

## The Effects of SMEs, Population and Education level on Unemployment in Kingdom of Bahrain

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**Abstract** - Since the begging of the modern age unemployment was always considered a problem of any economy on the globe. Countries and governments around the world were always looking for ways to reduce the unemployment rate but the issue is a complex one with many affecting variables. Job creation was and is not precisely the problem as its happening all the time, rather the rate of creations versus the population and the education level that is appropriate for fresh graduates to enter the labour market. Therefore, the aim of this study is to analyse the effects of SMEs growth, population growth and education level on the unemployment rate in Bahrain. This study used secondary data that was collected over a span of 21 years from many sources like the Ministries of Bahrain and the World Bank data bank. The dependent variable in this study was the unemployment rate and independent variables were SMEs growth, Population growth and education level. The study applied the ADF unit root test for stationary analysis on the variables to determine the right statistical model to use for this study. Result of ADF unit root indicates that some variable was stationary at the level and some were stationary at first difference, thus ARDL model used for further hypotheses analysis. The findings of ARDL show that the two of the variables had a positive effect and one variable has a negative effect on unemployment rate in Bahrain. Finally, the study recommends the nurture of SMEs by issuing helpful policies and creating financial aid programs for new and old SMEs because of how big any effect SMEs can have on lowering the unemployment rate, on the other hand, the creation of training programs to help fresh graduates adapt to the new mentality of the workplace and give them enough experience to be acceptable candidates.

**Keywords:** SME's growth, unemployment rate, education level; ADF unit root, ARDL model

### INTRODUCTION

In any economy in the world, SMEs helps a lot in the community's stability, innovation and discovery and job opportunities globally. Businesses of that scale are identified as a very essential organ of the body of the country and play an important role in the country's development (Al Khatib et al., 2015). According to (Al Khatib et al., 2015) in the United States sixty million people were employed by SMEs alone in 2014, however, a lot of the SMEs closed down and only fifty per cent stayed open for the next five years. Many researchers approved on the idea that the MENA have gone through a big demographic growth in the past many years, hence today that is called a "youth bulge". A big part of the population in these MENA countries is under the age of thirty-five, and the young are considered a big chunk of the Labour force. Mainly the ages of 16 to 30 are considered a huge pressure on the labour market.

The right Macroeconomics plans are not implemented properly to deliver a long term growth through policymakers and other institutions, which leads them to not be efficient to a possible deal with the labour market according to (Nader Kabbani, from the Syria Trust for Development). The lack of job creation from the government will lead to the discouragement of the potential investors and will lead to the growth of the informal employment sector. A study conducted by (Welsh et al., 2016) showed that woman in KSA gets big support from friends and family to become

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entrepreneurs and that they are highly educated individuals. A woman considers them self's innovative with many skills and very successful. The study also showed that fifty per cent of the woman in KSA owned some type of businesses. In Bahrain, the issue of unemployment is many-dimensional because the factors of its presence are connected by several variables. The social and cultural factors are connected to these variables, while the other relates to education systems, population growth and their output and the rest relate to the economic system. The small and medium enterprises (SME) sector in Bahrain account for nearly 30% of the country's economy. Currently, there are around 13,607 SMEs in the Kingdom (Start-up, Bahrain 2020), all of which are to be covered by a new national plan by the government, to expedite the growth of the sector, while the unemployment rate sits almost at 4 % as of 2019 (World Bank, 2019). In the normal demand and supply framework, increasing the availability of employees have to be compelled to cut back equilibrium wages, and may even increase unemployment. however, the dimensions of the result depend on how productive employees are and the way willing they're to work, each of that is tough to measure directly. Small and Medium Enterprises (SMEs) development has continued to be a preferred phrase within the Business world. This can be as a result of the world is a catalyst for employment generation, national growth, poorness reduction and economic development. SMEs world over will boast of being the most important employers of labour if compared to the major industries as well as the multinationals. The following objectives have been devised to explore the role of small businesses in the Kingdom of Bahrain, 1) to analyze the effect of SMEs on the unemployment rates in Bahrain, 2) to measure the effect of the education level on the unemployment rate in Bahrain, and lastly 3) to analyse the effect of population growth on the unemployment rate in Bahrain.

