

Factors affecting the rate of unemployment in GCC countries

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Abstract. The objective of this study is to investigate which variables have a significant effect on unemployment rate in gulf countries using a panel data technique. Four variables were employed to determine their relationship to unemployment rate. The result confirms that two variables play an essential role to determinant unemployment rate in the GCC countries. Government's expenditure as a percentage of GDP play an important role in decreasing unemployment rate since they have the power to shape policies. Governments in the GCC countries should create policies that encourage their citizens to get knowledge and enhance their ability through creating a social program to be ready working anywhere. Since the education is a part of government expenditure and most of GCC countries start concentrating in this factor because most of studies discover that there is a negative relationship between education and unemployment. Moreover, the estimated model provides that GDP per capita plays an essential role to determine unemployment rate in GCC countries. Therefore, I can conclude that Okun's law is occur in the case of GCC countries. Also, in case of GCC countries Structural unemployment is occurred which caused by forces other than the business cycle. It occurs when an underlying shift in the economy makes it difficult for some groups to find jobs.

Keywords. Unemployment rate, GDP per capita, Okun's law, GCC countries.

JEL. C12, E01, E24, E31.

1. Introduction

Unemployment is viewed as a very important macroeconomic issue across the globe. This is because of the huge social and economic effects of increased unemployment to any country, especially if a large population of those unemployed is the youth. It is also considered social phenomenon because of its effects on the social structure of societies, Jaradat (2012). According to the International Conference of Labor Statistics (ICLS) unemployment is defined as when an individual does not have a job whether paid or self-employed but is willing to take a job if it can be accessed and is actively searching for a job. Many countries across the globe spend a lot of time and effort trying to control the rate of unemployment and its growth within the economy. This is due to the fact that increased unemployment affects negatively the economic growth of any country.

The Gulf countries are the six Arab states namely Kuwait, Bahrain, Oman, Saudi Arabia and Qatar. They are characterized by a small population (except Saudi Arabia) and a high GDP per capita. According to the UNDP human development indicators the average GDP per capita in all Gulf countries is higher than the world average. Furthermore, according to the World Bank classification of economies, four of the Gulf countries are amongst the higher income growth and the other two are amongst the upper middle income economies. One of the most important features of the GCC is that its member countries possess approximately 45 percent of the world's proven oil reserves, with Saudi Arabia alone controlling

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over 25 percent, estimated at 250 billion barrels (Wong, Clifton, & Leon, 2001). According to IMF estimates, it is expected that number of unemployed in GCC countries will increase to nearly 2.5 million during the period (2011-2016).

According to recent estimates from different national sources, unemployment rate has been increasing steadily and now stands at 10.8% of the total population for both the Saudis and the non-Saudis, 14% in United Arab Emirate, 8% in Oman and Bahrain, and around 3% in Qatar. Gulf oil producers have one of the lowest joblessness rates in the world but unemployment among nationals, mainly the youth; remain a problem because of their heavy reliance on expatriates, according to Saudi bank study. Unemployment among native citizens in the six-nation Gulf Cooperation Council (GCC), the richest in the Arab world, has remained far higher than the rate among the expatriates, who come to the region for work and leave once they lose their job, as claimed by Saudi Arabia's largest bank, National Commercial Bank (NCB). Population growth rates in all six Gulf Cooperation Council (GCC) states are at 3% or more, with large numbers of expatriates -in some states, such as the UAE and Qatar, outnumbering locals- creating a disproportionately young population across the GCC. According to IMF, six million new jobs will be created by 2017, but more than two-thirds of them will go to expatriates. This means an estimated three million unemployed nationals in the GCC. It also estimates that, for the past decade in the Arabian Gulf, about seven million jobs have been created, 70 per cent of which went to expatriates.

