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THE NEXUS BETWEEN THE ECONOMIC GROWTH AND UNEMPLOYMENT IN JORDAN

HALA HJAZEEN

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I Hala Hjazeen, hereby declare that this dissertation entitled **'THE NEXUS BETWEEN THE ECONOMIC GROWTH AND UNEMPLOYMENT IN JORDAN'** has been prepared myself under the guidance and supervision of **'Dr.Huseyin Ozdeser** and**Dr. Mehdi Seraj'** in partial fulfilment of the Near East University, Graduate School of Social Sciences regulations and does not to the best of my knowledge breach and Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

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ABSTRACT

THE NEXUS BETWEEN THE ECONOMIC GROWTH AND UNEMPLOYMENT IN JORDAN

The main purpose of this thesis is to identify the relationship between the unemployment rate and economic growth in the Jordan for the period 1991 to 2019. Jordan economic growth has seen tremendous changes over the years where it has been stable for the recent period. The unemployment rate of Jordan on the other hand has been increasing recently. The previous literature has identified that the economic growth of a country is related significantly with the unemployment rate. The study has adopted the quantitative technique for conducting the research through secondary data that were obtained from the world bank. The time series data analysis has been used, unit root test was conducted (DF and ADF), ARDL bootstrap cointegration model was conducted to check the cointegration relationship between the variables, ARDL model to test the relationship in the short and long run, Breusch Godfrey LM test to test the correlation, Breusch Pagan Godfrey test was conducted for heteroskedasticity, and Ramsy Reset test,Jarque Bera test and normality test and CUSUM test to check the stability and the normality in the model . The results of the preliminary test revealed that the series are stationary at level. The results of ARDL Bootstrap-cointegration confirme that there is a long-run cointegration between the variables. For ARDL model the study has found that economic growth is significantly related with the unemployment rate of Jordan in the long and the short run. It has also been analyzed that female population has a negatively significant impact on unemployment rate of Jordan in the shot and long-run, and urban population has a significant impact on unemployment rate in Jordan in the short and long run and there is no serial correlation based on Breusch-Godfrey Serial Correlation LM test.

Finally, the study recommended to development of sustainable strategies and policies in order to reduce the unemployment rate among with the increases in the GDP growth rate, also the thesis recommends further studies on this topic.

Keywords*: Unemployment rate, economic growth, GDP, Jordan*

ÖZ

THE NEXUS BETWEEN THE ECONOMIC GROWTH AND UNEMPLOYMENT IN JORDAN

Bu tezin temel amacı, 1991-2019 dönemi için Ürdün'deki işsizlik oranı ile ekonomik büyüme arasındaki ilişkiyi belirlemektir. Ürdün ekonomik büyümesi, son dönemde istikrarlı olduğu yıllarda muazzam değişiklikler görmüştür. Ürdün'ün işsizlik oranı ise son zamanlarda artış gösteriyor. Önceki literatür, bir ülkenin ekonomik büyümesinin işsizlik oranı ile önemli ölçüde ilişkili olduğunu belirlemiştir. Çalışma, dünya bankasından elde edilen ikincil veriler üzerinden araştırma yapmak için nicel tekniği benimsemiştir. Zaman serisi veri analizi kullanılmış, birim kök testi (DF ve ADF), değişkenler arasındaki eşbütünleşme ilişkisini kontrol etmek için ARDL önyükleme eşbütünleşme modeli, ilişkiyi kısa ve uzun dönemde test etmek için ARDL modeli, Breusch Godfrey Korelasyonu test etmek için LM testi, heteroskedastisite için Breusch Pagan Godfrey testi ve modeldeki kararlılığı ve normalliği kontrol etmek için Ramsy Reset testi, Jarque Bera testi ve normallik testi ve CUSUM testi yapılmıştır. Ön test sonuçları serilerin düzeyde durağan olduğunu ortaya koymuştur. ARDL Bootstrap eşbütünleşme sonuçları, değişkenler arasında uzun dönemli bir eşbütünleşme olduğunu doğrulamaktadır. ARDL modeli için çalışma, ekonomik büyümenin uzun ve kısa vadede Ürdün'ün işsizlik oranı ile önemli ölçüde ilişkili olduğunu bulmuştur. Ürdün'de kadın nüfusun işsizlik oranı üzerinde kısa ve uzun vadede negatif, kentsel nüfusun ise kısa ve uzun vadede Ürdün'de işsizlik oranı üzerinde anlamlı bir etkisi olduğu ve seri bir korelasyon olmadığı analiz edilmiştir. Breusch-Godfrey Seri Korelasyon LM testine dayalıdır. Son olarak, çalışma GSYİH büyüme oranındaki artışlar ile birlikte işsizlik oranını azaltmak için sürdürülebilir strateji ve politikaların geliştirilmesini önermekte, ayrıca bu konuda daha fazla çalışma yapılmasını önermektedir.

Anahtar Kelimeler*: İşsizlik oranı, ekonomik büyüme, GSYİH, Ürdün*

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ABBERVIATIONS

ADF: Augmented Dickey-Fuller

ARDL:Auto-RegressiveDistributedLag

C: Consumption

CPI: Consumer Price Index

DF: Dickey-Fuller

DOS: Department of Statistics

ECM: Enriched Culture Medium

FDI: Foreign Direct Investment

G: Government expenditure

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

GR: Economic Growth

I: Investment

ILO: International Labor Organization

K: Capital

KPSS:Kwiatkowski–Phillips–Schmidt–Shin

L: Labor

LM:Lagrange Multiplier

LSDV: Least Square Dummy Variable

MENA: Middle East and North Africa

NDP: Net Value Added

NX: Net Exports

OLS: Ordinary Least Square

PP: Phillips-Perron

RGDP: Real Gross Domestic Product

S: Savings

SAARC: The South Asian Association for Regional Cooperation

UN: Unemployment

UNESCO: United Nations Educational, Scientific and Cultural Organization

VECM: Vector Error Correction Model

CHAPTER 1
INTRODUCTION

1.1 Introduction

Jordan is a countrylocated in the Middle East neighbouring Palestine, Syria, Iraq, Saudi Arabia, and GULF countries. Jordan is a small country stretched on an area of 96000 square km with a population of 9.702 million in 2019 (Wordometers, 2021). Jordan is a relatively small country compared to other Middle Eastern countries. There are certain economic challengesfacing Jordan which areincreased poverty and inflation. The primary reason behind increasing poverty rate in Jordan is its unemployment ratio. The labor market of Jordan is also negatively impacted due to the changes in the external political and economic situations.

It is believed that the economic growth of any country increases itsemployment ratio and decreases its unemployment, but this concept is only applicable to the developed countries (Kreishan, 2011).The unemployment ratio in Jordan has beenincreasing forthe last 40 years and it has been the most important matter of concern for the policymakers and government to find out ways which can reduce their unemployment ratio (Assaad and Krafft, 2016). There are different factors which have increased unemployment in Jordan, one of which is its increasing population. Alrabba(2017).Replacement of the projects by private firms is another factor which creates sudden unemployment (Al-Habees and Rumman, 2012). The economy of Jordan is affected due to the fluctuations in supply and demand of the workers which have resulted in unemployment Fallah et al.(2019).The Jordan government of Jordanhas taken this

matter seriously in its consideration. However, the issue of unemployment in Jordan has not been solved.

According to the study of the World Bank, the primary reason behind the growth in the unemployment ratio is the foreigner's acceptance of the job at a low wage which in result affects the national residents. More than 50 percent of the foreigner employees are willing to take the jobs even at lower wages, but still the unemployment ratio is increasing which has negatively impacted Jordan's economy (Razzaz and Iqbal, 2008). The trade balance is an important indicator in analyzing the economic performance of the country. In the last 30 years, the economy of Jordan has witnessed an insignificant trade imbalance which has also increased their unemployment (Alamro, 2017).The lower economic and increased trade deficit in Jordan's economy has also created issues of unemployment. Accordingto Alamro andAl-dalaien (2014), Jordan has limited natural resources, and their lower agriculture sector is unable to produce jobs for their countrymen. According to Kaniak (2006) the higher focus of Jordan towards trade has also increased issues of employment. Unemployment in Jordan is expected to increase in the future because of the instability of the political situation in Arab countries (Comolet, 2014).

Although Jordan has a high population, it's also one of the well-educated countries in the region especially the youth. There are many causes for unemployment but the most important causes are at first is that young Jordanian have been educated in a field that does not match the demand of the labor market, second, the high ratio of foreign labor which can work in the minimum wage, third, the weakness of the public sector and a lack of public investment.

Unemployment is a serious issue specifically for youngsters. Lack of focus of males towards education is one of the contributing factors of unemployment because according to Arouri (2007) 48.2 percent of the unemployed people in Jordan are not even secondary school pass-outs. The unemployment of Jordan is increasing and according to the report of DOS, the unemployment rate in Jordan in 2019 reached 19 percent. Currently, 32 percent of the youth

aged between 15-30 years is unemployed in Jordan which is two-third of the population Alawad et al.(2020). However, in the last 2 decades, the government has extensively focused on improving its education sector which has increased its female participation in jobs and has encouraged its urban population Mryyan (2014). In 2007, the governmentspent 500 million JODson their education system which was 10.82 percent of their total expenditure Kanaan et al.(2020).This study discusses the negative impact ofunemployment on economic growthin Jordan from 1991-2019.

The factors of economic, social and political reasons have led to the unemployment rate in Jordan to increase. According to Lenner and Turner (2019) the major cause of unemployment in the country is associated with the population growth in the Arab region and the population increased from 218.239 million to 326.112 million in 2007. The failure of economic development plans and the reliance on foreign loans led to economic planning in the country to be underdeveloped and it caused the unemployment rate and illiteracy rate in the country to increase. The report of Bekhet and Al-Smadi (2017) states that Jordan faces various economic challenges that includes high rates of poverty (14.2%), unemployment (12.3%), inflation (4.3%) and a large budget deficit of -11.4% of the total GDP. Jordan has received huge immigrations from its neighboring countries and is considered as a safety shelter for the refugees. Moreover, the average wage of Jordan is low as compared to its other countries, therefore, the majority of unemployed includes the youth (AL-Tamimi and Bataineh, 2021). The economic policies have failed to reduce unemployment in the country, and the major factors affecting the development include education and population.

1.2 Background of the Research

In the early 1950s, a large number of people migrated from Arab Gulf countries which created issues for the government authorities to manage the flow of people and provide them employment. The migration of people negatively impacted the actual residents of Jordan as the migrants were willing to take the job even at a lower standard wage. Due to the global recession in the 1980s, unemployment in Jordan rose to 19.8 % in 1993. The instability of the

global financial market and political situations were also responsible for the increased unemployment in Jordan.

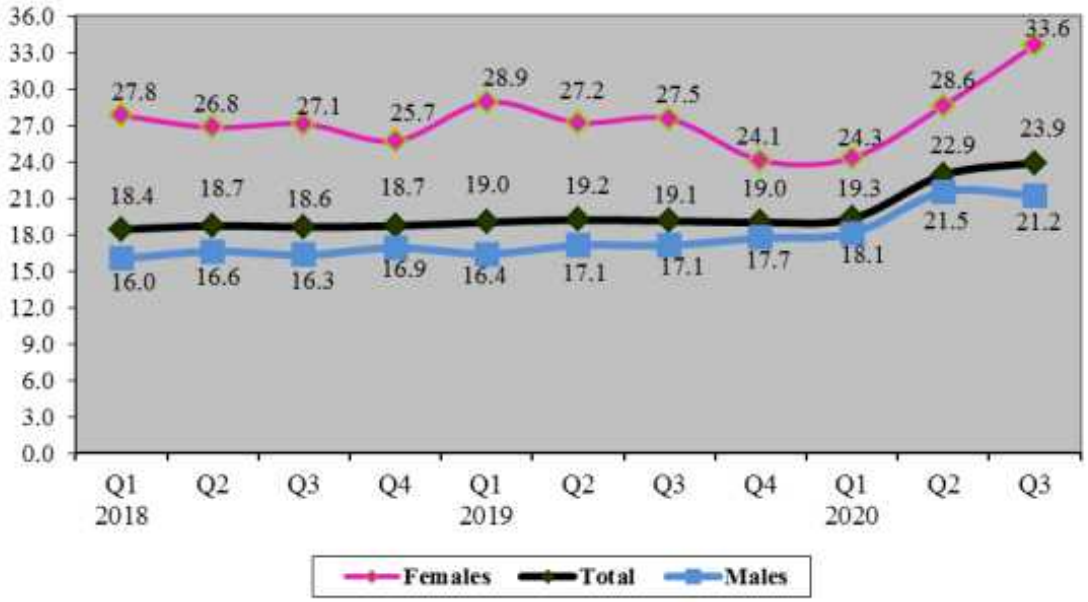
The economy of Jordan got imbalanced in 1967 when people from Palestine migrated in huge numbers to Jordan. The migrants created serious issues for Jordan and by 1972 the unemployment ratio rose to 12 % (Arouri, 2007). With the development of the oil-producing Arab countries and increased investment in the petroleum sector flourished Jordan's economy for a little period of time and the unemployment rate in the 1980s declined to 1.6 percent (Alamro and Al-dalaien, 2014). In the second gulf war (1990), the country saw another flow of migrants from Kuwait and other Gulf states. Around one-sixth a million people came back to Jordan which further created economic and employment issues for the government. The unemployment in Jordan increased from 6 % to 15 % from 1980 to 1990 Mayen et al.(2005).According to the survey of Population and Housing Census (2004),the total number of unemployed people in Jordan was 330,974 out of them were non-Jordanian. From 2000 till 2008 the unemployment rate has risen to 14.1 percent (Kreishan, 2011).

In 1991, the government of Jordan developed some programs for stabilizing Jordan's economy and reduce the unemployment ratio however trade deficit and decreased exports by Jordan could not solve these issues (Alawin, 2013).Jordan has played a significant role in providing refugees to the citizens of Iraq and Syria. However, it has also increased their unemployment because the migrants agree to work on low salaries. Jordan has struggled to sort out their issues in reducing unemployment, but the issues over time have increased and their unemployment reached 19% in 2019 which is the highest percentage in the last 40 years Alawad et al.(2020).

Despite the issue of unemployment in Jordan, their education sector is facilitated by their government. According to the official statistics presented by UNESCO (2021), the total rate of primary education in Jordan was 81.2%, total rate of secondary education was 64.6% and the total rate of enrolment for tertiary education was 33.1%. In 2007, more than 25,000 students

took admission in different universities of Jordan out of which 13,000 were males and 12,000 were females approximately. The government expenditure on education is increasing. Development in the education sector has encouraged female workforce. In 1991,the female unemployment ratio was 35.1 % which decreased to 25.01 % in 2017 out of which 81% of females are employed in the public sectors (Altarawneh, 2020).Development in the education sector attracted the foreign students in Jordan which gave a boost to their urban population and female participation in jobs however their overall unemployment is still important to be addressed by their government.

Figure 1-1: Total unemployment rates by sec and quarters from 2018-2020



Source: Department of Statistics (DOS)

Figure 1-1 shows that in the third quarter of 2020 the unemployment rate increased by 5.3% compared to the third quarter of 2019, and if we compare the third quarter of 2020 to the third quarter of 2019 we can conclude that the unemployment rate for females increased by 6.1% and for males the unemployment rate increased by 4.1% which is a dangerous.

Source: Central Bank of Jordan

As we can see in figure 1-2 that the annual growth rate in 2020 has decreased by 4.9% compared to 2019 and is expected to rise in 2021 and 2022 depends on the continuity of the pandemic crises, uncertainty projected to increases by 5.5 and 4.2 respectively.