## RELATED LITERATURE

The problem of unemployment is being affected by many factors, some affect it positively and some negatively. As we have mentioned before the variables that will be used in the study, in this section we will introduce studies that were made in different locations in the world and the results that are all related to the problem of unemployment and the factors that affect it. In Europe, the unemployment problem regarding the youth was considered a way bigger problem than that of the adults because if we compare the unemployment rate based on the percentage of both adults and young people we can see that the youth are much higher. For some people, unemployment can be considered as a positive thing or as a normal thing to have in a country. If a country has an unemployment rate of around 3% to 5% that is considered as a normal thing because this will have an effect on the productivity of the workforce in the country, better work quality as output and finally it can be as a push for having a better education system to prepare students for the labour market (Akram, 2017). However, unemployment is still considered as a bad thing in many ways and can lead to the loss of a company's income or production meaning the company's performance will be reduced as a result of that also it may lead the seeds for demotivation and degradation in qualifications (Campolmi & Gnocchi, 2016). The unemployment is not only considered as a problem of the workforce market but it should be considered as all markets problem because the workforce market has connections to other markets and that will create an imbalance to the whole system because of how all markets are connected to one another (Akram & Iqbal, 2016).

International labour organization identified the unemployment phenomena as that rate of people that are not currently working but have the skills and education to do so and also that they are willing to work as even that is considered. Also according to the organization a young person is identified as a person between the age of 15 – and 25 years old. If we look at the analysis of many older studies we can see that the group of people under the age of 25 is always the most affected or has the highest unemployment rate of all other groups (Akram, Murugiah, & Arfan, 2017). The act of transforming a student into a working person is considered as a very important and critical phase as it is one of the problems that is facing the labour market to this day with big impacts on the social system and the economy of a country (Malik et al., 2019). It's a very known problem of when students start a new job somewhere in an inferior position where that doesn't play fair to the type of education that particular students had and it could be considered as an inferior position which then can lead to the discouragement of that certain person and the losing of hope towards the system (Restrepo, 2015). Although almost all freshly graduated students lack the work experience of their new position they can be fast learners and can adapt really good to the new work environment by collecting and learning new things and processes of the work in a really short time (Malik, Mahesar, Abid, Waqas, & Wahiddin, 2017). Another good point towards the fresh graduates is that they are young and in good health because of their age plus they can even work for longer periods of time unlike older workers in any given company (Malik et al., 2016). Some studies suggested that companies should have a good balance between having new employees and old expressed ones and that is especially during economic crises and financial recession. Its common knowledge that the increase in the number of employed young people can have a negative effect on the unemployment rate in many countries and it can lead to an increase in the income of the young works (Amani, 2017).

## Unemployment in the World

The unemployment rate of the young people is a very sensitive rate and can be greatly affected by the economic recessions unlike the unemployment rate of older adults, any small problem in the economy can lead to the loss of many young people jobs, and also during the economic increase and prosperity that the young get a bigger employment rate of that in the adult's group. In another study, we have learned that things like an abandonment of schooling at an early age and a weak quality of education can also be determinants of effect to increase for the unemployment rate for the young group. Also, the parents of the student have an effect on how the future of the young one will be things like having an unemployed parent or poorly educated parents will defiantly affect how the young will be formed in the future and if this is happening to many young people that will lead to an increased unemployment rate. Females based on studies are also considered on a disadvantage based on history which is also a reason for the rise of the youth unemployment rate. Other studies made in France also showed that having really difficult competitiveness and very low salaries planted the seed of discouragement in the hearts of young people who are unemployed sitting at home and complaining about how impossible for them to get a job under this system in this time and age (Caliendo, M. & Schmidl R., 2016).

The other subject that can affect the unemployment rate in a positive way is how the employees' protection rights programs work. The goal of such programs is to give rights like if an employee is fired or let go from a job he/she will be given benefits in regards of the let go from the company, meaning that the company will bare more cost I the termination of workers. That will make companies avoid the recruitment of new young people because the chances of a worker not being good or let go are high when it's a new worker in a company, however, these chances are less regarding older or more experienced workers. This will also lead to making companies fill vacancy jobs with people that are already working inside the company to avoid such costs from the recruiting new young workers ( Boyce, 2015). Moreover, the youth literacy rate is currently 92% in North Africa and ninety-nine per cent within the Middle East and also the Gulf Cooperation Council, according to the Saudi press association. Countries within the region were ready to tackle debt and inflation throughout the 1990s and 2000s, they additionally managed to spur the economic process and make jobs.