At the macro level, Okun's argument of linking unemployment to changes in the difference between potential and GDP provides some empirical understanding of the demand side explanation to unemployment. There is a direct correlation between a percentage GDP gap (i.e. difference between potential and actual GDP) and unemployment rate in excess of natural rate of unemployment Okun (1962). The economic literature suggests that the abundance of natural resources could itself reduce growth potential and increase unemployment by reducing private and public incentives to accumulate human capital due to a high level of non-wage income, e.g. dividends, social spending and low taxes, Auty & Eifert *et. al.* (2001). Moreover, Arab monetary fund (AMF) predicts that growth rate will decrease slightly in 2016 with 3.3% comparing with 4% in 2015. Since the mid-1980s, economic growth has been decelerating and the increasing strains in the labor markets in the GCC economies have recently attracted scholarly attention Fasano and Goyal, GCC Secretariat and Al-Qudsi, (1997). The objective of this study is to investigate which variables have a significant effect on unemployment rate in gulf countries using a panel data technique. These factors are likely to include population growth rate, growth domestic, government expenditure and inflation rate.

2. Literature review

There have been many studies on the effects of high rates of unemployment on an individual, in the society and on the economy. Based on information, collected from the existing articles, an attempt has been made to make an overview of the existing literature.

Jaradat (2012) examined the economic study of unemployment by presenting assumptions which show a relation between the independent variables of the study which are the economic growth, total fixed capital formation, development government expenditures, foreign aid, rate of inflation, political stability, and the rate of unemployment in Palestine which represents the relevant variable in the study from (1996-2012). Results shown inverse relationship among the independent variables in the study, which are the economic growth, total fixed capital formation, development government expenditure, with rate of unemployment. As well as there is a positive correlation among the other explanatory variables, that is foreign aid, rate of inflation and the rate of unemployment in the Palestinian. R^2 shows 77% of the change in the rate of unemployment in the Palestinian is explained by previous variables. As well as,

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Tunah (2010), who had examines the macroeconomic variables that lead to unemployment in Turkey. He used quarterly data from 2000 to 2008 as the sample data for the paper. He used four types to do the analysis, Augment Dickey Fuller test (ADF), Phillip-Perron test, Johansen's co-integration, and granger causality techniques. The results showed that there is a significant impact of real GDP, consumer price index and previous unemployment rate on the unemployment rate. Whilst real effective exchange rate has no impact on the unemployment.

El-Agrody (2010) investigated the economic study of unemployment and its impact on the GDP for Egypt. Data was collected from year 1994 to 2004. Simple and multiple linear regression analysis were applied. Variables used in the study were privatization, population, consumption expenditure, interest rates, exchange rates, technology, agricultural domestic product, real wage rates and agricultural investment. The results showed that there is a significant positive impact of national unemployment, national investment, exchange rate and average per capita share of GDP on the volume of GDP. The results also highlighted privatization and increasing population as the main reasons of increasing unemployment. They recommended that privatization policies need to be revised and to reduce interest rates in order to lowering the agricultural unemployment. Meanwhile, Kpodar (2010) studied to record the problem of unemployment in Algeria during the period (1985-2007), by using time series technique. Variables used in the study were rates of unemployment in Algeria, GDP growth rate, population growth rate, inflation and government expenditure. Results show that unemployment rate is affected by population growth rate and GDP growth rate.

(Gillani *et al.*, 2009) examined the correlation among the crime and various economic indicators and to achieve this objective, sample data was collected covering period from 1975 to 2007. To find out the elation among the variables, Augmented-Dickey-Fuller test, Johansen and Julie's co-integration and granger causality were tested. Unemployment, poverty, crimes, and inflation were used as variables. The result of cointegration showed long term relation among all the variables. The result of granger causality showed that in Pakistan, crime is granger caused by the poverty, unemployment and inflation. They recommended that while making policies, all the variables causing crimes need to be considered and addressed by the policy makers.