According toAlzoubi, et al. (2020) Jordan's economy is considered as the smallest economies of the Middle East and as there is lack of natural resources such as water and the country highly dependent on the foreign investments and foreign aid. The crisis of 2008 caused the growth of the economy to be slow and the situation of the country is deteriorating and has led to several policies to be adopted and each policy has failed to deliver results (Al-Sharif and Bino, 2019). The GDP of the country dropped to 2.6% in 2011, however, it was observed that there were slight improvements and the GDP of the country increased to 3.5% in 2016. However, the report of Hussain (2020) states that the trade deficit of the country increased to 26.3% as the investments in the country increased and it caused the inflation rates to increase. The Debt to GDP of the country increased to 90% in 2015 and it indicates that the dependency on foreign investments was high. The economy of Jordan is dominated by the service sector and there are limited firms in the manufacturing sector and it has caused the unemployment in the country to be low. Theodory(2017) observed that around 650,000 Syrian refugees migrated in the country after the crisis of Syria and it caused the huge burden to be placed on the public services and the infrastructure and this caused the expenditures of the country to increase and

caused the prices of services to increase which further impacted the economy in a negative way. There were around 15 million of people unemployed in the region and around 174,000 people were Jordanian Arabiyat et al. (2020). The economy of Jordan is affected by various factors, and the economic conditions of the country are getting and it is causing the country to develop policies. However, the unemployment rate is still increasing and is affecting the economic growth of the country.

1.3 Problem Statement

Unemployment has been an issue for Jordan for the last four decades and multiple types of researches were conducted to explore the factors contributing to unemployment in Jordan. Previous researchers also investigated the increase in unemployment in Jordan due to the migration of refugees in 1948 and 1967 of Palestine, Syrian and Iraq (Alraba, 2017). Another study was conducted which showed the trade imbalance of Jordan contributing to the increased unemployment issuePrinceet al.(2018). In short, past studies showed the negative impact of the economy on increased employment issues in Jordan however this research is an attempt to investigate the positive impact of economic growth on female and urban population and the negative impact of economic growth on unemployment in Jordan from 1991 to 2019.

According to the time series data used in the study of Krieshan (2011) the unemployment ratio of Jordan was conducted from 1970-2008. Another study by Athamneh and Zo'bi (2009) was conducted which discussed the employment of Jordan from 1973 to 2005. Another study was conducted by Bashier and Wahban (2013) in which time-series data analysis of unemployment in Jordan was conducted from (1980-2012).Different time periods were selected by researchers previously which were (1970-2008), (1980-2012) and (1973 to 2005). The gap of the research states that this study is based on the time series data analysis from 1991 to 2019. Previous researchers showed the negative impact of economic growth on unemployment however in this research the negative impact of economic growth on unemployment along with its positive impact on the female and urban population is discussed.

1.4 Limitations of the Study

The main limitation of the study is that there are limited studies that have identified the relationship between economic growth and unemployment. Various studies have stated that there is no relationship between economic growth and unemployment in Jordan and unemployment has been an issue in the last 4 decades and there are many factors associated that have led to the unemployment rate of the country to increase. For example, the migration of Syrian refugees in the country has caused the overall population in the country to increase, therefore it has caused the unemployment rate of the country to increase. Another limitation of the study is that there are both skilled and unskilled workers in the country. Therefore, it has led to the data to be limited based on the impact of growth on unemployment. Unemployment is considered as the multi-dimensional phenomenon as the social and political factors can cause the unemployment rate to increase, however, the research is limited to the factor of economy. Moreover, economic growth is related to the factors of production and there are various elements of factors of production, however in the study is limited to unemployment.

1.5 Hypotheses of the study

Hypotheses have been developed for the following research:

H1: There is a relationship between Economic Growth and the Unemployment rate in the short-run.

H2: There is a relationship between Economic Growth and the Unemployment rate in the long-run.

H3: There is a positive relationship between female population and unemployment.

H4: There is a positive relationship between urban population and unemployment.

1.6 Aims and Objectives

The aim of the research is based on evaluating the nexus between economic growth and unemployment in Jordan. Considering the aim, the following objectives are developed:

1. To investigate the relationship between unemployment and economic growth in Jordan from 1991-2019.
2. To understand the impact of migration on the increased unemployment ratio in Jordan.
3. To briefly discuss the relationship between economic growth and unemployment in Jordan.
4. To determine the impact of female population on unemployment of Jordan.
5. To cover the unemployment ratio of Jordan from (1991-2019).
6. To evaluate the role of the government in reducing unemployment in Jordan.

1.7 Research questions

Following are the research questions set for the study:

- Q1. What is the relationship between economic growth and unemployment in Jordan in the short-run?
- Q2. What is the relationship between economic growth and unemployment in Jordan in the long-run?
- Q3. What is the relationship between female population and unemployment in Jordan?
- Q4. What is the relationship between urban population and unemployment?

1.8 Scope and Significance of the Research

This study benefits the economist and fiscal policymakers to understand the unemployment issue of Jordan along with their economic growth. The research also discusses how economic growth can decrease the unemployment ratio of the country. The researchers also investigate how the female population of Jordan is facilitated by the government expenditure of Jordan. This research investigates the unemployment ratio of Jordan from 1991-2019. The research briefly analyzesthe previous unemployment ratio of Jordan which is discussed in different previous researches. The research also includes the impact on the employment ratio of Jordan created by the migration of the Palestine, Iraq and Syrian refugees.

The research papers also discuss how the females of Jordan got encouraged after the government expenditure on the education sector. This study is important to identify the impact of the trade deficit in creating the unemployment issue in Jordan. Additionally, this research investigates the role of the government in reducing the unemployment of the country. The research is useful to understand how economic growth can result in increasing the unemployment of the country and how urbanization and female employment can be encouraged through government expenditure and education.

1.9Research Rationale

The purpose of the study is to identify and determine the impact of unemployment on economic growth and how it causes the economy of the country to be affected in a negative way. Furthermore, the study will help to identify the factors that lead to unemployment in the country such as economic growth, female population and urban population. There has been an increase in migration of people in the country of Jordan, and it will further help to evaluate how the unemployment ratio has increased in the country and it will discuss the relationship between 14 economic growths and unemployment. This research will further help to develop policies in the country that would help to reduce the unemployment rate of the country. This research will further assist future researches through proper and adequate information that will be obtained from forums and official websites. Moreover, the research will cover the changes in unemployment from the period of 1991 to 2019, and it will help to evaluate the long-term impact on the country and the economy. Another purpose of the research is to provide guidelines to the policymakers and the government to efficiently reduce the unemployment in Jordan.

1.10 Structure of the Study

There are overall five chapters in this research paper. The first chapter includes the introduction, research background, problem statement of the research, aims and objectives. Research questions and scope and significance of the research. The second chapter reviews briefly other researchers and literatures. In the third chapter, the researcher justifies the

methods for conducting the research which consists of the data collection method, research design, research approach. Research instruments, data analysis and limitations of the study. The fourth chapter explains the outcome of the study based on the collected data and based on the results the researcher concludes and gives recommendations in the final chapter of the study.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

With the passage of time and increasing needs of the society, it is imperative for the countries to work effectively for increasing the overall economic growth and provide the opportunities of employment to the common people. As the research is based on two of the major aspects of economy and employment, the researcher has highlighted some of the various means of literature that has provided with the statements and arguments of different authors regarding this topic.

The following chapter has provided with the concepts and relationships of different variables that are imperative for the research. It has mainly highlighted the ratio of unemployment and the aspects of the trade deficit that might create the negative impact on the rate of employment in the countries. Based on the arguments of (Khajiev, 2020) economic development and employment are highly related to each other as it results in increasing labor productivity and

also creates a huge number of job opportunities that can bring about the positive impact in the standard of living of the common people.

2.2 Impact of migration on the increased unemployment ratio

According to the arguments of Nunes et al. (2019),the migration is referred to as the movement of people across the countries in different nations. The country towards the people migrates provides with the areas to live in, opportunities for employment that can allow them to earn their living and make a good living standard based on the assessment of (Espinosa and Díaz-Emparanza, 2019). It has been observed that the increasing rate of migration in any country can also affect the rate of employment and can also create hurdles for the nationals to get jobs based on the arguments of (Cohen, 2017). One of the major factors that is present is the skills, abilities and qualification of immigrants that can allow them to get the jobs and make progress in terms of getting the jobs and opportunities for entrepreneurship (Peng and Tsai, 2019). Nunes et al. (2019), have also emphasized on one of the aspects that the rate of migration can also create an increasing demand for jobs as the rate of workers and the labors will be increased. Similarly, it can also affect the overall rate of decreasing wages and creating the limited opportunities for jobs that can affect the nationals in the country in getting employment. Therefore, as supported in the studies of Roobavannan et al. (2017); Flick et al. (2017) it can be observed that the increasing rate of migration in any country can negatively affect the rate of employment in the country and can also create hurdles for them in this regard.

The impact of migration can be observed as the skills sets of employees and compare with the skills in the market. According to Abdurakhmanova and Abdurakhmanova (2019) immigration can affect the labor market of the country as it can help expand jobs in many areas of the economy. However, it can cause the domestic labor market to be affected. Furthermore, the immigrants can cause market demand for certain products and services to increase and it can increase the labor demand and it affects the overall job market of the

company. Moreover, immigration can cause the wages to be affected, and the migrants can cause the wages of employees to increase.

2.3 Relationship between economic growth and unemployment

As referred to the study of Efrianti et al. (2018) there are different statements and arguments provided by the authors regarding the impact and relationship of employment and economic growth that have supported the different aspects of employment and economic growth that is needed to be assessed in this regard. Based on the assessment of Soylu et al. (2018); Efrianti et al.(2018) it has been highlighted that the increasing economic growth in any country brings about a huge increase in the GDP and labor productivity in the country that can be effective for creating the opportunities for employment in the country. Similarly, Chand et al. (2017), have also supported the fact that the increasing economy in any country can contribute towards the rapid growth of labor force and will ultimately decrease the rate of unemployment in the country. On the other hand, Mihajlović (2020) has presented the arguments that the absence of productivity in any country can also result in failing economy in the country and may also give rise to unemployment in this regard. The government and the policy makers have designed different methods that can contribute towards the increasing rate of employment and can provide better quality of life and standard of living to the people based on the assessment of Asuquo (2017) and Al-Sawaiea et al. (2019). Therefore, it can be stated that the countries might get better means of economic growth that can support the common people in terms of getting the employment opportunities and contributing towards the overall progress and profitability of the country.

The study of Soylu et al.(2018) indicates that there is a positive relationship between growth and unemployment and a decrease in growth indicates that the unemployment level of the country can increase. However, there is one reason that can cause unemployment to not to be related to the economic factors that include the company’s recession period and jobs are not utilized in an effective manner and it causes the demand of products to be affected (Folawewo

and Adeboje, 2017). To identify the run between changes in GDP and unemployment is the rate of growth in the potential output and it can the resources to be impacted in the country.

2.4 Role of the government in reducing unemployment

One of the major roles of the government is decreasing the unemployment in the country. Based on the arguments of Matandare (2018) the people working in different organizations need to be developed and shall also be provided with the opportunities for growth. Therefore, the organizations create the opportunities for career growth and bringing the methods of improvement in the economic growth according to the analysis of Ristiandy, 2020; Chigunta, 2017). The government in different countries design the fiscal policies that can contribute towards decreasing the rate of unemployment in the country that can help in increasing the aggregate demand and rate of economic growth in the country according to the assessment of De Nardi et al. (2021). The government contributes towards increasing the means of employment in the country that can be effective in terms of increasing the lifestyle in the country and improving the standard of living of the common people according to the analysis of De Nardi et al. (2021). The studies of Watson and Deller (2017) and Matandare (2018) have supported the arguments that the government in different countries can create such policies and can also include structural methods of employment that can be used for training and developing the people and establishing the means of growth that can locate the people in different areas and can also help in increasing the means of embayment in the countries. The creation of supply-side policies can be effective for providing better means of education and facilities for the people for making easier methods of working and making higher demand for the labor by the creation of small and large businesses as referred to the study of De Nardi et al.(2021); Duval and Furceri, 2018.

Fiscal policy can help to reduce unemployment by increasing aggregate demand and the growth of economic development Onodugo, et al. (2017). The government would need to follow expansionary economic policies, which entails lower taxation and higher government spending. Moreover, monetary policy is to be introduced by the government that will cause the

interest rates to be reduced and will lower the interest and tax burden on employees and will encourage consumers to buy and spend money Albertini et al. (2021). This will helpthe GDP to be boosted and will affect the economy in a positive way and would cause employment opportunities to be created in the country.

2.5 Role of the trade deficit in increasing the unemployment ratio

According to Dix-Carneiro et al.(2021) the trade deficit occurs when the value of imports of goods and services is greater than the value of exports. In other words, trade deficit is when a country buys more goods and services than it is selling. Redmond and Nasir(2020) have observed that it affects the jobs of people and causes the economy of a country to be impacted in a negative way. Many economists have disagreed on the impact of the trade deficit on employment; however, some economists have argued that imports cause employment to be affected and it its leads to offsetting job growth in the sector. According to the research of Bosch and Weinkopf (2017) the surge in Chinese exports caused 3.5 million job losses between the period of 2001 and 2015 and most of the losses from the sector of manufacturing. Moreover, if there is great degree of investment in the country, it can cause the debts of the country to increase and can cause the burden of tax and interest to increase. This affects the income of the people and can cause them to be unemployed. This increases the unemployment rate of the country and affects the economy in a negative way.

2.6 Theoretical Framework

Within the following study it has been observed that there is an application of supply and demand theory that can be applied in this case. Based on the analysis of Valentinov and Thompson (2019) the supply and demand theory present the rate of supply and demand of employees belonging to different industries. It can be applied in the current research as the increasing number of labors within the market creates higher demand for the jobs that creates the limited opportunities for the nationals, and the international labor whoare the migrants. Similarly, the Keynesian Economics theory is also presented by Eichengreen (2020) that applies in different factors of macroeconomics as it can be used for understanding the aspects

of economics and the methods of employment and inflation that is there in the country. This theory is also applicable in this research as discussions based on economic growth and inflation can be applied in the Jordanian economy that can be used for addressing the issues related to unemployment in the country.

2.6.1 The concept of unemployment and methods of measuring it:

1. According to economic concept: It isthe availability of economic resources which are unemployed (the lack of full operation of available resources).
2. Definition of unemployment according to the International Labor Organization: Unemployment includes all people of working age; they want to work, and they are looking for work but do not find it; this is during the reference period, and what is meant is the period in which unemployment is measured, and it is usually a week or two weeks.

Unemployment is usually measured by what is called the unemployment rate. The economic policy in each country aims to keep this rate as low as possible. Official unemployment statistics are based on taking a random sample from the population, then doing an analysis of the working history of individuals in the sample. Statistics divide the population capable of work into three groups:

1. Employed: They represent individuals practicing any work for wages.
2. The unemployed: It includes all unemployed individuals who want to work but cannot find one.
3. Out of the labor force: It includes individuals who are unwilling and unable to search for work (housewives, the disabled, unable to work, retirees).

Accordingly, the unemployment rate is the number of the unemployed as a proportion of the labor force and can be formulated as follows:

*Unemployment rate = (number of unemployed/labor force) *100*, so that: *labor force = number of workers + number of unemployed*

Unemployment rate is difficult to define precisely, as the percentage of unemployed varies according to the mean (urban and rural) as well as according to the education level. This difference in measurement is due to the following reasons:

1. The lack of sound data inferring the size of unemployment
2. The so-called hidden economy, which exists in developing countries does not enter in the official statistics.
3. The lack of accurate statistics in the urban sector in developing countries, which includes small enterprises, cafes, craftsmen, etc., despite the relative weight of this sector in developing countries:

2.6.2 The concept of economic growth and methods of measuring it:

Economic growth is defined as the increasing production or real income in a country during a certain period of time and reflects economic growth quantitative changes in production capacity and the extent to which this energy is utilized. The higher the percentage of available production capacity utilization in all economic sectors, the higher the national income growth rates, and vice versa.

The economist Simon Kuznets defined itas a quantitative phenomenon and therefore economic growth defined a country as: the continuous increase of the population, as well as the individual product.

Based on the previous definitions, the growth in the gross domestic product (GDP) can be defined as the increase in the per capita share during a certain period of time.