Regarding this aspect one study that compared the unemployment rate between highly educated people and people that are educated and reached a lower level, and it showed the unemployment rate is higher in the group of people that are less educated as compared to the highly educated group (Khan, Mahtab, & Abrar ul Haq, 2012). Another study showed that one reason why highly educated people's unemployment rate is increasing is that because of the lack of positions that require high education, meaning the number of people that are becoming highly educated indivual is increasing in a faster rate than the rate in which new jobs are being created for them. That will either lead them to take positions that are overqualified to do, or they stay home and join the unemployment rate (Al-Khatib Dant & Vitell, 2015).

In the same study of (Al-Khatib Dant & Vitell, 2015) they have quoted Muhammad Pournik, poverty follow Leader at the United Nations Development Fund's (UNDP) regional centre in Cairo, declared that one in all the strain of Arab youth was attaining jobs while not the necessity for intermediaries. "The real issue is that they would like for jobs with social dignity instead of jobs that come back at the expense of dignity," said Pournik. Consistent with the report, economic process within the next decade relies on sensible governance – that should improve to draw in higher rates of investment and modify structural and institutional reforms. "Arabs would like an inclusive development model that's grounded in social justice," said nada al-Nashif, Regional Director for the Arab States, International Labour Organization. One of the main and important factors in the increase in employment rate in the old people group is education. Studies show that on average 40% of people that are between 53 and 62 years old with only a primary degree are working, and the percentage is 50% for people with a secondary degree only, and 65% of those with a tertiary degree who are employed. As we saw that employment rises with education level on average and this will lead to an increase in educational attainments and it will lower the cost that comes with the older population in countries. Examples of countries like that are Greece and Japan; hence the tertiary attainment levels increased a lot between the group ages of 43-51 years old and 52-61 years old where the employment levels with people with at least a tertiary level of education are practically better. Countries that are a part of OECD are depending a lot on the economies and labour markets with a study supply of highly educated people and any shortage in the supply of educated people can affect these countries' economies (OECD report, 2017).

Another subject to address is the female employment rate and how it's different from country to another and that is one of the reasons why countries have different overall employment rate because of this. An example to some of the countries with high employment rate is Iceland and Switzerland and the UK and those countries have one of the highest female employment rates in the world. The next group of countries are known for having the highest male employment rate like France, Poland and Turkey with a rate ranging around 75% (Matandare, 2018). Based on data collected on OECD countries the analysis showed the people with tertiary education levels are with the least unemployment rate on average, on the other hand, people with secondary education level had a higher unemployment rate with a higher percentage

average of around 10% more in countries like Greece and Slovenia. With the passing of time and many big changes happened in the employment rate to the people with degrees in the OECD countries with averages for secondary, upper secondary and tertiary educated people rates being very consistence in the past decade (OECD report, 2017).

According to the World Bank report, the African countries' growth rate was the same and maybe even better than other countries around the world. This continent is very rich in resources compared to others in the world, but because of bad infrastructure, mismanagement and corruption and for that reason the people of Africa are the poorest in the world. And that will lead to a low demand for goods and services which means the less favourable environment for SMEs to start or even survive in these conditions. The lack of skilled workers is a big deal in the MENA region and can be a big reason for the SME not be able to survive and if compared with countries' of the same GDP but with a good number of skilled workers the difference is huge in regards of the unemployment rate and the survivability of SMEs (World Bank report, 2019) (Bhatti, et al., 2013).

According to the Middle East and North Africa – Organization for Economic Cooperation and Development (MENA-OECD) concluded that SMEs are affected by operational and entry obstacles which policies must be issued to address such obstacles. Keeping in mind that there are different segments of the SME market and as such the targeting of each segment must be unique to satisfy the segment's needs. They also raised the need to create financial programs to help SMEs in bad economic times and increase the survivability of the SMEs by providing financial aid and advice. And how the banks should be careful in the introduction of financial aid programmes and make sure they are not banking on the idea of lending a lot of money to start-ups where they don't know how to manage it and encourage the use of alternative sources of financing, namely equity participation from private or government funds and angel investors (Gukurume, 2018).