(Ozturk & Akhtar, 2009) they did a comprehensive way to unemployment by using VAR of "Variance Decomposition and Impulse response function analysis". He was interested in studying interrelationship among Foreign Direct investment, Export, Gross Domestic product and unemployment in Turkey for the period of 2000-2007. They found only two counteracting vectors in the system, showing long run relationship. They concluded that foreign direct investment did not lead to reduce unemployment in Turkey. GDP is positively affected by variations in exports but is insignificant. So they did not found any evidence of export led growth in Turkey. Again, Variations in DGP was no attached with reduction of unemployment. Also, (Aleksander *et al.*, 2009) focused on studying long run relationships among money supply, interest rate and unemployment. They concluded that these variables are positively related at low frequencies. They developed such a framework where money and unemployment were modeled by using micro details based on "search and bargaining theory". They provided a unified theory for analysis of labors and goods markets. As people hold a sizable amount in unemployment so the use of monetary theory can be on basis of search and bargaining or may an alternative ad hoc plan. Another important research that conducts by (Izraeli & Murphy, 2003) examined the influence of degree of industrial diversification on unemployment rates and per capita income in seventeen states. The result showed that a state with more diversified base has lower unemployment rate. Evidence on the relationship between per capita income and industrial diversification remained inconclusive. (Elameskov *et al.*, 1998) focused on relationship between unemployment and taxation in OCED countries for the period of 1983-1994. He used Hausman specification test & concluded that

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impact of taxation on unemployment is positive and exogenous in short run where as in long run, relationships are simultaneously determined. Main conclusion is taxation as a major determinant of unemployment in long run. Okun (1962), proposed that an inverse relationship existed between real output level and unemployment level in his study in which he used data obtained from U.S. economy. Eventually, this idea was accepted as Okun's law in the economics theory and it assumed that in the periods when the economic growth is over 2.25%, each 1% increase in real output level caused 0,5% reduction in unemployment rate. Thus, literatures reviews show different ways to analyze the unemployment. Therefore, I can summarize them into three groups. First group was concentrating on employment as major variable in their study by putting this variable as dependent and shows the various factors (variables) that could be affected unemployment for instance. The second part of these literatures were focusing on analyzing the interrelationship between unemployment and some other variables in long run through VAR and causality. Last groups was studying unemployment and some other variables as explanatory variables to show their effect on GDP growth or other dependent variable.

3. Data and methodology

3.1. Data

This paper uses a panel data in which countries are the units of observation. The data for this research will collect from GCC governments official publications and reports, the World Bank, International Financial Statistics, and the IMF. All the variables are defined in real values. The data set covers the period from 1990 to 2015 for five gulf countries Saudi Arabia, Kuwait, Oman, Bahrain and United Arab Emirates. In order to measure the impact of all these factors mentioned above, researcher will assume that the function takes a linear form as follows:

$$U=f(\text{POP}, \text{GDP}, \text{GOV}, \text{INFL}) \quad (1)$$

Where:

U = Unemployment as % of total labor force.

GDP= GDP per capita (constant 2010 US\$).

GOV= General government final consumption expenditure as% of GDP.

POP= Population growth rate annually.

INFL=Inflation based on consumer price index.

3.2. Variables description

3.2.1. Total unemployment as % of total labor force.

Unemployment refers to the share of the labor force that is without working but available for and seeking employment. Definitions of labor force and unemployment differ by country. Total labor force comprises people ages 15 and older who meet the International Labor Organization definition of the economically active population: all people who supply labor for the production of goods and services during a specified period. It includes both the employed and the unemployed. While national practices vary in the treatment of such groups as the armed forces and seasonal or part-time workers, in general the labor force includes the armed forces, the unemployed, and first-time job-seekers, but excludes homemakers and other unpaid caregivers and workers in the informal sector.

3.2.2. Gross domestic product (constant 2010 US\$).

GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars. Also, I am going to convert this variable into logarithmic form to make it

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standardize with other variables. Arthur Okun analyzed the relationship between economic growth and the unemployment rate for the past World War II period in American economy. Okun's law, as one of the first empirical studies, had observed a relationship between unemployment and real GDP or GNP growth. It states "a one point increase in the cyclical unemployment rate is associated with a two percent decrease in real GDP growth". The features of relationship between economic growth and the unemployment rate differs according to the country and the time-period specific conditions

3.2.3. Government final consumption expenditure

General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation.