Economic Growth is calculated according to three methods as follows:

1. Income method:

National Income = Rent + Interest + Profit + Wages + Mixed-Income

2. Expenditure method:

National Income = C + I + G + NX

Where,

C: Consumption

G: Government expenditure

I: Investments

NX: Net Exports (Exports - Imports)

3. Value-added method:

National Income = (NDP_{FC}) + Net factor income from abroad

Where NDP_{FC}**:** net value added at factor cost

2.6.3 Theories of economic growth and unemployment

Unemployment and economic growth are among the issues that Keynes theorized in theory and centered on ensuring full employment of the labor force and methods of researching effective demand. This is through following the policy of managing financial and monetary demand, and he stressed the importance of the role that the state plays through macro analysis and the idea of stimulating effective demand that creates supply. The assumptions of modern theories of unemployment are more realistic than previous theories in trying to explain the modern phenomena in the labor market, and the most important of these theories are the theory of job search, the theory of fragmentation of the labor market, the imbalance of the labor market, and other economists have differed in their interpretation, but these theories on unemployment and economic growth agreed on the importance of the role that the government plays through its fiscal policy represented in public spending to raise growth and increase employment.

2.6.3.1 Economic growth theories

2.6.3.1.1 Classical theory:

In accordance to the study of Hüseyniet al. (2017), the classical theory postulates that the economic growth of the country would decline with the increasing population and the limited resources. Therefore, this suggests that the economic growth of the country would start to slowly decline as the population commonly increases in the country. Based on this assumption, the study conducted by Adenola and Saibu (2017) has investigated the influence of the population change on the economic growth of Nigeria. The study points out the classical theory illustrate the importance of population that effects the economic growth. The data have been gathered from 1994 till 2016 in Nigeria for the variables GDP, technological progress, exchange rate, labor force participation (proxy for population structure) and inflation rate. The regression analysis has been performed where the results has revealed that that variable population and exchange rate were determined to be insignificant.

Through this school, we differentiate between four economists who dealt with economic growth.

- Adam Smith (1937): He considered that the economic balance in any economy occurred automatically, the principle of non-intervention by the state in the economy. The assumptions on which the classic is based, since its intervention negatively affect the economy and leave it to market forces (supply and demand), as well as relying on the so-called invisible hand. The total income consists of either the wealth, the quarter or the interest, using the basic elements of production, namely, labor, capital and land.

- Ricardo (1821) divided society into three classes: Capitalists; they are the main drivers of the investment process through improving production methods, and injecting money into new projects with the aim of increasing investment development. Workers; their mission is to provide production and labor requirements for the good management of investment projects. Feudalists: the landowners, whoare the main engine in agricultural

investments, and just as society is divided into three classes, it divides incomes into three classes:

Profit, which is considered one of the most important incomes obtained by the capitalists and is re-injected into the production process with the aim of generating greater profits, and it decreases. Its value is the greater the reform of non-fertile lands with the aim of exploiting them.

The wage, Ricardo divides the wage into two, which are the natural wage, which represents the actual wage in the long run and the market wage prevailing in the market, which is determined by market forces (supply and demand).

Rent, Ricardo considered that it came as a result of monopoly, that is, in the case of competition, it does not appear that the individuals who controlled the most fertile lands got a quarter greater compared to those who controlled less fertile lands.

- Robert Malthus (1872): In his analysis he relied on both the theory of population, which explains that the increasing level of in population is according to a geometric sequence, while the increasing in food is according to an arithmetic sequence, and this is what makes population growth greater than growth at lunch, which in turn affects negatively on incomes that become at the subsistence level. We note that population growth rates have an inverse relationship with economic growth rates, and also address effective demand in determining production levels, but Malthus's view was very negative and did not prove correct in developed countries due to the high levels of lunch compared to demographic growth.

- Karl Marx(1981): His theory was based on an analysis of the prevailing social system, which is the capitalist system, whereby he considered it divides society into two classes, capitalists and workers, so that the former owns the means of production and

capital while workers own the labor, and the main goal of capitalists is to maximize profit and reduce costs by relying on various modern technologies in the production process. It also considered that technological development had a negative impact on unemployment rates, as the number of unemployed increased significantly in the economy.

2.6.3.1.2 The new classical school:

One of the major theories that is related with the economic growth is the Neoclassical theory. The Neoclassical theories emphasize on the supply and demand which is the driving forces behind the production, consumption and pricing. The belief of the Neoclassical economist is that the consumer's top concern is related with the maximizing the personal satisfaction. Moreover, the theory stipulates that the value of the product is derived from cost of materials including the cost of labor. In general terms, the economist's highlights that the perception of the consumer regarding the value of the product influences on its price and demand (Haller, 2020).

The study conducted by Sutradhar (2020) has further investigated the Neoclassical economic theory by emphasizing the research through evaluating the influence of the remittances on the economic growth in Bangladesh, Pakistan, India and Sri Lanka. The rationale behind linking theory with the topic as the Neoclassical theory states that the labor moves from lower-wage countries to the higher-wage countries mainly due to the wage differences. As reflected from the Neoclassical growth theory, the loss of human capital results in causing negative influence on the economic growth. The study has gathered secondary data from 1977 till 2016 among the identified countries and applied with the Pooled OLS technique. The regression has confirmed that the remittances have significant and negative influence on the economic growth.

- K. Wicksell, A. Marshall and J. Clark considered that economic growth may not pass through stagnation, contrary to what Smith mentioned which depends

on the available resources in society in terms of land, labor, capital, organization and technology, as they relied on the market mechanism: Supply and demand, whereby producers resort to maximizing profits, while consumers goal is to achieve maximum satisfaction within the limits of the possibilities available in the market from the economic and social frameworks that determine the possibility of its application in developing countries.

- The Solow-SWAN model of growth is one of the most famous neoclassical models. The model assumes the possibility of substitution between the elements of production and the growth of the labor supply at a constant rate. It also assumes that saving is a proportion of the income that is invested, and instead of assuming a constant ratio of output to capital, Solow used the linear homogeneous production function that permits the possibility of substitution between capital and labor.

2.6.3.1.3 Schumpeter theory

Schumpeter Joseph (1982):Hewas influenced by capitalists and Maltz's theory of population, as he considered in his book "The Theory of Economic Development" that economic growth be dominated by competition and full employment in the economy provided that there is no net investment or population increase, moving away from that on static analysis, as well as he tried to have theory familiarizing himself with each of the following aspects: economics, statistics, history, and sociology, and accordingly he became a critic of the classic and the Keynesians.

Schumpeter gave an important role to regulatory and technical factors in the growth process. The entire growth process in Schumpeter's theory is based on systematic innovation and bank credit.

2.6.3.1.4Stages theory of economic growth for W. Rostow

Within this theory, Rostow (1959) considered that economic growth must pass through stages so that each stage is nothing but a prelude to the next stage and an obligatory path for all countries in order to reach progress. It was passed by all developed countries out of a primitive agricultural economy into a developed industrial economy. It is based on the idea of economic growth according to these following stages: the stage of a traditional society, the stage of preconditions for takeoff, the stage of the beginning, the stage of the trend towards maturity and the stage of high mass consumption.

2.6.3.1.5Keynes's theory

The Keynesian theory came after the Depression crisis (1929), in order to analyze the reality that developed countries have come to as a result of the crisis, but from a macro point of view, as he came up with the theory of employment, which explains that the level of income depends on employment and in turn leads to an increase in economic growth rates. Keynes believed that planned investment does not equal saving, that variable income balances them and that unemployment is a problem but in the long run, he also attributed the occurrence of economic cycles to fluctuations in the marginal efficiency of capital. And based on his assumption of equal investment with saving in a closed economy, economic growth in the model is directly related to saving and indirectly with the ratio of output to capital, assuming that there is no substitution between the elements of production. He also considered that the state must intervene in the economy for the sake of guidance, as it raises the employment rates, in contrast to what was brought by the classic, who considered that full employment occurs automatically.

Keynes ideas focused on:

- Finding effective solutions that do not fit with classical thought and creating new investment fields that contribute to increasing effective aggregate demand.
- Keynes' Club on the need for the state to intervene to raise the level of total effective demand to ensure full employment of the elements of production.

- Acknowledged the existence of permanent and inevitable unemployment at a certain level called the natural unemployment rate (compulsory unemployment).

From this analysis of Keynes, a set of models of growth has been formulated, one of the most important one is the Harrod-Domar model (1964).

Harrod-Domar model

It is considered one of the well-known models in the economy that was applied in the European economy and was based on saving and investment as basic factors for economic growth, so that the capital generated from investment in factories and equipment results from increased savings of individuals and institutions, and accordingly the rates of economic growth accelerate.

Criticisms of the model: This model was used in European countries, and thus it is difficult to apply it to developing countries, since the standards and features differ in addition to that model depending on savings-for-investment ratios, but it's very low in developing countries due to the low rates of per capita income that is not sufficient even to the needs.

The Harrod-Domar model mathematically expressed the required growth rate to maintain the full employment level where $G = S/Y * 1/K$, where G represents the growth rate, S represents the saving, Y represents the national income and K represents the capital factor. According to this model, the saving rate *(S/Y)* and the reciprocal of income capital *(1/K)* are the two factors controlling the growth rate, and this model also showed the possibility of increasing the economic growth rate by reducing the capital income coefficient *(1/K)* or by increasing the investment rate *(S/Y)*. Harrod et al. (2004). Models of Economic Growth.

2.6.3.1.6 Theory of balanced and unbalanced growth

Balanced growth means giving a push to all sectors, either through investment in a pioneering sector in order to push it alongside other sectors, or broad and balanced investment in all

sectors, or achieving balanced growth between the manufacturing and agricultural industries accordingly, it is nothing but balanced development in most sectors in order to achieve their growth at once. The theory was presented by Ragnar Nukse and developed by Paul Resenstein Rodan through the theory of balanced growth. Whereby Rodan emphasized that huge capital needs to be invested in order to establish an industrial base and multiple public projects under the tutelage of the government, he also emphasized the necessity of manufacturing in one batch not gradually because it disappears without pushing the industrial. Also, gradual growth does not lead developing countries out of the vicious circle in which causes meet with results.

Consequently, the implementation of this theory on developing countries is impossible due to the lack of available resources and the lack of reliance on huge investments that increase the value of production costs, and thus demand for products decreases by a greater amount than the increase in incomes, and thus the effects on economic growth decline.Therefore, there must be a strong push to pass from the minimum to self-growth with the basic assumption that industrialization is the path of development in developing countries, and it works to absorb the prevailing unemployment rates in the economy.

In contrast to the theory of balanced growth, the proponents of the theory argue that it is necessary to rely on one major sector in developing countries, and this will give more development by focusing on economic sectors that can be within a series of balance and monitoring them so that they do not turn into economic balances for growth continues. Among the pioneers of this theory, we find the Frenchman Francois Perot, who presented the first model of unbalanced growth in 1955 through regional development, and there is also Ginaid de beinis, who came with a vision for the development of important industrial sectors. Then came Hirschman, who presented the theory of unbalanced growth by disproportionate which centered on the reciprocal relations between sectors through his book "Economic Development Strategy" for the year 1955, through which he studied the reality of the

American economy for the period (1850-1950). That the economy depends on leading sectors, which in turn stimulate other sectors to grow.

2.6.3.2 Unemployment theories

2.6.3.2.1 Classical theory

The classical theory of unemployment pertains with the unemployment where it affirms that the unemployment level is dependent upon the real wages. This commonly incurs where the real wages are fixed at the equilibrium level which results in causing rigidities that are triggered by union labor or policies (Palley, 2018).

- Subsistence wage theory: The theory was developed by Turgot, François Quesnay, and Mercier de la Riviere, where they considered that the general level of wages must be equal to the basic needs of the workers, which means that the wages paid for the element of work should be at the minimum standard of living, "the subsistence threshold", so that the worker will not be able to have children, which raises the supply of work and accordingly, the wage rates are reduced to a minimum and the wage in this case is called the natural wage or the natural price of work.
- The wage balance theory(wage fund theory): This theory is an extension of the subsistence wage theory, whereby they considered that wage rates are not fixed, but rather subject to all of the demand for work from employers according to the valuesof the capital and the values of labor supply on the part of individuals and then the wages remains fixed as long as the value of the funds allocated by the producers.

  Average wage = wage allocations/number of workers
- Marginal production theory of wages: This theory appeared with the emergence of marginal analysis in the theory of value, where it became to deal with both marginal utility and marginal productivity in order to define and explain the services of the elements of production.Clark and Freidrech von Wieser developed the theory and concluded that wage levels are determined by the productivity of the last unit of labor

or marginal productivity under both perfect competition and the transmission of all elements except the labor component.

2.6.3.2.2 Marxist and Neoclassical theory

There is no big difference between Marxist thought and the subsistence wage theory that the classic came up with, as they considered that the wage rate is determined by the amount of work needed to produce the means of subsistence which allows the worker to obtain his necessities only. Marxist theory also divided labor into two: necessary work and additional work, and consequently labor is also divided into: necessary work which is for wage and additional work, which is free of charge.And since the difference between them is the added value that the capitalist receives in exchange for ownership of the means of production.

Walras and Marshal were the founder of neoclassical theory, and their ideas in building the theory do not differ much from the classical as they relied on the law of J.B.Say, which states that the supply is what creates the demand and there is no possibility of a surplus production. So the theory provided a framework for total balance in the labor market relying on its hypotheses on microeconomics specifically market analysis and accordingly both the supply and demand for labor are determined within the limits of wage rates, as they considered that the economy is always in a state of equilibrium, which means that if unemployment is found it is optional, since the workers are not exposed to the phenomenon of monetary deception, because the nominal heat rate does not affect the behavior of the job suppliers, if the general level of prices changes in the same rate and in the same direction, because the purchasing power of the new income remains constant.

The production function $Y = f(L, k)$, where L: labor component, K: capital and since the period is short-term the capital component of K is constant

2.6.3.2.3 Keynesian theory

The economic crisis that the economy was exposed to in the year 1929 showed the failure of the classical theory, and the ideas of Keynes John Maynard appeared, who considered that the

main reason for the phenomenon of unemployment is effective demand and not the real wage, and from it there must be an increase in demand effective in order to reach full employment, the gap that results between the total demand and the output is known as the so-called news unemployment, and from it we conclude that unemployment among the two treasures is caused by the inability of aggregate demand to absorb the total potential output and therefore it is sometimes called inertia unemployment

As per the study of Habanabakize and Muzindutsi (2018) the theory postulates that the unemployment is caused by lack of expenditures within the economy which has led to the decrease of aggregate demand. The continuous level of spending in the time of recession leads to lowering the demand of products and services which in return causes the unemployment rate to incline. Based on this assumption, Keynesian advices that the best method for overcoming this issue is that the government can borrow money and increases the demand by connecting the economy with the borrowed capital. As per the assumption, Ene (2018) has conducted the study to evaluate the nexus between the budget deficit and unemployment while highlighting the school of thoughts of Keynesian in which the intervention of the government through the deployment of the fiscal tools can boost the aggregate demand of the country. Hence, the secondary data have been collected from Nigeria where the data span 21 years from 1997 – 2017. The vector error correlation model (VECM) has been conducted for performing the analysis where the results of the study have indicated that the budget deficit of Nigeria has a significant and positive influence on unemployment which signifies that the incline of the budget deficit leads to the decrease of unemployment rate. Therefore, the theory of Keynesian in respect to unemployment is accepted as the government intervention through fiscal policies leads to improvement of unemployment

John Maynard Keynes's theory is based on the following principles:

- Keynes considered that the level of demand could occur at the level of full use, and Keynes considered saving and then consumption as a function of income, while the

equilibrium level of income is determined according to the demand for investment that in turn, depends on the interest rate prevailing in the market.

- Keynes called for the need for the state to intervene in economic activity for the sake of directing because intervention according to him leads to near employment.

So we can assume that the unemployment is due to the lack of effective demand, which is the primary factor in determining levels of employment and production, and full employment does not represent the total balance in all cases, governments must work through their policies to absorb unemployment rates through spending or tax policies.