### **Unemployment Causes in the MENA Region**

Acknowledged by the Carnegie Middle East Centre, youth state is often printed back to a variety of severe economic, political, and social issues additionally because of the absence of sound development ways, weaknesses within the business atmosphere, humble governance, absence of transparency and answerableness, and intensive corruption. The Carnegie Middle East Centre has given specialists from Lebanon, Algeria, Morocco, Egypt, Jordan, Syria, Tunisia, and Yemen to debate the subsequent problems and roots close youth unemployment within the Arab countries. SMEs are vital drivers of innovation and competition. The SME sector has remained very innovative and filmable so as to survive the recent economic downswing and recession. Empirical studies show that new companies play a big role in the employed generation, innovation, economic process and reduction of unemployment (Ipinnaiye, 2017). There's a high correlation between the degree of economic condition hunger, unemployment, economic well-being /standard of living of the voters of nations and also the degree of sinuousness of the various country's SMEs. The unemployment issue is considered by many people and researchers as a dilemma on the economy level and on a personal level. On the economic level, unemployment creates the lack of full use of the nation's resources and a far from optimized full production capacity resulting in a divide in people who will teste, participate in the creation of wealth and the people who will not be a part of any of those things. And on a personal level, this could lead to the destruction of a family or not starting a family to begin with. The unemployment problem is such a huge problem that some researchers has even calmed that it is as bad as inflation, some even believe that they would trade a high unemployment rate scenario with a high inflation rate scenario.

Another study (Cutler, 2015) analysed the university graduates and the parameters that that influence the job searches in China. Based on the study duration models and other survival parameters. The results showed that genders of the people looking for work and the university's ranking both have an effect on how long the job search will be for these people. Where woman and people that graduate from high ranking university's will spend less time searching for a job unlike other graduates from non-high ranking universities' and male students. Another thing that the result showed is that depending on the students major the unemployment duration will be shorter for example students graduates with business backgrounds will take less time as unemployment than those that graduate with a background in legal (Ullah, Abrar ul Haq, & Shah, 2016).

It is very clear that unemployment has many negative effects on a person who has never worked or if he was a former employee and then lost his job. The result of losing a job can range from not having any income for the foreseeable future, or maybe even permanently lowering your salary, if the person has a family and he is a parent that will put him on a huge pressure because of the responsibility and this will also affect the kind of life and education a child will receive, finally, unemployment will also have a bad metal and health effects on the person which in hand will increase the mortality rates in that place. The relationship between the permanent loss of income and unemployment is not yet fully proven buy the data shows that there is a relationship between the two parameters. More studies should be made on this subject to explore the long-run negative effects of unemployment because there might be other parameters that have a negative impact on the mental health and that are why they should be explored.

Things like social statues and the loss of high income can also be factors to support this study (Brand, 2015). Studies also showed that SMEs owners are having difficulty recruiting good and competent managers as heads of the business, even the owners themselves are having a hard time being full-time managers. A study that was made on a number of SMEs in the past showed that the most frequent barriers that SMEs face were financial problems followed by the nature of the economy and how it created a very hard environment for the SMEs to compete in the market. Technological inferiority wasn't considered as a big barrier according to the study. Another point that was raised in the study was the lack of managerial skills and labour skills in the SMEs, where both of these things were considered important and crucial to the growth of any SME. Moreover, SMEs have a lot of growth barriers and they can be categorized as internal barriers and external ones like proper finance and regulation and policies. But based on formers studies we can summarize to the most important three and they are management and motivation, sourcing and market opportunities. Other studies showed that labour force and finance can be big barriers in the growth and development on SMEs but this still can be different depending on the geographical location, the nature of the macroeconomic state and the different type of business. This means that if we take SMEs from different parts of the world and from different sectors of the market, they will or have the same progress or barriers that are making their development harder even if two SMEs have the same barrier but because they are located in different parts of the globe the barriers might have a different power of effect on the SMEs (Christiano, 2016).

The effects can also be seen on the indivial too, as he can't provide to himself or to his family and start relying on others for support which also will hinder others in self-development. This will also lead to bad effects on people from bad mental health to even in some cases physical health because of the fact that a person is sitting at home with no work or income and a grim future. As we saw many studies showed that the longer a person looks for a job the worst his metal state will get because of all the pressure that is on him thinking he will not be able to provide for himself and the lack of income can lead him to become a poor person, also if the person has a family he will be in an even worse metal stat for the fact that his family is his responsibility and he has to provide no matter what happens. We say that a family with low income cannot provide the proper kind of education for the children which will lead into having children with worse education level and lead them not have a good job, which this will also make the children unable to provide for their children because of the bad income they have and the loop keeps going on (Fritsch, 2015).