3.2.4. Population Growth rate

Annual population growth rate for year t is the exponential rate of growth of midyear population from year $t-1$ to t , expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.

3.2.5. Inflation

Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that might be fixed or changed at specified intervals, such as yearly.

3.3. Methodology

3.3.1 Model specification

The most generally used approaches of estimate the relationship between unemployment rate and its determinants as mentioned in equation (1) is the static panel data models. In this study, I am going to use panel data technique. Knowing that there are essentially three types of panel data models namely, a pooled Ordinary Least Square (OLS) regression, panel model with random effects and panel model with fixed effects. Using a pooled OLS regression, countries' unobservable individual effects are not controlled so it can influence measurements of the estimated parameters. The major problem with this model is that it does not distinguish between the various countries that I have. In other words, by combining six countries through pooling, I ignore the heterogeneity or individuality that may exist among four countries. The first pooled model that I am going to estimate is:

$$U_t = \alpha + \beta_1(\ln GDP_t) + \beta_2(GOV_t) + \beta_3(POP_t) + \beta_4(INF_t) + \epsilon_t \quad (2)$$

Then I will estimate the following model with random effects and panel model with fixed effects. Thus, by combining countries' unobservable individual effects, I can express the linear model as following:

$$U_{it} = \alpha + \beta_1(\ln GDP_{it}) + \beta_2(GOV_{it}) + \beta_3(POP_{it}) + \beta_4(INF_{it}) + V_{it} \quad (3)$$

Where:

α = a constant term.

$V_{it} = \mu_{it} + \epsilon_{it}$ with μ_{it} being countries' unobservable individual effects. The difference between a pooled regression and a model considering unobservable individual effects lies on exactly in μ_{it} . Where I denotes country, t denotes time and remainder ϵ is the error term. To decide between whether using fixed effect or random effect we use the Hausman test. This exam will test the null hypothesis of non-existence of correlation between unobservable individual effects and the unemployment determinants, against the alternative hypothesis of existence of

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correlation. If the null hypothesis is rejected, we can conclude that correlation is relevant and therefore a panel model of fixed effects being the most correct way of carrying out the analysis of the relationship between unemployment and its determinants. On the other hand, if the null hypothesis is not rejected we can conclude that correlation is not relevant and therefore a panel model of random effects being the most appropriate way to carrying out analysis of the relationship between unemployment and its determinants.

3.3.2. Summary Statistics

The following table one displays the descriptive statistics of each variable.

Table 1. Summary statistics

Serial No	Variable name	Observations	Average (mean)	Standard Deviations	Minimum	Maximum
1	Unemployment as % of total labor force	216	3.677	2.512	.1	8.9
2	Population growth	216	4.619	3.189	-2.544	17.624
3	Government expenditure	216	20.901	9.870	5.465	76.22212
4	Log GDP per capita	216	10.305	.581	9.201	11.652
5	Inflation	216	2.641	3.186	-4.863	15.050

The first row shows that on average total unemployment rate is nearly 3.677% in all GCC countries. In addition, the lowest rate is 0.1% (Qatar) and highest is about 8.9% (Oman). The standard deviation is nearly 2.5. The second row displays that on average population growth rate is about 4.61%. Besides, the lowest is negative -2.5% (Kuwait, 1991) and the highest is nearly 17.6% (Qatar) and standard deviation is more than 3.8.