2.6.3.2.4 New unemployment theories

- The Job Search Theory: Formulated by a group of economists, including Phillips and according to this theory, unemployment rates are due to the desire of individuals to leave their jobs in order to search for better job opportunities and it results from the workers 'pursuit of higher wages and more suitable job opportunities.
- The segmentation of the labor market: Formulated by P.doeringe and aims to explain the reasons for the simultaneous existence of high rates of unemployment in certain sectors and a decrease in other sectors. The theory dictates the existence of two markets: a primary market and a secondary market that also dictates that the labor market has the ability to move within each market and this can't be achieved by moving between the two markets because they differ in terms of characteristics and functions.
- Labor market imbalance theory: Emerged by economist E. Maltouand, based on his analysis of unemployment on two markets: the commodity market and the labor market. The theory is based on imposing stability in prices and wages in the short term. It leads to forced unemployment, and this theory extends to the analysis of the phenomenon of the intertwining relationships between the labor market and goods.

2.6.3.3 Theory of economic growth and unemployment

The relationship between economic growth and unemployment. The general trend shows this relationship that there is a large correlation between the rate of economic growth and the decrease in unemployment rates. Also, the policies directed at reducing unemployment rates proceed from an approach that assumes that unemployment isdirectly correlated with growth, for every increase in growth rates must be consistent with a decrease in unemployment rates, and the relationship of economic growth and unemployment rates can be described as:

An increase in the growth rate increases the employment ratewhich decreases the unemployment rate. Keynes relied in his analysis on the policy of recovery by demand, a belief prevalent among most economists, starting from the view that unemployment would automatically decline if the rate of growth in the economy increased. While another trend focuses on supply by supporting the profitability and cost-effectiveness of the projects.

The relationship between economic growth and unemployment has been studied experimentally in the economic literature based on what is known as the Okun's law, which shows that there is an inversely proportional relationship between the change in the growth rate(GDP) and the change in the unemploymentrate. Okun has succeeded in showing that there is a reciprocal correlation between unemployment and economic growth. As he showed that if unemployment decreased by (1%), then this would be due to an increase in real gross domestic product (RGDP) by (3%) and vice versa, and when an increase in the RGDP occurs, an increase in employment is achieved.

Within the following study it has been observed that there is an application of supply and demand theory that can be applied in this case. Similarly, the Keynesian Economics theory is also presented by (Eichengreen,2020) that applies in different factors of macroeconomics as it can be used for understanding the aspects of economics and the methods of employment and inflation that is there in the country. This theory is also applicable in this research as discussions based on economic growth and inflation can be applied in the Jordanian economy that can be used for addressing the issues related to unemployment in the country.

Economic growth was and remains the main purpose which is sought by the governments, an indicator of welfare and their role in increasing the quality of living standard and reduction in poverty. Some studies have empirically examined the linkage between economic growth and unemployment by implementing Okun's law, Al-Habees (2012) studied the linkage between unemployment and the economic growth in some Arab countries, and focused on Jordan as the main case study, by adopting a simple model of Okun law, the results showed a significant correlation exists between growth and changing rates of unemployment and revealed the efficiency of the economic policies strives to reduce the unemployment rate with a balanced rate of economic growth. Also, (Kreishan,2011) accounted for the linkage between unemployment and economic growth in Jordan along with the enforcement of Okun's law and Augmented Dickey-Fuller (ADF) for unit root for the period 1970-2008, founded that the shortage of economic growth doesn't clarify the unemployment phenomena in Jordan.

The theory that is highly connected with the unemployment and economic growth is the Endogenous Growth Theory. This theory illustrates that the economic growth is reflected to the results of the internal processes. More precisely, the theory indicates that the improvement of human capital in the country contributes towards the economic growth through effective means of production. In general terms, the increase of the employment rate in the country boosts the overall economic performance He et al. (2019). Similarly, the study conducted by Ojima (2019) has investigated the theory by evaluating the nexus of unemployment economic growth particularly in Nigeria where the data have been gathered from 1980 till 2017 which reflects to 35 years' frame. The statistical analysis was performed in the gathered data where the results have been indicated that the unemployment and economic development have inverse connection. This means that the increase of the unemployment level of the country would result in causing the economic growth to decline or vice versa.

Another theory that pertains with the economic growth and unemployment is the 'Structural Unemployment' where the structural unemployment is considered to be longer-lasting unemployment as a result of the fundamental shifts to the economy that is triggered by external factors such as economic condition, technology, competition and government policy.

It is crucial for addressing the structural unemployment as it can last for decades which can adversely affect the economic conditions (Arango and Flórez, 2020). Similarly, the study conducted by Vu (2017) has investigated structural unemployment and economic growth on 19 Asian countries from 1970 till 2012. The findings from the study have indicated that reforms should foster productivity and enhancing the structural change while developing strategies for overcoming the structural unemployment.

2.7 Empirical Evidence

2.7.1 Empirical Evidence on the effect of economic growth on unemployment

Hussain (2018), explained the linkage between inflation and unemployment rate on the economic growth for the period 1976-2016, by using the Dickey-Fuller test, and he couldn't find a statistically significant relationship between the variables. Alamro (2018) investigated the effect of the trade concept on GDP growth in Jordan. Also, he explored the significant effect of employment and productivity in Jordan's GDP growth of a period from 1980 to 2014, using DF and VECM, ARDL test which showed a positive and significant effect of the dependent variables on the GDP growth of Jordan in the long run and insignificant effect in the short run. Magnani (2013),wanted to expand the Solow model which can define the unemployment explicated by the shortage of the aggregate demand which resulted as the increase in the aggregate demand will reduce the unemployment catalyze the GDP. Xesibe (2020) studied the effect of unemployment on GDP growth in South Africa from 1994 to 2017. The results had shown that there is a negative correlation between the unemployment rate and economic growth rate in South Africa. After that, Ali (2017) claimed that economic growth has a positive and statistically significant impact on unemployment in Jordan over the period from 1990-2015. AL-Tamimi (2019) studied the impact of the unemployment rate on the economic growth in Jordan throughout 2009 and 2016 by using the OLS approach and found an insignificant impact of the unemployment rate (in total labor) on the economic growth.

Ojima (2019) examined the between among the unemployment and economic development in Nigeria for 35 years span from 1980 to 2017 and found that unemployment hurt economic development for Nigeria with an adverse linkage between the unemployment and economic development in Nigeria and recommended a fiscal and monetary policy in the purpose of creating job opportunities to sustain the economic growth for Nigeria. Dahmani (2015) found a negative relationship between the variables in the long-run whereas in the short-run there was no correlation between unemployment and the economic growth in Algeria throughout 1970-2014. Alamro (2014) measured the effect of economic growth on the unemployment rate in Jordan in both the long and the short run from 1980 to 2011 using ARDL and ECM test, found that the economic growth rate has a low passive significance on the unemployment rate. Also, Akeju (2014) examined the visor of Okun's law in Nigeria to investigate the linkage between unemployment and economic growth by using ECM and ARDL Johansen cointegration test which led to a noteworthy linkage between unemployment and economic growth. Abdul-khaliq (2014) tested that the linkage between unemployment and gross domestic product growth in nine Arab Countries throughout 1994 and 2010. He found a noteworthy negative effect of growth on the unemployment rate and a positive relationship between the population growth rate and the unemployment rate. Rahman (2013) studied the relationship through GDP, GDP per capita, literacy rate, and the unemployment rate in OECD countries found that the GDP is not significantly related to GDP per capita, literacy rate or, unemployment rate.

Also, Soylu (2018) examined the linkage between unemployment and economic growth based on Okun's law (which reflects the linkage among the unemployment and economic growth) in Eastern European Countries from 1992 to 2014 and found cointegration among the unemployment and GDP growth (negative relationship). Also, Noor (2007) has a similar study for the correlation among unemployment and the Malaysian economy by Okun's law and discovers a negative correlation among the output and unemployment. Nagel (2015) discussed the correlation between GDP growth and unemployment and found a negative correlation between economic growth and unemployment. Besides, Ahmed (2013) examined the relationship between the unemployment rate and growth rate in selected SAARC countries

(Bangladesh, Bhutan, India, Pakistan, and Sri Lanka) throughout 1990-2010, using OLS and found a sign of the correlation among the economic growth rate and unemployment rate vary between the SAARC countries. Khrais (2016) studied the linkage between economic growth and unemployment in MENA countries in the period from 1990 to 2016, using Simple linear regression, and found a weak linkage among the mentioned variables (- 0.009). Furthermore, there must be other factors that affect the unemployment rate. Alawin (2013) tried to show the linkage between trade balance and the unemployment rate in Jordan over thirteen years between 2000 to 2012, using the ADF test and Johansen's co-integration, and understood that decline in the trade balance can increase the unemployment rate, and unemployment can have a negative effect in the trade balance in the short-run.

2.7.2 Empirical Evidence on the effect of female population on unemployment

The study conducted by Appiah et al. (2020) was emphasized towards evaluating the impact of employment and unemployment on the percentage of change on the GDP growth among the Sub-Saharan African countries through utilizing the annual data from the period 2000 till 2014. The source from which the data have been gathered in the study is through World Bank where the statistical techniques that are applied on the data comprises of least square dummy variable (LSDV) and regression model (fixed effect model). The researcher has also incorporated the female population for evaluating its effect on the unemployment rate. The component that has been assessed for investigating the female population was female youth population (15 – 24 years' age group) on the unemployment and GDP. The results have revealed that the female youth population has a significant and positive effect on the employment in the Sub-Saharan African countries. Mehmood et al.(2015) have conducted the study to evaluate the influence of the female population on the unemployment rate among the Muslim countries. The female population has been measured through the female labor force participation in which the data is gathered from 41 Muslim countries in which the data consist from 2003 till 2013. The results have been conducted through the Generalized Method of Moments (GMM) where the results have indicated the female population has contributed towards employment rate.

Aboohamidi and Chidmi (2013) has conducted the study on examining the influence of female labor force participation on the unemployment. The female labor force participation is reflected to the aspect of female population. The study has been emphasized on MENA countries where the data have been collected from four different countries where the data have been accessed through World Bank data source. The analysis technique employed in the study consisted of pooled model which reflected to the fixed and random effect model. The results of the study have reflected that the female labor force participation has influenced on employment which was due to the improvement of literacy and urbanization rates. A similar study was conducted by Zaheer and Qaiser (2016) where the focus was particularly made towards the factors that influence the participation of the female labor forces in respect to the case of Pakistan. The data have been gathered from 1990 till 2013 in which the variables that were used in the study were female population, fertility rate, mortality rate and GDP growth. The tests that have been applied on the dataset comprised of the OLS where the results have demonstrated that female population has significant and positive effect on female labor force or employment rate whereas the mortality rate was determined to have negative and significant influence.

2.7.3 Empirical Evidence on the effect of urban population on unemployment

Maijama'a et al. (2019) has conducted the study towards investigating the influence population on the unemployment rate in the context of Nigeria through the dynamic OLS approach. The study has gathered the data from 1991 till 2017 where the statistical tests that are applied with the dataset comprised of ADF, PP and KPSS unit root testing. The results of the unit root have indicated that all the variables were stationary on the first differences. The results of the study have indicated that the population and exchange rate have positive influence on the unemployment. Hence, this indicates that the increase of the population leads towards the increase of unemployment in Nigeria. Similarly, Sadikova et al.(2017) have conducted study to investigate the association between unemployment, population growth, energy use and FDI in Russia. The data are gathered from period 1992 till 2015 and the data is

based on quarterly. The technique that is applied for conducting the analysis is through the cointegration long-run association among the determined variables through the use of VECM while the granger causality test is also applied. The results of the VECM have illustrated that energy consumption and population growth has positive influence on unemployment. Moreover, the results of the granger causality have indicated that the population and energy use have a bi-directional association. Arslan and Zaman (2014) has conducted the study to evaluate the determinants that are responsible for unemployment in Pakistan. The data have been gathered from 1999 till 2010 where the determinants that are used in the study are GDP, FDI, CPI and population growth. The authors have used the OLS regression technique for generating the outcome where the results have indicated that the GDP, FDI and CPI have significant and negative influence on the unemployment whereas the population growth is determined to have positive connection with unemployment which indicates that it increases the level of unemployment.

2.8 Chapter Summary

The chapter has highlighted about the different concepts and ideas that are present regarding the rate of employment in the country and issues of economic growth that can contribute towards the improvement in the society. It has been observed that the government has a major role in increasing the economic growth and creating the opportunities for education and employment for the common people in terms of male and female employees for the sake of economic growth.

CHAPTER 3
METHODOLOGY

3.1 Introduction

The following section represents the methodology in which the study of Orngreen and Levinsen (2017) has indicated that the incorporation of the methodology in study allows in evaluating the specific techniques or procedures for identifying, selecting, processing and analysing the gathered data. The following study is primarily focused towards the assessment of the association between the unemployment and economic growth of Jordan. Based on this, the following section refers to the philosophy, design and variables that are involved in the study. The most important section pertains with the collection of data along with the sources of variables and the analysis techniques that are applied for revealing the findings.

3.2 Research Philosophy

The research philosophy is referred to the belief of the researcher in which the data are gathered, analyzed and interpreted. There are several types of philosophies that are involved in the research which comprises of realism, positivism, interpretivism and pragmatism (Ryan, 2018). As per the nature of the following study, the research philosophy that is appropriate is positivism. As per the study of Corry, Porter and McKenna (2019), the positivism philosophy is concerned with the factual knowledge which includes the measurement of the data which thus limits the role of the researcher in terms of collecting the data and interpretation. Moreover, the positivism philosophy is dependent upon the statistical analysis in the human insight, and opinion is omitted. Hence, the measurement is performed in the study for determining as whether there is a connection between unemployment and economic growth in Jordan.

3.3 Research Design

There are particularly three methods that are involved in the study which comprises of qualitative, quantitative and mixed research design. The selection of the relevant research

design is based on the nature of the research. While referring to the qualitative research design, it is reflected to the subjective view of the study where it is concerned with the development of answers to the whys and how regarding the phenomenon of the question. The findings in the qualitative research are commonly based on textual or written format rather than the numerical. This indicates that the form of data in the qualitative method is in textual and cannot be analyzed through the quantifiable method such as by utilizing the statistical analysis techniques. The common instrument that is employed in the quantitative analysis is through interviews, focus groups, case study research, record keeping and observations (Ishtiaq, 2019). The quantitative research design is mainly emphasized on the objective view of the research where this approach is mainly suitable with the positivism research philosophy. As per the study of Apuke (2017), the quantitative research is concerned with the systematic investigation of a certain phenomenon where it involves in gathering the quantifiable data and is analyzed through performing the statistical analysis, computation technique or mathematical techniques. The nature of the quantitative is commonly based objective, elaborate and certain times, investigation. 35 The results that are achieved through the quantitative analysis are based on the logical, unbiased and statistical. The approach for gathering the data in the quantitative research is through both primary and secondary method. The approach for primary method is through the questionnaire survey whereas the secondary method involves in gathering the data through annual reports, government statements, databases and others (Queirós, Faria and Almeida, 2017). The data that is gathered through the secondary method usually consists in numerical and values. The quantitative research consists of correlational research, experimental, causal-comparative and cross-sectional research. The last method is referred to as the mixed research method which is the combination of both qualitative and quantitative research design. Based on the above information of both the methods, the research of the study is identified to bequantitative research designand it is used to quantify the problem by generating numerical data and it can be transformed into usable statistics. According to Queirós, Faria and Almedia. (2017) it is used in assess and evaluate the opinions and behaviors of variables that’s results from a large sample population. Moreover, it can be

used find the averages and patterns of the study that help to make decisions based on the results.

The rationale behind the selection of the quantitative research design is due to the aim of the study mainly investigates the nexus between the economic growth and unemployment particularly in Jordan. There are several studies that similarly investigate the connection of economic growth and unemployment but are emphasized on different countries (Hussain, 2018; Alamro, 2018; Magnani, 2013; Xesibe, 2020). However, there are no recent existing studies regarding Jordan that investigate the interconnection of unemployment and economic growth. Moreover, there are several theories that evaluating the unemployment and economic growth which comprise of endogenous growth of theory, structural unemployment and Phillips Curve. Therefore, the study is considered to be experimental and correlational research as it investigates the interconnection between two components. Hence, the quantitative data are gathered through the secondary method where the numerical data are extracted along with applying the statistical analysis for providing with the logical and unbiased results. In accordance to Biswas and Muthukkumarasamy (2017), the benefit of using the quantitative study is that it enables in conducting evaluation on larger data samples that can be processed and analyzed through the consistent procedures of data analysis. The use of the 36 quantitative analysis techniques also supports in testing the developed hypothesis. The approach of the study is determined to be deductive as with the support of theories and empirical evidence; there are several hypotheses that are developed in the initial part of the study where the use of the quantitative research enables in testing the hypothesis. Based on the above discussion, the quantitative research design is highly suitable for the study in terms of generating the results that enables in achieving the aim and objectives.