The subject of informal employment is also a factor because having a big informal sector means that the bigger picture of unemployment is not clear or even right and the lack of data is the reason for that. Developed countries that are doing really good in creating new jobs and opening new opportunities have a smaller informal sector and that's why it does not affect the general unemployment rate of the country and the researchers will have good and clear information about the unemployment rate of that developed country. Unlike non-developed countries where the informal sector is big and works parallel to the formal sector because those countries couldn't create enough jobs to the public, hence the unemployment data will be very hard to get and will not have a good representation of the country in question.

Advancement is also a problem facing the employment of people because of how jobs are slowly being taking over by automated machines and computers. Leaving the workers with no jobs because it's more efficient to use a computer that takes fewer resources and do a better and faster job then what a human can do and this factor can really harm the employment rate of humans in any nation. The transition from human to computer must be carefully planned because as it is the unemployment rate is not getting lower and every nation is doing its best to fix this problem so it's really not the time to enter and another bad effecting factor the equation as of yet (Bartoš, 2015).

### Hypothesis Development

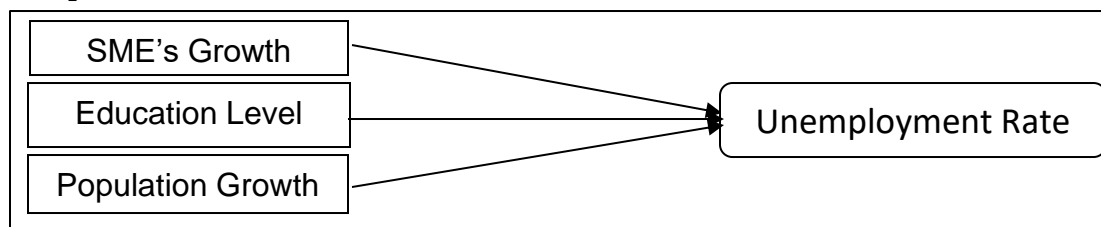


Figure 1: Conceptual framework

The existing literature indicates that there is a direct relationship between population growth and the unemployment rate. Population growth can lead to an increase in the unemployment rate and vice-versa. There is also a relationship between the unemployment rate and education level. Which is an interesting subject because we can't be certain if education effects unemployment rate in a positive or a negative way and many studies have proved both answers and can even be different from country to country. Base on the above literature discussion, the following hypotheses are formulated,

H<sub>01</sub>: There is no effect of SMEs growth on the unemployment rate in Bahrain.

H<sub>02</sub>: There is no effect of education level on unemployment rate in Bahrain.

H<sub>03</sub>: There is no effect of population growth on the unemployment rate in Bahrain.

## METHODOLOGY OF THE STUDY

While using time-series analysis we have acquired secondary data one which relates to the past, where secondary data is nothing but just the analysis and interpretation of the primary data. The major secondary data collection sources are government publications, websites, books, journal articles etc. Therefore, data (unemployment, education level, population growth, SME) for the study have been extracted from data stream repository, government data bank, ministry of finance and national economy (Bahrain) and World Bank data.

### Econometric Model

Research to further proceed, it is necessary to first define the chosen methodological model upon which this study is built. Which it is necessary to consider while choosing the research philosophy: this approach is employed to conduct the secondary research and the way the research was conducted on the collected data. The current study developed the model of unemployment rate in relation with Education Level, SME'S growth and population growth in the country.

$$(Un)employment\ rate_t = \beta_{0t} + \beta_{1t}Education\ Level + \beta_{2t}SME's\ Growth + \mu_t + \beta_{3t}Population\ Growth + \mu_t$$

Where, the (un)employment is affected by three variables (Education Level, SME'S growth and population growth) and an error term. The error term represents all the factors that affect unemployment, however, not considered in the current research model. As per our econometric model, the study identified the hypothesis that consists of three independent variables that affect the most the unemployment in the country.

$$Unemployment\ rate = \frac{person\ unemployed}{Labour\ force} * 100$$

**Unemployment Rate:** Unemployment occurs when people are without work and are actively seeking employment. In an economy, the labor force is the actual number of people available for work. Economists use the labour force participation rate to determine the unemployment rate. The unemployment rate is calculated by expressing the number of unemployed persons as a percentage of the total number of persons in the labour force. The labour force (formerly known as the economically active population) is the sum of the number of persons employed and the number of persons unemployed.<sup>3</sup> Thus, the measurement of the unemployment rate requires the measurement of both employment and unemployment. In the current research, the unemployment rate is calculated as follows;

$$Unemployment\ rate = \frac{person\ unemployed}{Labour\ force} * 100$$

**Education Level:** The broad categories of primary, secondary, and tertiary education apply in most countries. In our study, we will be considering only the secondary because in Bahrain we can say that the minimum requirement for employment is a high school degree.