The third rows show that on average general government final consumption expenditure as a percentage of GDP is about 20.9%. Moreover, the lowest is 5.46% (UAE, 1982) and the highest is more than 76% (Kuwait, 1991), while standard deviation is nearly 9.87. The fourth row displays that on average GDP per capita is nearly 10.30. Also, the lowest is 9.20 (Oman) and highest is more than 11.6% (UAE, 1980). The standard deviation is nearly .58. The fifth row illustrate the mean of inflation rate based on consumer price index is about 2.64%. However, the lowest is nearly negative -4.86% (Qatar, 2009) and the highest is more than 15.0% (Qatar, 2008). The standard deviation is approximately 3.86.

3.3.3. Unit Root Test

Before estimating the model, it is necessary to examine the time series properties of the data. Using Levin, Lin & Chi (2002) (LLC) and Im, Pesaran & Shin (2003) (IPS) to investigate the stationary level of series. The first test assumes that panel cross sections are homogeneous. The second one assumes that they are heterogeneous. While LLC and IPS tests' null hypothesis is accepted as "series is not stationary". Here, taking into consideration all possible situations, a combination of two tests have been used. The panel unit root tests and the results are presented in Table 2.

Table 2. Panel Unit Root Tests Panel Unit Root Tests

	U	GDP	GOV	POP	INF
LLC	-1.297 (0.097)*	-2.348 (0.009)**	-6.630 (0.000)***	-9.726 (0.000)***	-5.345 (0.000)***
IPS	-1.884 (0.027)**	-1.578 (0.057)*	-7.306 (0.000)***	-11.070 (0.000)***	-5.053 (0.000)***

Note: The given values are the corresponding test statistics, values in parentheses are probability. ***, ** and * indicates the stability at the level of significance 1 %, 5 % and 10 % level respectively.

It is observed as shown in Table 2 that, the variables are stationary at level and I do not have to take the first difference. Therefore, through using LLC and IPS all-time series are already stationary at levels I(0) indifferent critical values (1 %, 5 % and 10 % level respectively).

4. Empirical results

The following table 3 provides an empirical result estimated the equations (2) and (3) by using Stata program. Results of pooled and panel data models have been presented in Table 3.

Table 3. Pooled and Panel data models Estimation Results for four Independent Variables in GCC Countries

	Pooled Model	Fixed Effect Model	Random Effect Model
Constant	48.390*** (27.64)	21.624*** (8.60)	26.768*** (10.85)
LnGDP	- 4.173*** (-25.06)	- 1.677*** (-7.12)	- 2.158*** (-9.40)
GOV	-0.086*** (-9.18)	-0.034*** (-4.99)	-0.042*** (-5.88)
POP	0.020 (0.70)	0.009 (0.62)	0.003 (0.24)
INF	0.002 (0.08)	0.008 (0.60)	0.010 (0.66)
R ²	0.77	0.77	0.77
Hausman Test		P=0.000	
Pesaran CD ¹		0.00 (0.94)	
Jarque Bera	1.912 (0.3844)		

Note: *** indicates the stability at 1% significant level. () indicates the t-statistic value.

The result of pooled estimation for the six countries in Table 3 shows that real GDP per capita and government expenditure have the largest effect on unemployment rate compared to the other independent variables. Also, population growth rate and inflation rate are not significant at level because their t-test statics are very small. Therefore, they are not significant to explain the change in unemployment rate. The estimation of fixed and random effect model show same result as pooled with some different in figures. Furthermore, the value of R-square is 0.77, which explains that the relationship between the dependent variable (Unemployment) and all the independent variables (GDP, Government expenditure) are high.