The quantitative research design is concerned with evaluating the numerical values in which the statistical analysis is performed for revealing the findings (Rutberg and Bouikidis, 2018). Moreover, quantitative research design is common with the econometric study where the analysis performed on the data can support in revealing the findings.

3.4 Data

As per the conceptual framework, there are three independent variables that have been highlighted in the study that includes economic growth, female population and urban population and there is only one dependent variable that consists of unemployment. The main goal of the variables identified in the study is to evaluate the connection between economic growth and unemployment. There are two methods of collecting data that includes primary and secondary data collection method and this research has focused on measuring the relationship between unemployment and economic growth. Hence, the data collected in this study is through secondary research where authentic and genuine websites are accessed. Furthermore, that nature of the study is quantitative and the data collected is from 1991to 2019 which represents the time series of 29 yearswhich is the longest possible time series for which data are available on all variables cause the quarterly and monthly is not available. The source for obtaining the data is through the World Bank which consists of various economic indicators for every country in the globe.

Figure 3-3: Conceptual framework:

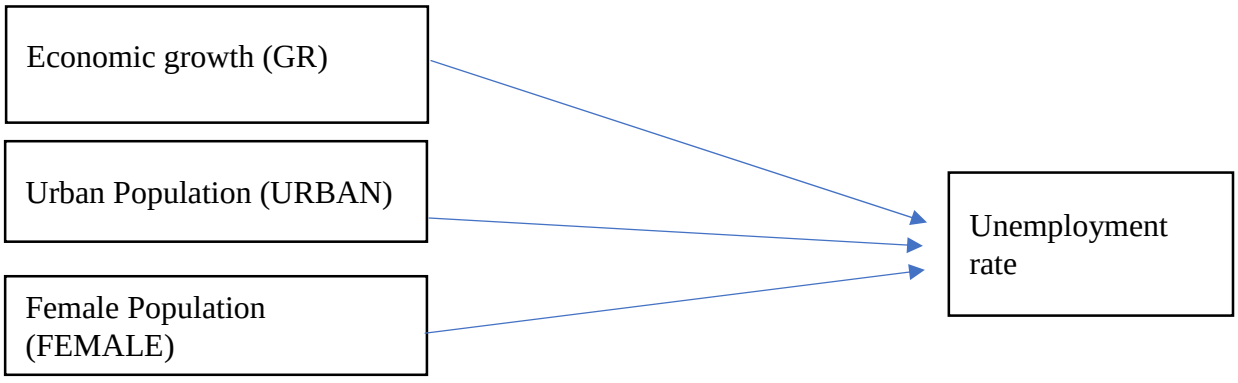


Figure 3-1 refers to the conceptual framework of the research where it is mainly developed with the support of the literature along with the aims and objective of the study. There are four

variables that are identified to be the independent or explanatory variables which comprise of economic growth, female population and urban population. On the other hand, the unemployment rates are the dependent or predicted variable of the study in which the effects and relationship of the explanatory variables are examined on the predicted variable i.e. unemployment. Hence, the secondary data are gathered from the above identified variables in the context of Jordan in which the source of gathering the data is provided below on the following table:

Table 3-1: The variable of the study

Variables	**Description**
Economic Growth	The economic growth mainly represents the economic condition of the country which is mainly measured through GDP. GDP growth (annual %)
Female Population	The female population includes the number of women that are either employed or unemployed in the country. Population, female (% of total population)
Urban population	The urban population is referred to people whom live in cities and urban areas. Urban population (% of total population)
Unemployment	Lastly, the unemployment rate is referred to the % of the population of the country that does not have any job for generating income. Unemployment, total (% of total labor force) (modelled ILO estimate)

Source: The World Bank.

As per the above table, the component that would be assessed for evaluating the economic growth which is the GDP growth (annual %). For female population Population, female (% of total population). The urban population component that is investigated is the urban population (% of total population), the unemployment rate of Jordan is measured through Unemployment,

total (% of total labor force) (modelled ILO estimate). The source from which all the variables are extracted is through World Bank which comprises of the databases regarding the economic, social and environmental of the countries.

The format of data is in numerical format, therefore statistical analysis is performed for revealing the findings and the data will further be analyzed through the use of E-views and it would support in providing a range of statistical techniques. The first important statistical technique that would be conducted are the preliminary testing which involves the descriptive statistics and graphical assessment which involves in summarizing the raw data into meaningful form. The other preliminary testing that are conducted in the dataset is augmented dickey fuller (ADF) and (DF) test for evaluating whether there is a presence of unit root or not in the data. The null hypothesis of the ADF testing is that there is a presence of unit root in the data. In case of unit root presence, the data are converted to first difference for the removal of unit root and thus making the data stationary. The other preliminary testing that are conducted in the dataset is the autocorrelation and heteroskedasticity testing for determining its issues. The other statistical techniques that are performed through E-views.

The linear equation model for performing the regression analysis is provided in equation number 3.1:

$$UN_t = \alpha + \beta 1 GR_t + + \beta 2 FP_t + \beta 3 UP_t + \varepsilon_t \quad \textbf{3.1}$$

Where

- UN_t is the unemployment rate at year t.
- GR_t presents the economicgrowth at year t.
- FP_t presents the female population at year t.
- UP_t shows the urban population at year t.
- ε_t shows the error term.

-$\alpha$is the intercept, $\beta 1$, $\beta 2$ $and \beta 3$ are the coefficients of the independent variables which show the elasticity of the variables.

The main issue is to investigate the relationship between unemployment and economic growth, but I added control variables (UP,FP) because they are important to Jordan as they affect the unemployment rate in Jordan.

3.4.1 Economic growth

The economic growth of a country depends on different factors, and it affects the unemployment rate depending on the situation of the country. The economic growth of the country can be affected through inflation, tax rate, interest rate and various other factors, however, inflation is considered to be one of the most important factors. Furthermore, if inflation is high, itcauses the unemployment rate to be high and if the inflation is low, it can cause the employment level to increase and low inflation further causes the debt level and tax level to decrease. Previous studies state that there is a significant relationship between economic growth and the unemployment rate.

3.4.2 Female population

Most of the population unemployed in Jordan includes women and they amount to 26.9% of the total unemployed population. Furthermore, women are considered to take care of households in the country, and this has caused the employment rate to be affected. Moreover, the unemployment rate of Jordan is considered one of the highest rates in the world according to the data reported by the world development indicators.

3.4.3 Urban population

It has been observed that the urban population creates jobs and employment for people in the market as most people of the urban area tend to be entrepreneurs and it causes the economy to be affected. Moreover, the people of the urban population tend to contribute to the economy byintroducing new business lines which cause the employment level of the country to increase.

3.5 Methodologies

3.5.1 Augmented Dickey-Fuller Test

Augmented Dickey-Fuller Test (ADF) is one the most common statistical used to determine if the time series is stationary or not. The ADF test belongs to the category of unit root test and it is considered as a proper method for testing the time series. According to Paparoditis and Politis (2018) the ADF test is used to test stationarity or presence of the unit root and it is conducted by the augmenting the equation in which the difference form of lag of the dependent variable is added to the independent variable. In the case of the presence of unit root, a first-order differenced series is tested for stationarity in order to implement the required test. The following are the three variants of the ADF test as in equation number 3.1:

No Constant and no trend

$$\Delta \quad = \gamma 1Y \quad -1 + \sum i = 1m \qquad -i + \mu \quad \ldots\ldots \quad \textbf{3.1.1}$$

Constant and no Trend

$$\Delta \quad = \gamma 0 + \gamma 1Y \quad -1 + \sum i = 1m \qquad -i + \mu \quad \ldots\ldots \quad \textbf{3.1.2}$$

Constant and Trend

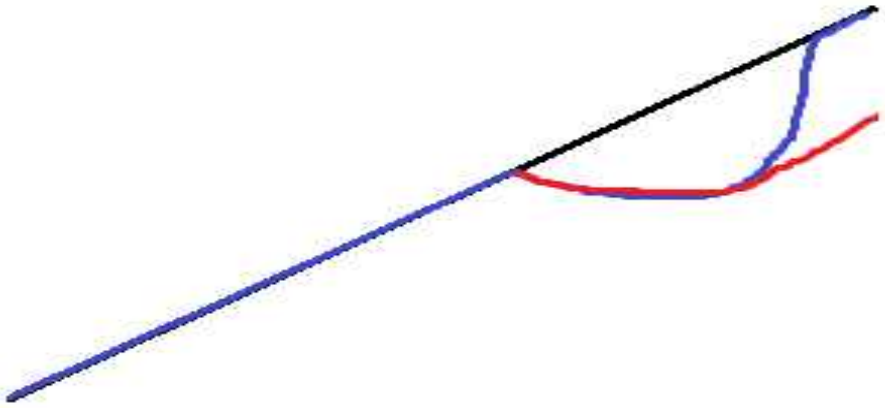
$$\Delta \quad = \gamma 0 + \gamma 1Y \quad -1 + \gamma 2t + \sum i = 1m \qquad -i + \mu \quad \ldots\ldots \textbf{3.1.3}$$

μt is a pure white noise error term and ΔYt is the first difference of the dependent variable. The pattern of the first dependent variable needs to be verified by observing the diagrammatic representation. According to Islam, et al. (2018) if the data series exhibits neither drift no a trend the equation 1 can be applied and if the series exhibits drift but not trend then equation 2 can be applied and the series exhibits both trend and drift then equation 3 canbe applied. This test will help to evaluate the dependent variables with the independent variables of the study and further helps to develop a null hypothesis and has helped to evaluate the relationship between economic growth and unemployment of Jordan. Concerning this preliminary test, the following hypotheses have been evaluated which includes both null and alternative hypotheses:

H_0: The tested time-series is non-stationary since a unit root is present.
H_1: The tested time series is stationary.

According to Ramenah et al. (2018) Augmented Dickey Fuller test is used for testing the unit root for stationary and can provide with accurate results and unit roots can cause results to be unpredictable. Economic growth, female population and urban population have been tested for stationary using the time series at level and at first difference it was found that the variables were not stationary. Furthermore, trends and drifts have been examined in the study, and it has caused the equation identified above to be used.

Figure 3-2: Unit Root Presence



Source: www.statisticshowto.com/unit-root/

For better understanding of unit root in the time series data, the figure 3-2 represents the trend of the data set which evaluates the presence of unit root. The red line indicates that there is a drop in the dataset and has no path to recovery in the time series data which indicates that there is the presence of unit root and overall influences on the time series dataset. In case if there is a recovery in the data set which is indicated in the blue line suggests that there is no

unit root and the series is determined to be stationary. Hence, it is critical to evaluate the unit root of each of the variables that are identified in the study.

3.5.2 ARDL Bootstrap Cointegration Model

The ARDL bootstrap cointegration model is used to examine the cointegration relationship between the variables and it has the ability to deal with weak and power properties that are being faced in the conventional ARDL method (Nawaz, Lahiani and Roubaud, 2019). This helps in increasing the power of the F-test and the T-test ARDL bootstrap has the approach and the ability to integrate the new cointegration test using resampling technique while adding the conventional ARDL that is bound to the testing of cointegration framework. The bootstrap ARDL provides an additional test on the significance of the coefficients on lagged levels of the regressors and it would provide a better and reliable insight into the cointegration of status of the model. The equation number 3.2 that is used in the ARDL method is:

$$\Delta ln \qquad = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta U \qquad _{t-i} + \sum_{i=0}^{n} \delta_i \Delta X_{t-i} + \varphi_1 U \qquad _{t-1} + \varphi_2 X_{t-1} + \mu_t \quad \textbf{3.2}$$

Where X represents vector of independent variables and lnUnem is the dependent variable that is unemployment.

According to McNown, Sam and Goh (2018) the bounds testing approach is perceived as more powerful as compared to conventional ARDL which provides more accurate inferences in the test of a small sample size and it considered as an important advantage in terms of testing long-term association. Another benefit of this model is that critical values are generated and causes the possibility of eliminating the indecisions cases which can occur in the conventional approach and the study is related to Jordan, therefore, the sample size of number of observations are limited and this model is considered as a more preferable approach. Ghazouani, Boukhatem and Sam (2020) have identified that data series must have unique order of integration for the models to be applied, therefore, the ARDL Bootstrap Cointegration Model is used as it is flexible in terms of the applications when the data do not have a unique integration order and this model can be applied on variables that have different integrations. This model can provide consistent results on small data sets and it can be reliable. Moreover,

in the case of lag variables, it provides more options and can handle the phenomenon in variables.

3.5.3 ARDL Model

The ARDL method is an autoregressive distributed lag model and it is also considered as an Ordinary Least Square (OLS) model that is used in both stationary time series and non-stationary series with mixed order of integration, it was developed by (Pesaran and Pesaran 1997, Pesaran and Shin 1999, Pesaran et al. 2001). According to Busu (2020) this model takes into consideration sufficient number of lags and it further uses those lags to capture the data generating process in converts it into one specific modelling framework. The model of ARDL plays an important role when the data areanalyzed through economic variables and it help to identify changes in the variables

According toOsman et al. (2019) one the main advantage of ARDL is that it is more robust and it performs better in small sized data. The time-series of the data in this study is 29 years and it would provide results that are accurate. According to Qamruzzaman and Wei (2018) collinearity occurs in every model; however, this model has been designed to counter the lacks of models and causes the data to be more accurate. Moreover, this model solves the issue of choosing an optimal lag length and further imposes a structure on the length of the lag by making the model more linear. Furthermore, this model solves the issue of collinearity by following the lag of the dependent variable and there are four dependent variables identified in the study, therefore, it will create structure based on lags of each variable context to the independent variable. There are assumptions of the ARDL model that includes there is absence of correlation in the first requirement of ARDL and it states that there are no errors related to the autocorrelation (Kripfganz and Schneider, 2018). The variance and the mean are constant throughout the model and there is no heteroscedasticity in the model and the data of the model should follow normal distribution. The data of the model should be stationary and the variables associated with the model should be stationary to the model to show accurate results and ARDL is used to address the lag problem in a more efficient manner. This model

will further help to identify the lag problems of the variables of Jordan and according to the sample size it is considered as a more preferable approach. E

$$\Delta yt = \beta 0 + C0t + \sum \lambda i \Delta yt - iqi = 1 + \sum \varphi j \Delta xt - jpj = 0 + \delta 1 yt - 1 + \delta 2 xt - 1 + \varepsilon t \quad \textbf{3.3}$$

Where, $\beta 0$ is a constant, $C0$ is the time trend, εt is the white noise error. The coefficients λj&φi for all j represents the short-run relationship while $\delta 1$ and $\delta 2$ corresponds to the long-run relationship.

3.5.4 Breusch-Pagan-Godfrey test

The Breusch Pagan Godfrey test is used to measure heteroscedasticity errors in regression the term means unequal variances. Homoscedasticity is one of the significant assumptions of the regression analysis and if the assumption is violated it indicates that regression analysis is not valid (Đalić and Terzić, 2021). The equation 3.6 shows the test static for the Breusch Pagan Godfrey test is as in equation number 3.4:

$$N * R^2 \quad \textbf{3.4}$$

Where:

- n = sample size
- R^2 = R^2(Coefficient of Determination) of the regression of squared residuals from the original regression.

H0: The error variances are equal.

H1: The error variances are not equal.

According to Shenkin, et al. (2019) the pagan test measures the increase in errors of the variables through explanatory variables and the test further assumes that error of variances is caused from the linear function if there are more than one variable. This further indicates that heteroskedasticity is still present in the model and it is not correlated. The importance of the test is that it is performed under assumption basis and the errors are independent and distributed identically. Cui and Gong (2018) have observed that the estimators of OLS and regression predictions are based on the test are consistent and unbiased and the estimators of

OLS are not efficient, therefore is causes the regression predictions to be inefficient. There is inconsistency in the tests, therefore it causes the hypothesis to be no longer valid. The variables of the study will be distributed normally, and the data will not be scattered, therefore, it will enable the researcher to perform the tests in an organized manner.

