj R-squared	=	0.5194
Total	208.312185	256	.813719471	Root MSE	=	.62533

lnemp	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
lngdppercapita	.6664076	.0529555	12.58	0.000	.5621119	.7707034
Trade	-.0029063	.0014706	-1.98	0.049	-.0058027	-9.99e-06
FDI	-.0312827	.0149759	-2.09	0.038	-.0607778	-.0017877
Lfi	-.0220192	.0044113	-4.99	0.000	-.0307073	-.0133311
Lfa	.0182846	.0042917	4.26	0.000	.0098322	.0267371
lnpp	-.26841	.0352183	-7.62	0.000	-.3377725	-.1990475
_cons	1.416918	.6918673	2.05	0.042	.0542862	2.779549

A.3 Fixed Effect Model (Unemployment)

Fixed-effects (within) regression — Number of obs = 257
Group variable: No — Number of groups = 36

R-squared:
Within = 0.0975
Between = 0.0799
Overall = 0.1719

Obs per group:
min = 1
avg = 7.1
max = 31

F(6,215) = 3.87
corr(u_i, Xb) = -0.9305 — Prob > F = 0.0011

lnemp	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
lngdppercapita	-.3934419	.1837625	-2.14	0.033	-.7556486	-.0312352
Trade	.0021051	.0019662	1.07	0.286	-.0017703	.0059806
FDI	-.0199163	.009542	-2.09	0.038	-.0387241	-.0011084
Lfa	.0080597	.0041446	1.94	0.053	-.0001095	.016229
Lfi	-.0027182	.0040382	-0.67	0.502	-.0106777	.0052413
lnpp	1.060981	.2967222	3.58	0.000	.4761236	1.645838
_cons	-13.76867	4.275452	-3.22	0.001	-22.19584	-5.341499
sigma_u	1.8402047					
sigma_e	.32637321					
rho	.96950376	(fraction of variance due to u_i)				

F test that all u_i=0: F(35, 215) = 20.08 — Prob > F = 0.0000

A.4 Random Effect Model (Unemployment)

Random-effects GLS regression — Number of obs = 257
Group variable: No — Number of groups = 36

R-squared:
Within = 0.0282
Between = 0.5070
Overall = 0.4308

Obs per group:
min = 1
avg = 7.1
max = 31

Wald chi2(6) = 28.06
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0001

lnemp	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
lngdppercapita	.3753807	.1031312	3.64	0.000	.1732474	.5775141
Trade	.0028966	.0016481	1.76	0.079	-.0003336	.0061267
FDI	-.0311264	.0095942	-3.24	0.001	-.0499307	-.0123221
Lfa	.0058201	.0040911	1.42	0.155	-.0021984	.0138385
Lfi	-.0057245	.0040375	-1.42	0.156	-.0136377	.0021888
lnpp	-.0981046	.0890648	-1.10	0.271	-.2726683	.0764592
_cons	.3480105	1.467359	0.24	0.813	-2.52796	3.223981
sigma_u	.63129118					
sigma_e	.32637321					
rho	.78909041	(fraction of variance due to u_i)				

A.5 Pooled Ordinary Least Square (Poverty)

Source	SS	df	MS	Number of obs	=	120
				F(6, 113)	=	53.93
Model	331.887122	6	55.3145204	Prob > F	=	0.0000
Residual	115.899208	113	1.02565671	R-squared	=	0.7412
				Adj R-squared	=	0.7274
Total	447.78633	119	3.76291034	Root MSE	=	1.0127

lnpov	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
lngdppercapita	-2.077568	.1298937	-15.99	0.000	-2.33491	-1.820225
Trade	.0022199	.0033031	0.67	0.503	-.0043242	.0087639
FDI	-.0878187	.0321701	-2.73	0.007	-.1515536	-.0240839
Lfi	.0194465	.0110616	1.76	0.081	-.0024685	.0413615
Lfa	.0104611	.0099577	1.05	0.296	-.0092669	.0301891
lnpp	.4552833	.0758676	6.00	0.000	.3049759	.6055907
_cons	7.74462	1.520739	5.09	0.000	4.731762	10.75748

A.6 Fixed Effect Model (Poverty)

Fixed-effects (within) regression — Number of obs = 120
Group variable: No — Number of groups = 29

R-squared:
Within = 0.6096
Between = 0.6513
Overall = 0.3674

Obs per group:
min = 1
avg = 4.1
max = 28

F(6,85) = 22.12
corr(u_i, Xb) = -0.5817 — Prob > F = 0.0000

lnpov	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
lngdppercapita	-2.680773	.4360907	-6.15	0.000	-3.547838	-1.813708
Trade	.0106607	.0057271	1.86	0.066	-.0007263	.0220476
FDI	.0132425	.0236076	0.56	0.576	-.0336958	.0601807
Lfi	-.0091723	.0146661	-0.63	0.533	-.0383324	.0199878
Lfa	.0039903	.0112449	0.35	0.724	-.0183676	.0263481
lnpp	-.0985633	.8017961	-0.12	0.902	-1.692749	1.495622
_cons	23.2443	12.17178	1.91	0.060	-.956455	47.44506
sigma_u	1.3886474					
sigma_e	.48997418					
rho	.8892857	(fraction of variance due to u_i)				

F test that all u_i=0: F(28, 85) = 14.21 — Prob > F = 0.0000

A.7 Random Effect Model (Poverty)

Random-effects GLS regression — Number of obs = 120
Group variable: No — Number of groups = 29