**SMEs Growth:** Bahrain's Ministry Industry, Commerce and Tourism where we collected the data regarding Bahrain's SMEs in a pre-determined period of time. It measures the number of SMEs registered in each year.

**Population Growth:** absolute change in total population (increase or decrease in the number of people) over the last year For all other years: average annual numerical change over the preceding five year period.

### Data Processing and Statistical Treatment of Data

The current study applied either ARDL model for empirical analysis and this was totally depended on the assumptions whether the extracted data is stationary at what level. As we are using time series data hence we checked the Stationary of data at first place by using ADF Unit Root test. Considering the level and order of the stationary of data (0 order, 1<sup>st</sup> order or 2<sup>nd</sup> order), accordingly, the ARDL econometric model was applied.

## RESULTS AND DISCUSSION

The nature of the data collocated was secondary data from many different sources like Ministry of commerce and industry, Ministry of labour, UNESCO site and World Bank database. The main purpose of this study is to determine if the unemployment rate in Bahrain is effected by the likes of education level, number of SME's and population growth. That's why the unemployment rate is considered as the dependent variable, and the other three as independent variables. The sample size of the study will be 21 observations covering the span between 1999 till 2019.

Table 1: A small portion of the data with average

Year	SME	Education	Population	Unemployment	Labour Force Participation Rate
2019	13607	60%	4.57%	4.0%	40.94%
2018	12841	59.60%	5.04%	3.9%	43.58%
2017	14765	59.20%	4.79%	3.6%	44.89%
2016	28071	58.70%	3.93%	3.7%	44.85%
2015	9396	57.90%	2.68%	3.4%	43.85%
<b>Average</b>	12052.3	58%	3.32%	3.72%	43.622

As seen in table 1 is a portion of the sample size that we have gathered for the study.

#### ADF Unit Root Analysis

The ADF unit test results show that two of the variables are stationary at level (Education level & SME's Growth) and two of the variables are non-stationary at a level rather stationary at the first difference (Unemployment rate & Population growth). Based on that where we have a mix of stationery at the level and non-stationary at the first difference, we have to use the ARDL model to determine the effects of education, SME and population on the unemployment rate. And that is based on the following conditions: 1) if all the variables are stationary at level then you can apply OLS method of regression, 2) if some variable is stationary at the level and some are at 1 order then you have to apply the ARDL method and 3) if all the variables are stationary at 1 order or above then apply co-integration method.

Table 2: ADF Unit root test for Number of SMEs

Null Hypothesis: SME has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	<b>-4.136328</b>	<b>0.0194</b>
Test critical values: 1% level	-4.467895	
5% level	-3.644963	
10% level	-3.261452	

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

Table 3: ADF Unit root test for Unemployment rate

Null Hypothesis: UNEMPLOYMENT has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	<b>-1.948453</b>	<b>0.5943</b>
Test critical values: 1% level	-4.467895	
5% level	-3.644963	
10% level	-3.261452	

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

Table 4: ADF Unit root test for growth of Education

Null Hypothesis: EDUCATION has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 4 (Automatic - based on SIC, maxlag=4)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	<b>-4.991563</b>	<b>0.0051</b>
Test critical values: 1% level	-4.616209	
5% level	-3.710482	
10% level	-3.297799	

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

Table 5: ADF Unit root test for growth of Population

Null Hypothesis: POPULATION has a unit root		
Exogenous: Constant, Linear Trend		
Lag Length: 2 (Automatic - based on SIC, maxlag=4)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	<b>-1.859519</b>	<b>0.6353</b>
Test critical values: 1% level	-4.532598	
5% level	-3.673616	
10% level	-3.277364	

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

Named after American statisticians David Dickey and Wayne Fuller, who developed the test in 1979, the Dickey-Fuller test is used to determine whether a unit root (a feature that can cause issues in statistical inference) is present in an autoregressive model. It is the simplest approach to test for a unit root, but most economic and financial times series have a more complicated and dynamic structure than what can be captured by a simple autoregressive model, which is where the augmented Dickey-Fuller test comes into play.