3.5.5 Breusch-Godfrey LM Test

The Breusch Godfrey LM test is the test for autocorrelation in the errors of the regression model and it further makes use of the residuals that are considered in the regression analysis. The null hypothesis of this test is that there is no serial correlation of any order up to p (Hajria, Khardani and Raïssi, 2017). The test of Breusch Godfrey LM test is performed through the auxiliary regression of the residuals on the original variables and the lagged residuals and the unrestricted variables are added in the auxiliary regression.

H0: There is no serial correlation of any order up to p

H1: There is serial correlation of any order up to pT

The LM test is considered to be valid for the systems that have lagged independent variables and residual autocorrelation. The LM test is known as the Lagrange Multiplier and it is general principle for testing the hypothesis. Furthermore, the LM tests are used to assess the validity of modelling assumptions that is observed in the data series. The structure in which the LM testing takes place is known as the economic models and regression models are used in which the tests can be applied where the lagged values are used the independent variables for observations. The equation 3.5 used for LM test which is:

$$L = (n - p)R^2 \quad \textbf{3.5}$$

Where, *n* is the original sample size, p is the df and R^2 is the r-squared where *k* = the number of independent variables

Nazlioglu and Karul (2017) states that its advantage is that it is computed using the results of the null and restricted model and it is easier to evaluate the data as it has an unrestricted

model. Another advantage of this test is that it has additional distributional properties and it further helps to evaluate the random effect of the variables. This model has been implemented in the study to test the errors in the variables through autocorrelation, and it is mostly used to evaluate the economic and the variables identified are related to economic, therefore, it will help to analyze results.

3.5.6 Ramsey Reset test

The Ramsey reset test is also known as the regression equation specification error test in which the general specification tests. It tests whether non-linear combinations of the values help to explain the response of the variable (Theeconomicsociety.org, 2021). In this model the assumptions are being regressed and cause the specifications to be identified. The Ramsey reset test has been used in research to determine the assumption of different models in context to the specifications of the variables. Similarly, the study conducted by Galadima and Aminu (2017) has indicated that the Ramsey's reset (Regression Specification Error Test) which is applied for testing the non-linearity among the association that involves time series. In respect to statistics, the Ramsey reset test is also identified as a mis-specification test for linear regression that helps in determining the errors of omitted variables, incorrect and correlation between X and μ. The equation 3.6 show the equation of the Ramsey reset test:

$$y = a \quad + y_1 \ddot{y}^2 + \cdots + y_{k-1} \ddot{y}^k + \varepsilon \textbf{3.6}$$

Where yˆi are the fit values of y1 generated in the initial regression.

- *H0: Model is suffering from mis-specification.*
- *H1: Model does not suffer from mis-specification.*

3.5.7 Jarque-Bera Test

According to Desgagné and Lafaye (2018) Jarque-Bera test is a multiplier test and that is used for measuring the normality and this test confirms the normality of large data sets. The results of the test must match the skewness and the kurtosis of the data and should ensure that it

matches the normal distribution. The data of this test can be in various forms that includes, time series data, errors in the model of regression and data in the vector. Song and Zhao (2021) have observed that the normal distribution of having a skew of zero and the kurtosis is of 3. Kurtosis in the data tells that how much data is in the tails and how it peaks the distribution level. The formula for the Jarque-Bera test is shown at equation 3.7 as:

$$JB = [\frac{n-k}{6} * (S^2 \frac{(K-3)^2}{4})] \textbf{3.7}$$

where S is the skewness, K is the kurtosis, n is the number of observations, and k is the number of estimated coefficients used to create the series.

H0: The data are distributed normally.
H1: The data are not distributed normally.

If the results of the test are 1, it indicates that the null hypothesis has been rejected and the significance level of acceptance is 5% and in other words it does not have a normal distribution and the value of 0 indicates that data is distributed normally. However, one drawback of this test is that many statistical software does not support this test and in order to interpret the results comparison has to be made. Skewness in Jarque Bera test is a moment-based measure and it uses the third power expected value of the variable and the variable is further centralized by subtracting it from the mean. The probability distribution is known to be perfectly symmetric and this indicates that it will have skewness of zero. Kurtosis is the measure of how different the shapes of the tails are in the distribution as compared to other distributions. According to Górecki, et al. (2018) skewness focuses on the overall shape whereas, kurtosis focuses on the shape of the tail. This test enables to eliminate any problems in the data and it causes the normality distribution to be based on probability.

3.5.8 CUSUM test

CUSUM test was introduced by Brown, Durbin and evans (1975), where the test is based on recursive residuals which are independently distributed under the null hypothesis. The

cumulative sum (CUSUM) of recursive residuals is applied to assess the parameter stability (Pesaran & Pesaran, 1997). The cumulative sum test identifies systematic changes in the regression coefficients.

3.6 Ethical Limitations

The role of the researcher is to ensure that the study conducted is within the ethical boundaries and does not violate any of the ethical aspects.The ethical consideration is considered to be an important element of the research study. Based on this, the external information used in the study would be properly referenced and provided with in-text citation for providing credit to the authors for their work. In addition to this, the guidelines provided by the institute for conducting the study has been critically followed for ensuring there is no violation on the ethical components. Hence, the information that is extracted from outside sources for determining the empirical evidences, theories and method for conducting the study are properly referenced and is provided with in-text citation. This enables in providing credit to the authors whose work has helped in conducting and completing the entire research. The instructions that are provided by the institute have been carefully and critically followed for ensuring that the study is within the ethical aspects. The role of the researcher is to ensure that the ethical and academic guidelines are not violated as the violation of the rules and regulation can overall lead to severe consequences. Moreover, the results generated from the study are not violated in any manner for ensuring unbiased results are provided.

The benefits of considering the ethical consideration is that it would lead towards enhancing the reliability, credibility and authenticity of the study. One of the important guidelines of the researcher in carrying the study as per the study of Saha (2017) is that the researchers must avoid plagiarism in the scientific writing. The term plagiarism is defined as copying other peoples work without providing any credit to the authors in their original work.

Another critical factor of ethical aspect that contributes towards boosting the validity and reliability of the study is honesty where the study must be carried out with honesty which must not include any personal biasness that also leads towards minimization of the error. Therefore,

the data that is gathered through the secondary sources and the results that are generated through the statistical analysis are not manipulated for providing with reliable and valid results. The ethical factor carefulness is considered to be another important aspect of ethical consideration where the guidelines for conducting the study is carefully followed.

3.7 Chapter Summary

This chapter has discussed the research design along with the approach that will be used in the study for the data collection process. The first critical element that is discussed in the methodology is the research paradigm where it is determined that the nature of the following research is quantitative research design. The rationale behind the quantitative research as the aims and objectives of the study are based on correlational and experimental research. Therefore, the study is based on conducting statistical analysis through gathering secondary data where the variables that are identified for the research are economic growth, unemployment rate, female population and urban population.

Moreover, the chapter has identified the appropriate tools that will be used to evaluate the data, and the variables have been identified that will have collected official sources. The first statistical is the ADF test which is considered to be the preliminary testing of the dataset. The purpose of the data is to determine whether there is a presence of unit root or not in the dataset. Furthermore, several techniques have been discussed in detail along with their equations and advantages that will help to the researcher to perform tests in an organized manner. These statistical techniques comprise of ARDL bootstrap cointegration model, ARDL model, Jarque-Bera test, Breusch-Godfery LM test, Breusch-Pagan-Godfrey test and Ramsey Reset test. Hence, these tests are discussed in depth along with the equation and hypothesis of the tests. Ethical considerations have been provided that will assist research to follow the rules and it would further help the researcher to not to violate the rules of conducting the study.

CHAPTER 4
RESULTS AND DISCUSSION

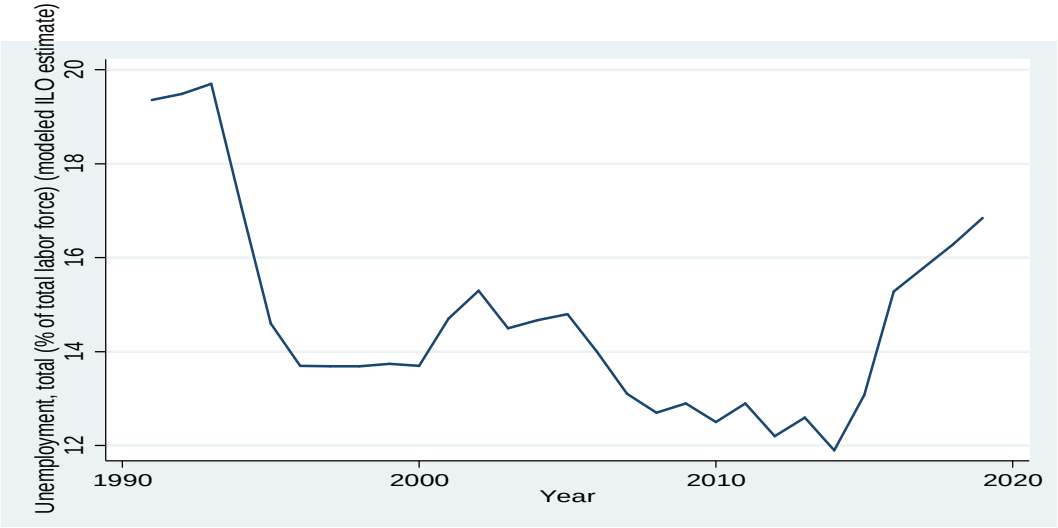
4.1 Introduction

The following sections represent the results and findings where the data that is gathered through the secondary method is analyzed and interpreted. The main goal of the research is to evaluate the nexus between unemployment and economic growth where the data is based on numerical data. Therefore, the statistical techniques as discussed in the methodology section are applied

on the dataset and are further interpreted for revealing the findings of the research. There are wide ranges of statistical techniques that are applied on the dataset where the purpose is to evaluate the normality, determining presence of unit root, normality testing and cause and effect testing.

4.2 Graphical representations

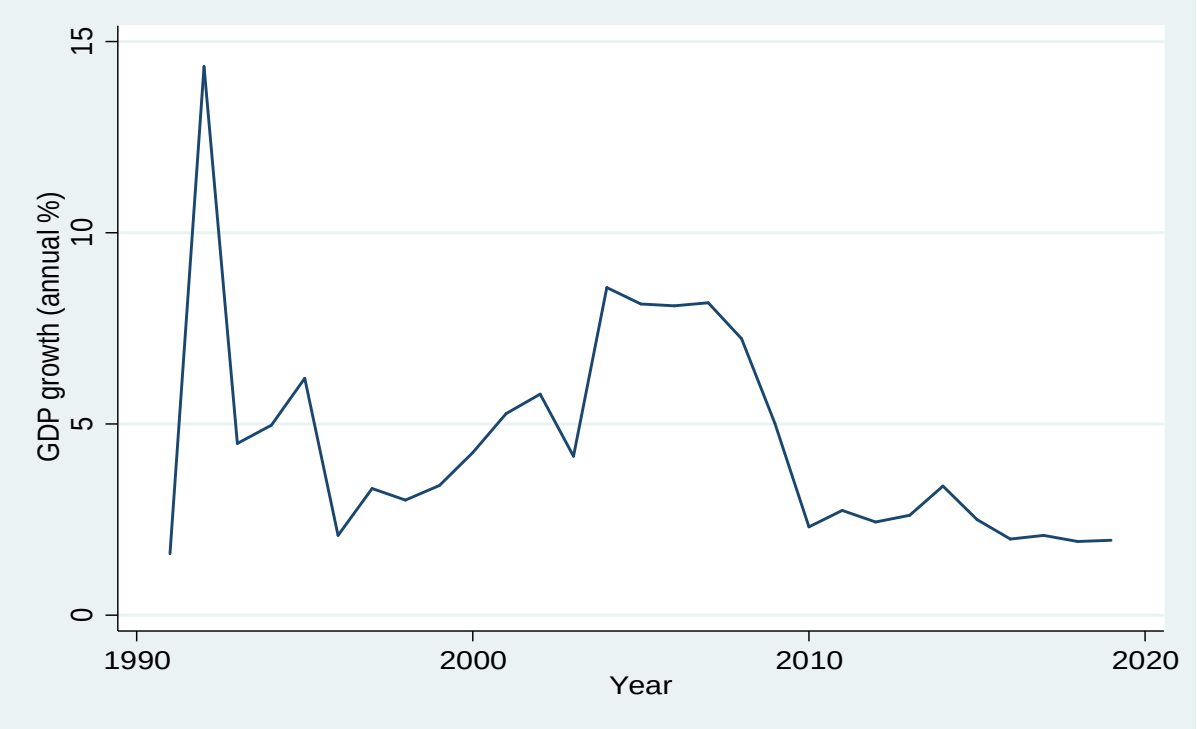
Figure 4-1: Unemployment Rate



Source: International Labour Organization, ILOSTAT database

Figure 4-1 represents the unemployment rate of Jordan based on the data collected from 1991till 2019. As per the graph, the unemployment rate of Jordan in the three starting period 1991 – 1993 was considered to be highest through the period as it was 19%. However, the unemployment level of the country has started to decline where it had remained stale from 1996 till 2014. However, onwards from 2015, the unemployment rate of Jordan has once again started to increase which was 16.85% in 2019.

Figure 4-2: Economic growth



Source: *World Bank national accounts data, and OECD National Accounts data files.*

Figure 4-2 refers to the economic growth of Jordan that is measured from the GDP growth. The economic growth in 1990 was 1.61% and the growth has significantly increased by 14.35% in 1992 which is considered to be highest point of economic growth of the country. However, from 1993 till 2010, the GDP growth of Jordan has remained volatile in which it has either increased or decreased. The GDP growth of Jordan from 2011 till 2019 has remained almost stable where it was recorded to be 1.96% in 2019.

4.3 Descriptive Statistics

Descriptive statistics is the test that is used to illustrate the fundamental aspects of the data in the research study. These tests offer simply classification and summary of the raw data into meaningful form Hussain et al.(2019). It allows to represent data into mean, averages, minimum, maximum and standard deviation that makes analysis meaningful and helps to provide quantitative descriptions related to the data. Thus descriptive analysis on economic indicators of a country is carried out Appiah et al.(2019).

Table 4-1: Descriptive Statistics

	UNEMPLOYMENT	GROWTH	FEMALE	URBAN
Mean	14.64862	4.553716	48.52356	82.51062
Median	14.00000	3.389530	48.40822	79.48500
Maximum	19.70000	14.34978	49.38968	91.20300
Minimum	11.90000	1.608530	47.63253	74.45500
Std. Dev.	2.144976	2.876532	0.645022	5.588021
Skewness	1.084423	1.541538	0.039312	0.394655
Kurtosis	3.394279	5.624553	1.547784	1.571882
Jarque-Bera	5.871714	19.80898	2.555760	3.217226
Probability	0.053085	0.000050	0.278627	0.200165
Sum	424.8100	132.0578	1407.183	2392.808
Sum Sq. Dev.	128.8258	231.6842	11.64948	874.3275
Observations	29	29	29	29

Source: Estimate by the author using eviews.

Descriptive statistics include mean, median, maximum, minimum as well as the Jarque-Bera test for normality values of the series. The statistics also include the standard deviation with respect to the mean.According to table 4-1 it is found that, the highest central tendency (mean) is for urban population which is 82.51062, and the highest standard deviation also for urban population which is 5.588021 for which means that it fluctuates more than the other variable. The skewness for all the variables are positive which means that all the variables have a higher long right tail of the distribution (Right-Skewed).The Kurtosis statistics measures the peakness or flatness of the distribution of the series and a mesokurtic contains a normal distribution with a kurtosis value of 3 and if it is leptokurtic, it means it has a positive kurtosis (peaked curve) with higher values than the sample mean whiles being platykurtic implies that it has a negative

kurtosis (flatted curve) with lower values than the sample mean. The kurtosis results show that the kurtosis for unemployment and growth are leptokurtic means that they have steeper curve while female and urban population are platykurticmeans that they have a flatter curve.