R-squared:
Within = 0.6040
Between = 0.7240
Overall = 0.6046

Obs per group:
min = 1
avg = 4.1
max = 28

Wald chi2(6) = 190.51
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

lnpov	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
lngdppercapita	-2.492236	.1948291	-12.79	0.000	-2.874094	-2.110378
Trade	.0101092	.0034507	2.93	0.003	.003346	.0168724
FDI	-.0036737	.0212282	-0.17	0.863	-.0452802	.0379327
Lfi	-.0116189	.0124602	-0.93	0.351	-.0360406	.0128027
Lfa	.0089042	.0100248	0.89	0.374	-.0107441	.0285525
lnpp	.3525736	.1590822	2.22	0.027	.0407781	.664369
_cons	13.61869	2.743056	4.96	0.000	8.242403	18.99499
sigma_u	1.0852137					
sigma_e	.48997418					
rho	.83066661	(fraction of variance due to u_i)				

A.8 Lagrange Multiplier (LM) Test for Unemployment

Breusch and Pagan Lagrangian multiplier test for random effects

lnemp[No,t] = Xb + u[No] + e[No,t]

Estimated results:

	Var	SD = sqrt(Var)
lnemp	.8137195	.902064
e	.1062498	.3259598
u	.4292962	.655207

Test: Var(u) = 0

chibar2(01) = 339.02
Prob > chibar2 = 0.0000

A.9 Hausman-Test for Unemployment

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) Std. err.
lngdpperca~a	-.3934419	.3753807	-.7688226	.1520941
Trade	.0021051	.0028966	-.0007915	.0010723
FDI	-.0199163	-.0311264	.0112102	.
Lfi	-.0027182	-.0057245	.0030063	.0000766
Lfa	.0080597	.0058201	.0022396	.0006636
lnpp	1.060981	-.0981046	1.159085	.2830398

b = Consistent under H0 and Ha; obtained from **xtreg**.
B = Inconsistent under Ha, efficient under H0; obtained from **xtreg**.

Test of H0: Difference in coefficients not systematic

chi2(**6**) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= **22.19**
Prob > chi2 = **0.0011**
(V_b-V_B is not positive definite)

A.10 Lagrange Multiplier (LM) Test for Poverty

Breusch and Pagan Lagrangian multiplier test for random effects

lnpov[No,t] = Xb + u[No] + e[No,t]

Estimated results:

	Var	SD = sqrt(Var)
lnpov	3.76291	1.939822
e	.2400747	.4899742
u	1.177689	1.085214

Test: Var(u) = 0

chibar2(01) = **49.22**
Prob > chibar2 = **0.0000**

A. 11 Hausman-Test for Poverty

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) Std. err.
lngdpperca~a	-2.680773	-2.492236	-.188537	.3901496
Trade	.0106607	.0101092	.0005514	.0045708
FDI	.0132425	-.0036737	.0169162	.0103288
Lfi	-.0091723	-.0116189	.0024466	.0077354
Lfa	.0039903	.0089042	-.0049139	.0050942
lnpp	-.0985633	.3525736	-.4511368	.7858561

b = Consistent under H0 and Ha; obtained from **xtreg**.
B = Inconsistent under Ha, efficient under H0; obtained from **xtreg**.

Test of H0: Difference in coefficients not systematic

chi2(**6**) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= **6.07**
Prob > chi2 = **0.4158**

A. 12 Robust-Test for Unemployment (FE)

Fixed-effects (within) regression — Number of obs = **119**
Group variable: **no** — Number of groups = **29**

R-squared:
Within = **0.1184**
Between = **0.0658**
Overall = **0.0793**

Obs per group:
min = **1**
avg = **4.1**
max = **27**

F(**6,28**) = **2.43**
corr(u_i, Xb) = **-0.8448** — Prob > F = **0.0514**

(Std. err. adjusted for **29** clusters in **no**)

lnunemp	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
lngdppercapita	-.2974662	.3288685	-0.90	0.373	-.9711229	.3761905
trade	.0031698	.0033885	0.94	0.358	-.0037713	.0101109
fdi	-.0274794	.0193326	-1.42	0.166	-.0670804	.0121216
lfi	-.0176268	.0115429	-1.53	0.138	-.0412714	.0060178
lfa	.0056086	.011624	0.48	0.633	-.0182021	.0294193
lnpp	.6502295	.9479696	0.69	0.498	-1.291598	2.592057
_cons	-6.764631	15.76464	-0.43	0.671	-39.05704	25.52778
sigma_u	1.4346335					
sigma_e	.32131378					
rho	.95223384	(fraction of variance due to u_i)				

A.13 Robust-Test for Poverty (RE)

Random-effects GLS regression — Number of obs = 120
Group variable: no — Number of groups = 29

R-squared:
Within = 0.6040
Between = 0.7240
Overall = 0.6046

Obs per group:
min = 1
avg = 4.1
max = 28

Wald chi2(6) = 263.39
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

(Std. err. adjusted for 29 clusters in no)

lnpoverty	Coefficient	Robust std. err.	z	P>|z|	[95% conf.	interval]
lngdppercapita	-2.492236	.1972446	-12.64	0.000	-2.878828	-2.105644
trade	.0101092	.0027123	3.73	0.000	.0047933	.0154252
fdi	-.0036737	.0145359	-0.25	0.800	-.0321635	.0248161
lfi	-.0116189	.0106116	-1.09	0.274	-.0324172	.0091794
lfa	.0089042	.0074373	1.20	0.231	-.0056726	.0234809
lnpp	.3525736	.1694085	2.08	0.037	.020539	.6846081
_cons	13.61869	2.797867	4.87	0.000	8.134976	19.10241
sigma_u	1.0852137					
sigma_e	.48997418					
rho	.83066661	(fraction of variance due to u_i)				