Considering the results of the ADF unit root test, we can see that both (Education level & SME's Growth) are stationary at level with Education t-statistics -4.136328 & Probability 0.0194 and SME t-statistics -4.991563 & Probability 0.0051 as shown in table 4.4 and 4.2 respectively. In the other hand, we can see that both (Unemployment rate & Population growth) are non-stationary at the first difference with Unemployment rate t-statistic -1.948453 & Probability 0.5943 and Population growth t-statistics -1.859519 & Probability 0.6353 as shown in table 4.3 and 4.5 respectively. In practice, an ADF value with less than its critical value shows that the underlying series is non-stationary. Contrarily, when an ADF value that is greater than its critical value shows that the underlying series is stationary. However, the null hypothesis cannot be rejected about non-stationarity based on ADF test, since its power is not strong as such. This decision can be verified using other related tests, such as Kwiatkowski-Phillips-Schmidt-Shin (1992) (KPSS) or Phillips-Perron (PP) test. PP test has the same null hypothesis as ADF, and its asymptotic distribution is the same as the ADF test statistic.

#### ARDL Analysis

The autoregressive distributed lag (ARDL) model is being used for decades to model the relationship between (economic) variables in a single-equation time series setup. Its popularity also stems from the fact that co-integration of nonstationary variables is equivalent to an error correction (EC) process, and the ARDL model has a reparameterization EC form (Engle and Granger, 1987; Hassler and Wolters, 2006). The existence of a long-run / co-integrating relationship can be tested based on the EC representation. A bound testing procedure is available to draw conclusive inference without knowing whether the variables are integrated of order zero or one,  $I(0)$  or  $I(1)$ , respectively (Pesaran, Shin, and Smith, 2001).

Table 6: ARDL and Long Run Form

Dependent Variable: UNEMPLOYMENT				
Selected Model: ARDL(1, 1, 1, 1)				
Sample: 1998 2019				
Included observations: 21				
Cointeq = UNEMPLOYMENT - (-0.0735*SME + .0874*POPULATION + 0.0259*EDUCATION + 0.3044 )				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SME	-0.073541	0.026213	-2.805516	0.0071
POPULATION	0.087445	0.026938	3.246145	0.0064
EDUCATION	0.025861	0.016371	1.579728	0.1382
C	0.304392	1.074246	0.283354	0.7814

Regarding my results of the ARDL in this study, we can see that for the first variable the growth of SMEs it has a negative effect on the unemployment rate with a significant statistical probability value of 0.0071 and an Std of 0.026213. Based on that we can say that this result aligns perfectly with what (Al Khatib et al., 2015) said about how SME's play a big part in the economy's stability and the generating of new job opportunities, and SME's are an important organ or part of the country playing an important role in the country's development and future. SME's are considered one of the big players towards the improvement of any country's economy, where it can help where the government couldn't do and fill in the small gaps in the economy which if were put together can be a big problem for the economy of the country.



The SME sector has remained very innovative and adaptable in order to survive the recent economic downturn and recession. Empirical studies show that new firms play a significant role in employment generation (Garikai, 2011; Stel & Suddle, 2005)

The next variable in the study is population growth, as we can see from the results in table 4.e that this variable has a positive effect on the unemployment rate with a significant statistical probability value of 0.0064 and a Std of 0.026938. If we think about this in a simple manner, it's pretty clear that the number of people born is way bigger than the number of job vacancies in any given time period hence the positive relationship that we have in our results. Maybe in other more advanced countries, the effect is smaller or even reversed but, in our case, where the study is based in Bahrain its clearly not, and keep in mind one of the evidence is that we have programs like "Selective retirement" here in Bahrain. But if we really somehow increase the number of SMEs so that it will create a lot more job opportunities with time may be the scale can be balanced where the growth of population is not one of the big effects of the unemployment rate here in Bahrain.