4.4Dickey-Fuller and Augmented Dickey-Fuller Test

The augmented dickey-fuller (ADF) test is applied on the data of each variable for evaluating whether there is a presence of unit root or not. In other words, the use of this technique enables in determining as whether the data are stationary or non-stationary. The null hypothesis of the ADF test is that the data is non-stationary, meaning that the unit root is present in the dataset. In case of the presence of unit root, the variable is transformed in first-difference for converting it into unit root. However, if the variables are found to have unit root; regardless of its transformation would be dropped. The acceptance or rejection of the null hypothesis is based on the significance value where it must be below the threshold 90%, 95% and 99% confidence interval. The results of the ADF test is provided in table 4-2 where the variables that is found to be stationary in level is GDP growth, Female population and Urban population. The unit root presence of the variable unemployment is eliminated on the first-difference.

GDP growth, unemployment rate and urban population is significant at 5% level of significance while female population is significant at 10% significant level, this means that the null hypothesis will not be accepted. Therefore, we conclude that the time series collected are all stationary.

Table 4-2: Augmented Dickey-Fuller Test

Variable	Level	First Difference	Lag
	P-Valuse	P-Valuse	
Unemployment rate	0.2307	0.0385**	I(1)
GDP growth	0.0073***	-	I(0)
Female population	0.0635*	-	I(0)

Urban population	0.0311**	-	I(0)

*** Significance at 1%; ** Significance at 5%; * Significance at 10%

Source: Estimate by the author using eviews.

Table 4-3: Dickey-Fuller Test

Variable	Level	First Difference	Lag
	t-statistic	t-statistic	
Unemployment rate	-1.350859	-3.138991	I(1)
GDP growth	-3.478218	-	I(0)
Female population	-2.979738	-	I(0)
Urban population	-3.80568	-	I(0)
Test critical values:	1% level		-2.66072
	5% level		-1.95502
	10% level		-1.60907

Source: Estimate by the author using eviews.

The result of Dickey-fuller test is shown in table 4-3, to check the stationary in the time series, the t-statistic in level for GDP growth, female population and urban population are smaller than critical value at 1%,5% and 10% so we reject the null hypothesis of unit root presence so the variables are stationary in level and the first difference for unemployment rate I(1) is also smaller than the critical value for the three statistical thresholds of 1%, 5% and 10%. So we reject the null hypothesis of a unit root, all the variables are stationary.

4.5 ARDL Bootstrap Cointergration Model

The ARDL bootstrap cointegration model is used to examine the cointegration relationship between the variables.

Table 4-4: ARDL Bootstrap Cointegration Model

	value	t-test
FSS	1.788779	7.187343
tDV	-2.20006	-4.07031
tIV	0.520943	2.852431

Source: Estimate by the author using eviews.

Table 4-4 reports the results of ARDL Bootstrap cointegrationwe employ the bootstrapping ARDL approach to examine the correlation and long-run relationship among the variables and as we can see the FSS is F-statistic, tDV shows the t-statistic for Dependent variable, tIV presents the t-statistics for Independent variable, the cointegrating relationship among the variables at a 5 % significance level. The results confirm that there is long-run cointegration between the variables both independent and independent ones.

4.6 ARDL Model

ARDL model approach is referred as a test This test allows the researchers to analyze presence of long-term and short-term relation among independent and dependent variables in the perspective long and short-term relationship Roespinoedji et al.(2019). This technique is considered as comparatively a new technique and has several benefits over other conventional tests of co-integration. At first, this approach is utilised regardless of if the series or data set is I (0) or I (1) Sinaga(2019). Secondly, unrestricted error correction model UECM is driven form this technique that is based on simple linear transformation. Thus, this mode has both long and short-run dynamics Menegaki et al.(2019).

The analysis is made on the decision rule that if value of Probability or P-value is lower than 0.05 that is value of the confidence interval, the null hypothesis is accepted that is dependency of dependent variable on explanatory variables.

Table 4-5: ARDL Long-Run Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GROWTH	1.007216	0.220948	4.558606	0.0010
FEMALE	-5.852433	1.516568	-3.858998	0.0032
URBAN	0.850357	0.196843	4.319972	0.0015
C	226.5138	58.63781	3.862931	0.0031

Source: Estimate by the author using eviews.

The result of ARDL in the long-run is shown in table 4-5 it is found that all the variables are statistically highly significant at 1%,5% and 10% confidence interval as P-value for GDP growth, female population and urban population are less than 5% which signifies that past trend predicts the future trend of these variables and there is a long run relationship between the variables. If the GDP growth increases by one percent, it will lead the unemployment rate to increase by 1% points similarly, an increases in urban population by one percent will lead the unemployment rate to increase by 0.85% points, and an increase in female population by one percent will lead the unemployment rate to decreases by 5.85% points.

Table 4-6: ARDL Short-Run Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GROWTH)	0.215958	0.066488	3.248068	0.0087
D(GROWTH(-1))	-0.760458	0.150824	-5.042025	0.0005
D(GROWTH(-2))	-0.429544	0.115982	-3.703534	0.0041
D(GROWTH(-3))	-0.176407	0.048560	-3.632747	0.0046
D(FEMALE)	-54.94695	6.865854	-8.002930	0.0000
D(FEMALE(-1))	33.17742	4.871529	6.810473	0.0000

D(URBAN)	1.195816	0.327693	3.649199	0.0045
D(URBAN(-1))	-2.150548	0.442510	-4.859891	0.0007
D(URBAN(-2))	-1.205515	0.534119	-2.257017	0.0476
D(URBAN(-3))	-1.075354	0.385401	-2.790218	0.0191
ECT(-1)	-1.025775	0.166563	-6.158480	0.0001

Source: Estimate by the author using eviews.

The results of ARDL for short-run is shown in table 4-6,it has been found that all the variables are statistically significant at 1%,5% and 10% confidence interval which means that there is a short-run relationship between the variables. The coefficient of GDP growth is 0.215958 with significant probability of 0.0087 which means that if GDP growth increases by one percent it will lead the unemployment rate to increase by 0.21% and the lag of GDP growth is -0.760458 with p-value 0.0005 which is highly significant at all level means that if the preceding level of GDP growth increases by one percent the unemployment rate will decrease by 0.76%. Also found that female population coefficient is negatively significantly related with unemployment rate as p-value 0.000 means that an increase of female population by one percent will lead to a decrease the unemployment rate by 54.94%. The results also indicate that the coefficient of urban population is 1.195816 positively significantas P-value is 0.0045 This shows that; its past values predict a future trend of the variable and an increase in urban population by one percent will lead the unemployment rate to increase by 1.19%.

The error correction term ECT-1 is -1.025775 negative and statistically highly significant with probability 0.0001shows that 1.025% variations in the variables are corrected by the error correction model which reveal that the disequilibrium can be adjusted to the long-run with higher speed.

4.7Breusch-Pagan-Godfrey Test

The heteroskedasticity issue is examined with the support of the Breusch-Pagan Godfrey test where it is applied in the regression for investigating the unequal variance. The

homoscedasticity is the opposite of the heteroskedasticity test where the issue of heteroskedasticity leads to the violation of the assumption on the regression analysis. The null hypothesis of the Breusch-Pagan Godfrey test is that the error variances are equal which means that the there is no issue of heteroskedasticity in the dataset.

Table 4-7:Breusch-Pagan-Godfrey Test

Null hypothesis: Homoskedasticity

F-statistic	0.594582	Prob. F(14,10)	0.8186
Obs*R-squared	11.35680	Prob. Chi-Square(14)	0.6578
Scaled explained SS	4.234664	Prob. Chi-Square(14)	0.9939

Source: Estimate by the author using eviews.

The result of the test is provided in table 4-7 the chi-square value is computed as 0.6578 while the probability value is 0.8186. The probability value is above 0.05 (5%) which leads to the acceptance of the null hypothesis of homoscedasticity. The Breusch-Pagan-Godfrey test makes clear that the residuals of the model are free from heteroscedasticity. Therefore, on the basis of the results, the error variances are equal which suggests that there is no issue of heteroskedasticity in the dataset.The third version of the test statistic (Scaled explained SS), which as the name indicates is based on a normalized version of the explained sum of squares from the auxiliary regression, gave the same conclusion that there is no evidence for the presence of Heteroskedasticity problem since the p-values are more than 10, 5 and 1%. The coefficient estimates of the OLS regression model are efficient.

4.8Breusch-Godfrey LM test

The autocorrelation issue has been evaluated through the use of the Breusch-Godfrey LM test. The issue of autocorrelation is reflected to the scenario in which the residuals of the models are correlated with each other overtime. The null hypothesis of the test is that there is no serial correlation issue in the data set. In terms of the test, the term LM is recognized as the

Lagrange multiplier where it assesses the validity of the modelling assumption that is observed in the data series.

Table 4-8:Breusch-Godfrey Serial Correlation LM Test

Null hypothesis: No serial correlation

F-statistic	1.192406	Prob. F(1,10)	0.3005
Obs*R-squared	2.663426	Prob. Chi-Square(1)	0.1027

Source: Estimate by the author using eviews.

The results of detecting the autocorrelation through the Breusch-Godfrey LM test is provided in **Error! Reference source not found.**-8,both the F-statistic and Chi-Square versions of the test statistic provided the same conclusion that there is no indication for the presence of a serial correlation. Since the p-value is below 5% confidence level; therefore, the null hypothesis is accepted.

4.9 Ramsey Reset test

The Ramsey test is applied on the dataset for evaluating whether the model of regression is correctly specified or has the variables been omitted. The null hypothesis of the Ramsey reset test is that the model is correctly specified and the variables has not been omitted.

Table 4-9: Ramsey Rest Test

Null: Model is correctly specified.

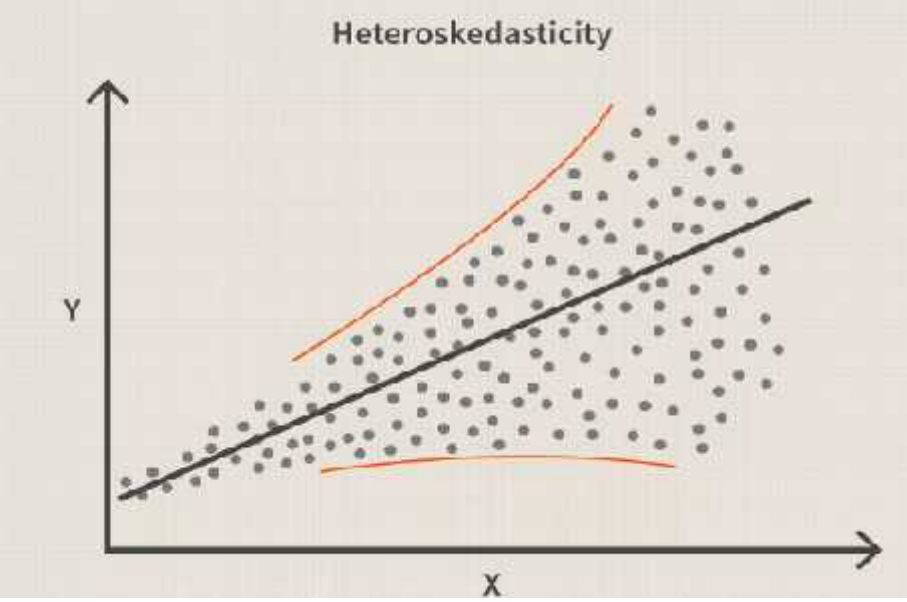
	Value	df	Probability
t-statistic	0.845793	10	0.4174

F-statistic	0.715366	(1, 10)	0.4174
Likelihood ratio	1.727343	1	0.1888

Source: Estimate by the author using eviews.

As it shown in table 4-9, our fitted model has passed the Ramsey RESET test since the p-values of t-statistic, F-statistic and Likelihood ratio are all greater than 5%. Therefore, this leads to the acceptance of the null hypothesis where the model of the study is correctly specified and the variables are not omitted or ignored. In general terms, the results from the Ramsey reset test illustrates that there is no misspecification in the model We thus conclude that the parameters of our model equation are not mis-specified

Figure 4-3: Heteroskedasticity



Source: Image by Julie Bang © Investopedia 2019

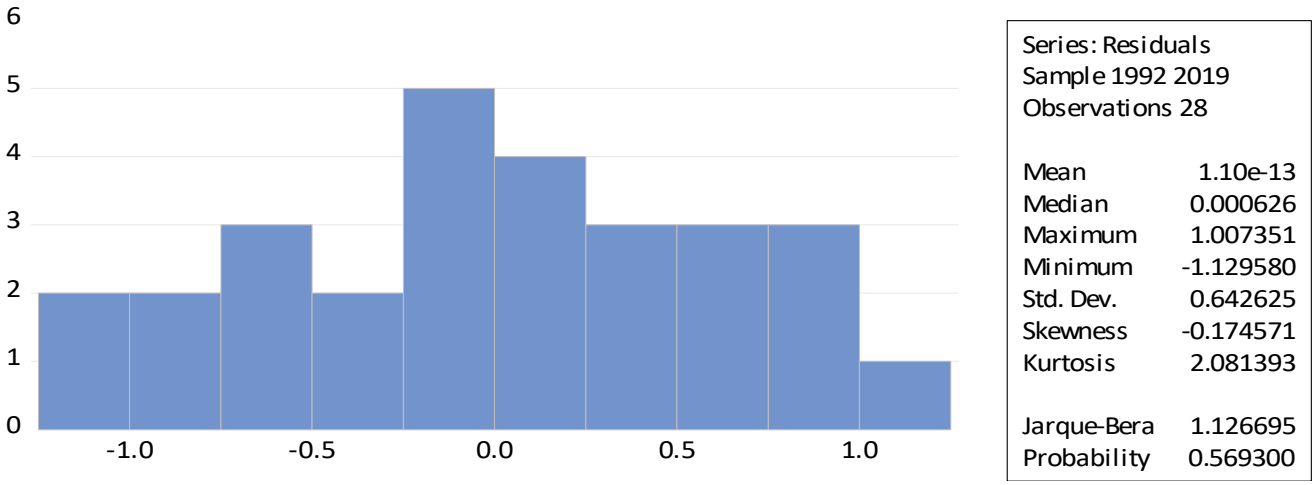
Figure 4-3 reflects to the heteroskedasticity of the data where it is comprised of a critical concept on the regression modelling. The identification of heteroskedasticity indicates that

there is a violation in the assumption of the linear regression modelling where it can result in impacting the validity of linear regression models. In case of the heteroskedasticity issues, the applicability of the OLS regression technique is not applicable. The opposite of heteroskedasticity is the homoscedasticity where the residuals are considered to be equally distributed. The graphical representation of heteroskedasticity is that the residuals would be in a fan or cone shape in the graph which can be similarly reflected in 3-3

4.10Jarque-Bera Test

The Jarque-Bera test is a multiplier tool which is mainly used for evaluating the normality of the data which confirm the normality of the dataset. The other aspects that the employed for evaluating the normality of the data set are through investigating the skewness and kurtosis of the dataset. The null hypothesis of the Jarque-Bera is that the data is normally distributed while threshold of skewness is that the value must be ranged between -1.96 and +1.96. Furthemore, the criteria for the kurtosis for indicating that the data are normally distributed is that it must be between -3 and 3. As it shown in figure 4-4 normality of the data and the graphs of residuals investigated, the probability value of 0.569300. The probability value is greater than 5% which leads to the acceptance of the null hypothesis in which the data are normally distributed as per the Jarque-Bera test. Moreover, the skewness and kurtosis values ranges between the criteria value which is identified above. Therefore, on the basis of skewness and kurtosis, the model is also determined to be normally distributed.