Furthermore, table 3 provides us the results for pooled, fixed and random effect model. The first model is pooled and the coefficient value of GDP per capita tells us that an increase in GDP per capita by one percentage is associated with 0.041 percent decreasing in unemployment. Therefore, I can conclude that Okun's law is occur in the case of GCC countries. Furthermore, the coefficient value of government expenditure is also having a negative relationship with unemployment and the coefficient of it is 0.08, which indicate that one percentage increase in government expenditure will decrease unemployment rate by 0.08 percent. To decide which model is appropriate between fixed and random effect model. I shall apply the Hausman test to check which model among fixed or random effect are appropriate to accept. Noticing that the null hypothesis in case of Hausman test that random effect model appropriate while the alternative hypothesis is fixed effect model is appropriate. The guideline here depend on P-value. Therefore, if I get a statistically significant P-value, I shall use fixed effect model, otherwise random effect model is appropriate. The result from applying Hausman test shows that fixed effect model is appropriate in case of GCC countries. The coefficients value of both variables, which are GDP per capita and government expenditure, are having negative sign, it means that an increase in GDP per capita by one percentage point is associate with 0.016 decreasing in unemployment rte. The coefficient value of government expenditure is 0.03 it means that an increase in government expenditure by one present will lead to decrease unemployment rate by 0.03 percent. Table 5 provides a demographic imbalance in GCC countries and we can notice with the exception of Saudi Arabia, all have very small national populations and, as a consequence depend heavily on a large number of expatriate

¹Pesaran cross sectional dependence test checks cross sectional autocorrelation in the data

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workers. In Qatar and the UAE, nationals only make up a small fraction of their respective workforces. Moreover, table 4 support the model's result about getting population growth insignificant to explain the change in unemployment rate.

Table 4. *Demographic Imbalances*

Country	2010 Population (mn)		Workforce	
	National	Non-national	National	Non-national
Bahrain	0.51	0.54	36.1%	63.9%
Kuwait	1.04	2.43	16.9%	83.1%
Oman	2.39	1.02	28.7%	71.3%
Qatar	0.22	1.46	5.7%	94.3%
Saudi Arabia	20.94	7.75	50.5%	49.5%
UAE	0.95	7.24	4.2%	95.8%
GCC	26.05	20.45	38.3%	61.7%

Sources: for population: Al Khouri; for the workforce: for Qatar the Qatar Statistics Authority; accessed 2011, for the year 2009, for the UAE authors' calculations based upon the UAE's National Bureau of Statistics labor force figures for 2005 and its most recent 2010 population projection, all others Rutledge (2009) aggregates compiled from official sources between the years 2002 and 2006; for energy reserves: BP Statistical Review (2011); and for estimated value of sovereign wealth under active management: SWF Institute (2011).

5. Conclusion

The objective of this study is to investigate which variables have a significant effect on unemployment rate in gulf countries using a panel data technique. Four variables were employed to determine their relationship to unemployment rate. The result confirms that two variables play an essential role to determinant unemployment rate in the GCC countries. Governments expenditure as a percentage of GDP play important roles in decreasing unemployment rate since they have the power to shape policies. Governments in the GCC countries should create policies that encourage their citizens to get knowledge and enhance their ability through creating a social program to be ready working anywhere. Since the education is a part of government expenditure and most of GCC countries start concentrating in this factor for example Saudi Arabia allocated about 25% of their government expenditure on education because most of studies discover that there is a negative relationship between education and unemployment. Moreover, the estimated model provides that GDP per capita plays an essential role to determine unemployment rate in GCC countries. Therefore, I can conclude that Okun's law is occur in the case of GCC countries. Also, in case of GCC countries Structural unemployment is occurred which caused by forces other than the business cycle. It occurs when an underlying shift in the economy makes it difficult for some groups to find jobs.

The total of foreign workers is about 17 million employees who are working in various business sectors in member countries of the Gulf Cooperation Council (GCC) in 2014 according to the latest report by Aljazeera Research. Thus, most of these workers who came from abroad are occupied the jobs in GCC countries for example in the UAE attracts both low-and high-skilled migrants due to its economic attractiveness, relative political stability, and modern infrastructure and over 90 percent of the country's private workforce are controlled by immigrants, who come particularly from India, Bangladesh, and Pakistan, comprising. It is an evidence that the unemployment level among the GCC nationals was not a consequence of the supply/demand balance in the whole labor market, but rather a result of the public sector's ability to absorb additional national employees and most GCC citizens are employed in public-sector jobs, because public-sector jobs usually allow retirement with almost full pension rights after 20 years of service. Thus, that will create an incentive for people to work in public. The estimated model illustrates that increasing price level will not affect unemployment rate because governments of GCC countries already subsidy most of products and services for their citizens so increasing the level of prices will not create an incentive for citizens who already worked or those who are not employed to work