Regarding the third and last independent variable as seen on the ARDL results table, we can say that the education variable has a positive effect on the unemployment rate with a non-significant statistical probability value of 0.1382 and a Std of 0.016371. The results of this variable show that education level is not significant to the unemployment rate in the long run and that's why we can't interpret it, hence education does not affect the unemployment rate because its p-value (0.1382) is larger than (0.05) at 5%. That being said some researchers found proof otherwise, as (Schomburg, 2000) said when he found the relationship between education and unemployment in Germany and found out that the high increase of higher graduates came with a growing problem of graduate unemployment. Woodley and Brennan, (2000) another author that made a study on the higher education and unemployment nexus in the UK and showed that the rapid expansion of higher education coincided with the economic recession of the early 1990s, producing a rise in graduate unemployment and a decrease in permanent employment.

## CONCLUSION

Unemployment is considered one of the important issues in any country's economy in both first and third world countries; however, it could have more negative effects on developing countries where it could slow or even halt the development of these countries' economy. Therefore, this study was aimed to determine if variables like SME's growth, population growth and education level will have an effect on the unemployment rate in Bahrain. The data's nature is secondary and was collected from Ministries in Bahrain and open-source public data banks like the world bank and the UNESCO data bank. Using time series data, we constructed a model which consists of four variables, unemployment rate, SME growth, population growth and education level.

The result of the first hypothesis is that there is an effect from the SME's on the unemployment rate in Bahrain and it's a negative significant effect. Regarding the second hypothesis, the results showed a not very surprising result where it showed that education level affected the unemployment rate positively but is not significant as the population growth but it is still considered a positive effect, and finally for the third hypothesis regarding the population growth we found that it affects the unemployment rate positively and is considered a significant effect on the unemployment rate in Bahrain. The results of this study might not be the definitive answer to the problem of unemployment in Bahrain. That being said the study can give us insight on what kind of effect SME growth, population growth and education level on the unemployment rate in Bahrain and how strong is that effect and wither a government should improve on the three variables each one with a ranked priority based on how much effect it has on the unemployment rate in Bahrain.

## RECOMMENDATIONS

I will start with the SMEs growth, as we see in the results of this study the negative and significant relationship it has with the unemployment rate and that is considered a good sign for the future because at least a country can somehow have control over the SMEs growth by providing the best environment possible for the flourishing of the SMEs. This can be done by providing physical locations as a base of the operation of an SME or create financial programs like Tamkeen or improving them to give a push start for the new SMEs that are straggling with the initial capital or help the already established SMEs in expanding or surviving bad economic times like the ones we are currently faced with this global epidemic. Another thing is the policies that are introduced by the government and how they should be helping SME improve and prosper not limit the SMEs or make it even harder for new SMEs to enter the market. Feedback is really important where selected members of SMEs in a certain industry should sit down on the table with members of the ministry of commerce to discuss the needs and concerns of SME owners, hence this will help a lot shape the policies that are favourable for both the SMEs and the Ministry of Commerce, and in case such discussions are made like the case in Bahrain with Tamkeen implementation would be the next step for achieving the desired results. The Ministry of

Commerce should also conduct market research and publish them publicly on a regular basis and this will give a very good indication for me SMEs to what is needed in the country and what does the country have enough of.

The second variable is population growth, this variable is a bit tricky because the kingdom of Bahrain cannot put restrictions on the number of children a family in Bahrain must have because this is not communist China. Unlike SME growth population growth is difficult if not impossible to control, but what is the purpose of it in the study? Well, the government must use this as an indicator meaning they should always keep an eye on it because it's a very good indication for the future. By having a trend for the population growth we can anticipate how many people will be alive in 5 10 or 20 years and we use that to make sure that our country can create jobs opportunities that are enough to fulfil the needs of the population at any given time. The population growth can also be used as an indicator verse the unemployment rate meaning we have to always keep an eye on it to know if our efforts regarding the decrease of the unemployment rate in Bahrain is working or not.

Finally, the education level, the results showed no significant effect on the unemployment rate in Bahrain. While that might be true other studies has shown otherwise meaning that there could be a significant result to the hypothesis, the reason for that is having an education degree does not mean it's a free ticket for having a job and unfortunately, a lot of people think it is that way. I think the blame in the subject is on both the government and the companies because the government focuses so much on the education level and standards that are provided to the students but never thought of training programs and providing real work experience so that as soon as the student graduate he/she can immediately enter the work market loaded with experience and work mentality. Now on the companies' side, if they refuse to employ fresh students with only degrees and no work experience they should at least create good and big internship programs that can absorb a large number of fresh graduates and train them to gain work experience which on the long run will also benefit the company itself.

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