Figure 4-4: Normality Test

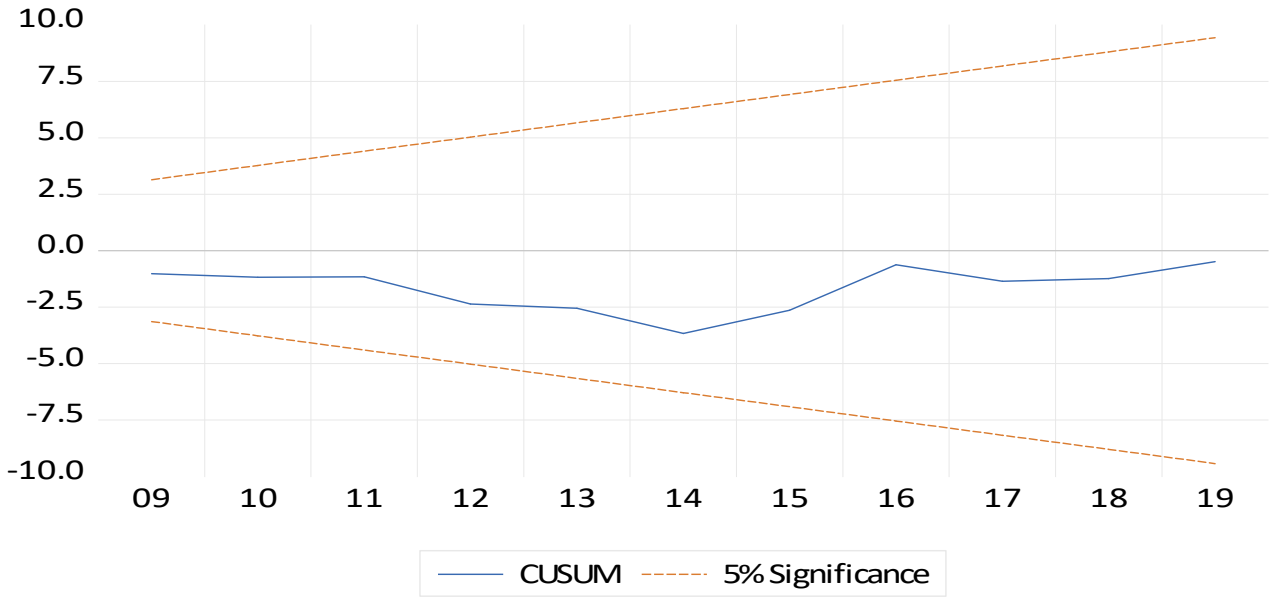


Source: Author Calculation

4.11 CUSUM Test

Finally, for ensuring the robustness of the specified models along with both short-run and long-run coefficients, the study used a cumulative sum (CUSUM).

Figure 4-5: CUSUM Test



Source: Author Calculation

In figure 4-5, the graphical result of CUSUM represents the stability in the model since they all lie within 5% significance level, observe that at the 5% level of significance all the specified models are stable and have test lines that fall within the boundary. It implies model robustness along with the stability of both long run and short run coefficient acceptability over the sample period 1991-2019.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Introduction

The main purpose of the study was to identify the relationship between unemployment and economic growth of Jordan. The findings of the study based on different statistical techniques

have been elaborated in the previous chapter. This chapter is aimed at presenting the summary of the findings and concluding the study. The chapter firstly presents the summarized findings of the study. Further, it presents the recommendations based on the findings of the study. It also presents the implications of the study and finally presents the limitations and future direction of the study.

5.2 Summarized Findings

The research has provided that the Jordan has been doing better in terms of the economic growth and have elaborated that its unemployment has also been increasing in the recent period. The historical data present that the level of unemployment level has increased after the period of 2015 after being stable for a long period. However, the economic growth in terms of GDP has been identified that from the period of 1993-2010 has been volatile and then it has been stable after 2011. It has further found based on ARDL model that in the short run, GDP growth has a positively significant impact on the unemployment rate and population female has the negatively significant impact on the unemployment rate of Jordan and the urban population has a positively significant impact on unemployment rate in Jordan. On the other hand, in long run GDP growth has found to have a significant impact on the unemployment rate, the lag of GDP growth found to has a negatively significant impact on unemployment rate, also female population has found to have negatively significant influence on unemployment as well and lastly, urban population has a positive significant impact on unemployment rate in Jordan in the long-run. Based on the ARDL bootstrap cointegration model,there is long-run cointegration between the variables both independent and independent ones.

5.3 Recommendations

Based on the findings of the research, there are some recommendations provided to the policy makers and the government of Jordan. The first recommendation of the study is that unemployment rate of Jordan should provide focus and there must be measures introduced for providing the job opportunities. This can be achieved by investments in infrastructure projects

which require labor-intensively for the long-run. The female job opportunities must also be encouraged in Jordan and there should be more focus on the inclusion of females in the jobs and the diversity of workforce should also be maintained. It is further recommended that ease of business must be focused on and there should be such programs that support the entrepreneurs, and the government should apply an expansionary fiscal policy in order to decrease the unemployment rate. The Ministry of Labor playing a larger role through implementing policies and implementing successful projects that serve the national economy, which is reflected positively in terms of work in new economic projects and investments in labor-intensive.

Finally, stopping the chaos in the educational policy in universities and linking it to a national plan that contributes to the graduation of technical and professional disciplines, stopping many disciplines to keep pace with the national and future needs in Jordan.

5.4 Implications

There are certain implications of the study as well related to the literature and policy. The female population has found to have significant impact on the unemployment for the long run and short run and hence it is implied that the policy makers must focus on this aspect and implement the policies related to the employment of females. This also adds to the literature on the unemployment of Jordan and provides the ways for the future studies to be conducted.

5.5 Limitations and Future Directions

The first limitation of the study is that it considers the data from the time period of 29 years. However, further data can also be obtained in the future studies that would enhance the findings of the studies on unemployment. There are also limited variables used in the study and further studies can also identify the moderating or mediating variables that can indirectly influence on the nexus between economic growth and unemployment. The future studies can also consider the mixed approach into the study which would enhance the findings and would present the critical analysis.

5.6 Conclusion

The main purpose of the study was to establish the relationship between the unemployment and economic growth in Jordan. The studies have been conducted on the unemployment and economic growth and have found various variables influencing on these factors. The present study has developed the case of Jordan and has identified the pattern of economic growth in the country over the years. The study has found that unemployment rate has been increasing after 2015 and economic growth has been stable after the period of 2011. It has also found that economic growth and unemployment are significantly related. Female population is negatively related with unemployment and urban population is significantly related to unemployment rate in Jordan in the long and short-run.

The relationship between unemployment and economic growth should be negatively correlated, similar to most of developed countries. In this study the results are completely opposite they relationship between unemployment and economic growth in Jordan I positively correlated, and this can be due to; replacement of unskilled workers with lower number of skilled workers who have higher productivity, also more automation and using machines in industries to replace worker with high productivity, more expansion and the transfer workers in sectors that add up to the growth in GDP with less number of labors (eg. IT and Telecommunication), and the failure in government policies to target development in sector that reduce unemployment instead they target to increase the growth rates.

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APPENDIX

Appendix 1: Descriptive statistics

	UNEMPLOYMENT	GROWTH	FEMALE	URBAN
Mean	14.64862	4.553716	48.52356	82.51062
Median	14.00000	3.389530	48.40822	79.48500
Maximum	19.70000	14.34978	49.38968	91.20300
Minimum	11.90000	1.608530	47.63253	74.45500
Std. Dev.	2.144976	2.876532	0.645022	5.588021
Skewness	1.084423	1.541538	0.039312	0.394655
Kurtosis	3.394279	5.624553	1.547784	1.571882
Jarque-Bera	5.871714	19.80898	2.555760	3.217226
Probability	0.053085	0.000050	0.278627	0.200165
Sum	424.8100	132.0578	1407.183	2392.808
Sum Sq. Dev.	128.8258	231.6842	11.64948	874.3275
Observations	29	29	29	29

Appendix 2: Augmented Dickey-Fuller Test

Null Hypothesis: FEMALE has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on SIC, maxlag=6)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.867524	0.0635

Test critical values:	1% level	-3.724070
	5% level	-2.986225
	10% level	-2.632604

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: GROWTH has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.822406	0.0073
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: UNEMPLOYMENT has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.142239	0.2307
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(UNEMPLOYMENT) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.100157	0.0385
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: URBAN has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.818877	0.0311
Test critical values:	1% level	-4.339330	
	5% level	-3.587527	
	10% level	-3.229230	

*MacKinnon (1996) one-sided p-values.

Appendix 3: Dickey-Fuller Test

Null Hypothesis: FEMALE has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on SIC, maxlag=6)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-2.979738
Test critical values:	1% level	-2.660720
	5% level	-1.955020
	10% level	-1.609070

*MacKinnon (1996)

Null Hypothesis: GROWTH has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-3.478218
Test critical values:	1% level	-2.650145
	5% level	-1.953381
	10% level	-1.609798

*MacKinnon (1996)

Null Hypothesis: UNEMPLOYMENT has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=6)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-1.350859

Test critical values:	1% level	-2.650145
	5% level	-1.953381
	10% level	-1.609798

*MacKinnon (1996)

Null Hypothesis: D(UNEMPLOYMENT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-3.138991
Test critical values:	1% level	-2.653401
	5% level	-1.953858
	10% level	-1.609571

*MacKinnon (1996)

Null Hypothesis: URBAN has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag=6)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-3.805680
Test critical values:	1% level	-3.770000
	5% level	-3.190000
	10% level	-2.890000

Appendix4: ARDL Bootstrap Cointegration Model

	Value	T-test

FSS	1.788779	7.187343
tDV	-2.20006	-4.07031
tIV	0.520943	2.852431

Appendix5: ARDL Long-Run Model

ARDL Long Run Form and Bounds Test
Dependent Variable: D(UNEMPLOYMENT)
Selected Model: ARDL(1, 4, 2, 4)
Case 2: Restricted Constant and No Trend
Date: 06/22/21 Time: 21:01
Sample: 1991 2019
Included observations: 25

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GROWTH	1.007216	0.220948	4.558606	0.0010
FEMALE	-5.852433	1.516568	-3.858998	0.0032
URBAN	0.850357	0.196843	4.319972	0.0015
C	226.5138	58.63781	3.862931	0.0031

Appendix6: ARDL Short-Run Model

ARDL Error Correction Regression
Dependent Variable: D(UNEMPLOYMENT)
Selected Model: ARDL(1, 4, 2, 4)
Case 2: Restricted Constant and No Trend
Date: 06/22/21 Time: 21:02
Sample: 1991 2019
Included observations: 25

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GROWTH)	0.215958	0.066488	3.248068	0.0087
D(GROWTH(-1))	-0.760458	0.150824	-5.042025	0.0005
D(GROWTH(-2))	-0.429544	0.115982	-3.703534	0.0041
D(GROWTH(-3))	-0.176407	0.048560	-3.632747	0.0046
D(FEMALE)	-54.94695	6.865854	-8.002930	0.0000
D(FEMALE(-1))	33.17742	4.871529	6.810473	0.0000
D(URBAN)	1.195816	0.327693	3.649199	0.0045
D(URBAN(-1))	-2.150548	0.442510	-4.859891	0.0007
D(URBAN(-2))	-1.205515	0.534119	-2.257017	0.0476
D(URBAN(-3))	-1.075354	0.385401	-2.790218	0.0191
CointEq(-1)*	-1.025775	0.166563	-6.158480	0.0001

R-squared	0.901895	Mean dependent var	-0.009600
Adjusted R-squared	0.831819	S.D. dependent var	0.894984
S.E. of regression	0.367031	Akaike info criterion	1.133443
Sum squared resid	1.885969	Schwarz criterion	1.669748
Log likelihood	-3.168039	Hannan-Quinn criter.	1.282191
Durbin-Watson stat	2.507441		

* p-value incompatible with t-Bounds distribution.

Appendix7: Breusch-Pagan-Godfrey Test

Null hypothesis: Homoskedasticity

F-statistic	0.594582	Prob. F(14,10)	0.8186
Obs*R-squared	11.35680	Prob. Chi-Square(14)	0.6578
Scaled explained SS	4.234664	Prob. Chi-Square(14)	0.9939

Appendix8: Breusch-Godfrey Serial Correlation LM Test

Null hypothesis: No serial correlation

F-statistic	1.192406	Prob. F(1,10)	0.3005
Obs*R-squared	2.663426	Prob. Chi-Square(1)	0.1027

Appendix9: Ramsey Rest Test

Null: Model is correctly specified.

	Value	df	Probability
t-statistic	0.845793	10	0.4174
F-statistic	0.715366	(1, 10)	0.4174
Likelihood ratio	1.727343	1	0.1888

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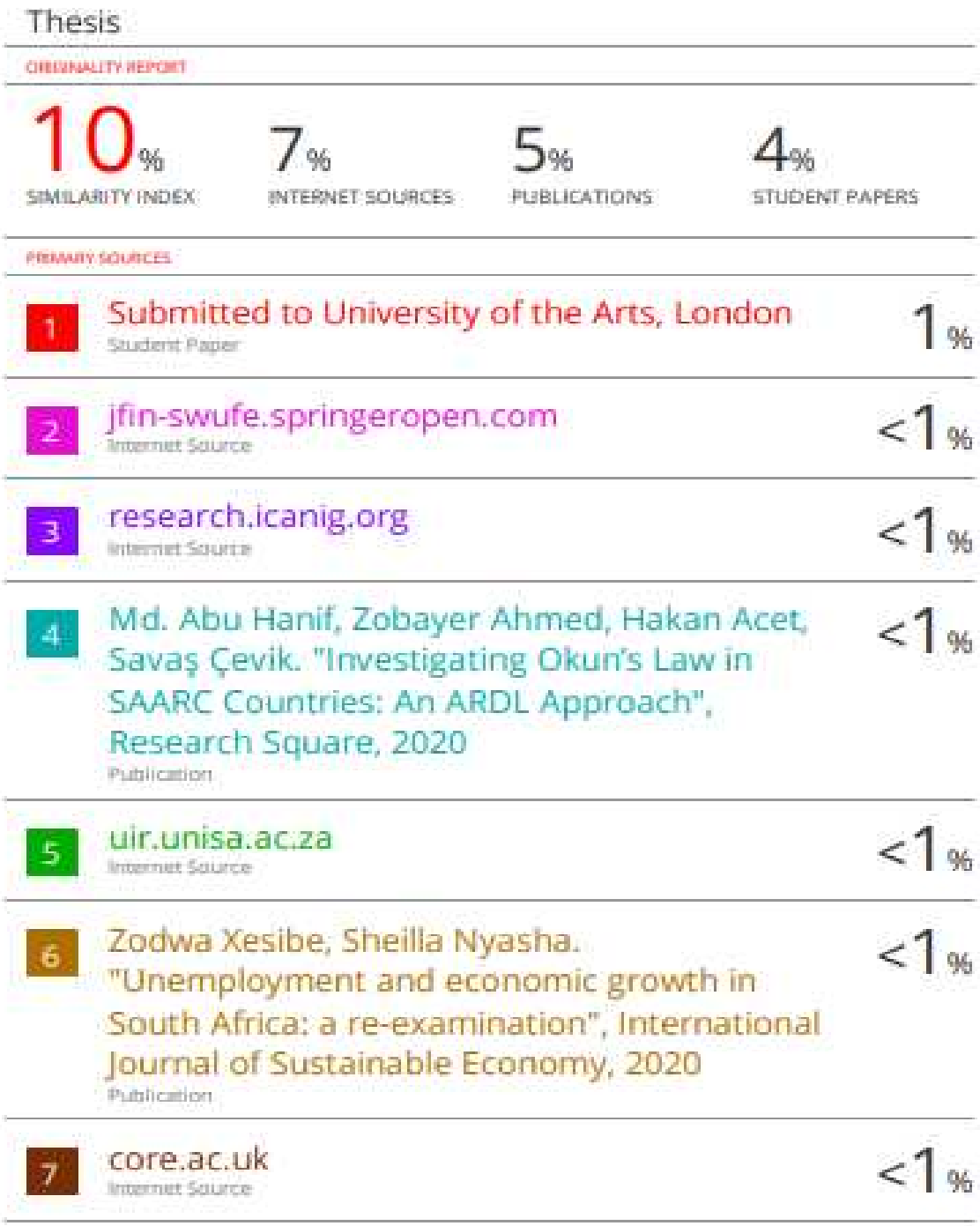

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Tezin yazılıp hazırlanmasında etik kurallarına aykırı hiçbir unsurun yer almadığını tez danışmanları olarak beyan ederiz.

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