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harder or looking for new job to maintain the standard of living because they already known that their governments will support them. Also, some of GCC countries support those who are considering to be unemployment by giving them a salary to keep their standard of living. However, that will not stimulate them to accept any available job and they will be waiting until getting a job in public sector.

Further research needs to be conducted on the causes of higher unemployment rates among the women as compared to the men. This question is very essential in terms of gender inequality, especially in the employment sector. The research should also identify the effect of having a higher rate of unemployment among the women as compared to their male counterparts. Another crucial case that needs to be investigated is the impact of the high unemployment rates among the youth and their long run effects on the economy.

References

- Al-Qudsi, S. (1997). Labor market policies and development in the GCC: Does internal policy consequences matter? in J. Devlin (ed.), *Gulf Economies: Strategies for Growth* Centre for Contemporary Arab S.
- Auty, R.M. (2001). *Resource Abundance and Economic Development*. Oxford University Press, New York.
- Berentsen, A., Menzio, G., & Wright, R. (2011). Inflation and unemployment in the long run. *American Economic Review*, 101(1), 371-398. doi. [10.1257/aer.101.1.371](https://doi.org/10.1257/aer.101.1.371)
- El-Agrody, N.M., Othman, A.Z., & Hassan, M.B.-D. (2010). Economic study of unemployment in Egypt and impacts on GDP. *Nature and Science*, 8(10), 102-111.
- Elmeskov, J., Martin, J.P., & Scarpetta, S. (1998). Unemployment and labor market rigidities in OECD Countries: The impact of taxes. *Swedish Economic Policy Review*, 5(2), 207-258.
- Gillani, S.Y., Rehman, H.U., & Gill, A.R. (2009). Unemployment, poverty, inflation and crime nexus: Cointegration and causality analysis of Pakistan. *Pakistan Economic and Social Review*, 47(1), 79-98.
- Izraeli, O., & Murphy, K. J. (2003). The effect of industrial diversity on state unemployment rate and Per capita income. *The Annals of Regional Science*, 37(1), 1-14. doi. [10.1007/s001680200100](https://doi.org/10.1007/s001680200100)
- Im, K.S., Pesaran, M.H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels, *Journal of Econometrics*, 115(1), 53-74. doi. [10.1016/S0304-4076\(03\)00092-7](https://doi.org/10.1016/S0304-4076(03)00092-7)
- Jaradat, M.A. (2013). Impact of inflation and unemployment on Jordanian GDP. *Journal of Comntemporary Research in Business*, 4(10), 314-334.
- Kpodar, K. (2007). Labor market issues and unemployment in Algeria, in *Algeria: Selected Issues*, Chapter 2, IMF Country Report No. 07/61. [[Retrieved from](#)].
- Levine, L. (2012). Economic growth and the unemployment rate. *Congress Research service Report for Congress*. [[Retrieved from](#)].
- Okun, A. (1962). Potential GNP: Its measurement and significance, *American Statistical Association, Proceedings of the Business and Economics Statistics Section*, pp.98-104.
- Ozturk, L., & Akhtar, I. (2009). Can unemployment be cured by economic growth and foreign direct investment in Turkey? *International Research Journal of Finance and Economics*, 27, 1450-2887.
- Tunah, H. (2010). The analysis of unemployment in Turkey: Some empirical evidence using cointegration test. *European Journal of Social Sciences*, 18(1), 18-38.
- Wong, C.H., Clifton, E.V., & Leon, G.L. (2001). Inflation targeting and the unemployment-inflation trade-off, *IMF Working Paper*, No.01/166. [[Retrieved from](#)].



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