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GDP GROWTH AND UNEMPLOYMENT IN OMAN: EVIDENCE OF JOBLESS GROWTH FROM ARDL APPROACH

CRESCIMENTO DO PIB E DESEMPREGO EM OMÃ: EVIDÊNCIAS DE CRESCIMENTO SEM GERAÇÃO DE EMPREGOS A PARTIR DA ABORDAGEM ARD

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Abstract
This study examines the relationship between economic growth, specifically GDP growth, and unemployment rates in Oman, and explores the economic situation in Oman to determine whether there are any indicators of the "jobless growth" phenomenon. Secondary data, namely time-series data from 2000 to 2025, were analyzed using an Autoregressive Distributed Lag (ARDL) approach. The results showed that GDP growth had no statistically significant impact on unemployment during the study period, and the bounds test indicated the absence of a long-term relationship between the variables. These results suggest that GDP growth does not directly and automatically translate into lower unemployment rates. This lack of impact may be attributed to several factors, including the structure of the Omani economy, the structure of the labor market, and the dominance of the oil sector in revenue. The study concludes that GDP growth alone is insufficient to reduce unemployment rates, and the Omani government should adopt policies more focused on job creation. Economic growth should be aligned with the needs of the labor market, particularly in sectors capable of generating sustainable employment opportunities.

Keywords: ARDL. GDP Growth. Jobless Growth. Oman. Unemployment.

Resumo
Este estudo examina a relação entre o crescimento econômico, especificamente o crescimento do PIB, e as taxas de desemprego em Omã, além de explorar a situação econômica do país para identificar possíveis indícios do fenômeno conhecido como "crescimento sem geração de empregos" (jobless growth). Foram analisados dados secundários em séries temporais referentes ao período de 2000 a 2025, utilizando a abordagem Autorregressiva de Defasagens Distribuídas (ARDL). Esses achados sugerem que o crescimento do PIB não se traduz de forma direta e automática na redução das taxas de desemprego. A ausência desse impacto pode ser atribuída a diversos fatores, incluindo a estrutura da economia omanense, a configuração do mercado de trabalho e a predominância do setor petrolífero nas receitas nacionais. O estudo conclui que o crescimento do PIB, isoladamente, é insuficiente para reduzir as taxas de desemprego, sendo necessário que o governo de Omã adote políticas mais direcionadas à geração de empregos. Além disso, o crescimento econômico deve ser alinhado às necessidades do mercado de trabalho, especialmente em setores capazes de criar oportunidades de emprego sustentáveis.

Palavras-chave: *ARDL. Crescimento do PIB. Crescimento Sem Geração de Empregos. Desemprego. Omã.*

1 INTRODUCTION

Economic growth, commonly measured by gross domestic product (GDP), is widely used as a key indicator of macroeconomic performance, as it directly and indirectly affects several economic components. However, several economic studies have found that GDP growth does not necessarily translate into a corresponding increase in employment or a meaningful reduction in unemployment; this is known as the "jobless growth" phenomenon.

Jobless growth refers to a situation where the economy experiences continuous positive growth in GDP, but this increase is not reflected in sufficient employment creation or a meaningful decline in unemployment (Ohnsorge, 2024).

In Oman, despite ongoing efforts to reduce the unemployment rate through economic diversification and by stimulating the economy and aggregate demand through government spending at certain times, the problem of the labor market's inability to absorb job seekers remains prominent. Oman can be considered an important model for resource-dependent countries, as it, like other Gulf Cooperation Council (GCC) countries, has a significant reliance on oil revenues. Therefore, Oman continues to pursue the diversification of its income sources to achieve the strategic goals of Oman Vision 2040. Another influential factor is the segmentation of the Omani labor market between the public and private sectors, and between expatriate and local workers.

Therefore, examining economic growth in Oman, measured by GDP growth, and its direct relationship to unemployment rate, is crucial to determining whether this growth is generating sufficient employment opportunities or not.

This study examines the impact of GDP growth on unemployment rates in the Sultanate of Oman from 2000 to 2025. It also assesses whether periods of GDP growth have contributed to reducing unemployment or whether they reflect the phenomenon of jobless growth.

1.1 Problem statement

Despite the relatively stable economic growth in Oman over the past few years, youth unemployment remains a significant challenge for the Omani government. This

economic growth has been largely driven by capital-intensive sectors such as oil and gas, which have limited capacity to generate additional employment opportunities, resulting in limited additional labour demand. Another challenge lies in diversifying income sources through other economic sectors, which have not yet expanded sufficiently and, consequently, cannot absorb a larger number of job seekers. Therefore, economic growth may not automatically translate into sufficient employment opportunities, raising concerns about the possibility of jobless growth in the Omani economy.

1.2 Research gap

Numerous studies have examined the effect of GDP growth on unemployment rates in general, as well as the relationship between economic growth and unemployment. Furthermore, there are many detailed studies on economic growth and labor markets, including the impact of GDP growth on unemployment rates. However, there is a limited number of empirical studies focusing on Oman and on whether economic growth has translated into sufficient employment creation or reflects a pattern of jobless growth. This study aims to bridge this gap by providing an empirical framework for examining the relationship between economic growth and unemployment in Oman using an ARDL approach.

2 LITERATURE REVIEW

2.1 Jobless growth

In macroeconomic research, the relationship between economic growth and job creation is a crucial issue that has been addressed in numerous studies. According to macroeconomic theories, economic growth leads to increased production, which in turn raises the demand for labor, as per the Keynesian concept. However, this relationship may not be automatic in some economies and under certain conditions. Some economies experience GDP growth without a corresponding increase in job creation, a phenomenon known as jobless growth. This indicates that a rise in GDP may not necessarily lead to a reduction in unemployment rates. Kapsos (2005) explains this through the concept of

employment intensity in growth, which measures how well economic growth translates into the creation of real and sustainable jobs. This is of paramount importance because some countries achieve relatively similar growth rates, yet their employment outcomes may vary due to differences in the structure and composition of their economies and labor markets. This is also consistent with Okun's Law, which indicates that unemployment can decrease with increased production growth, but this relationship is linked to growth in labor-intensive sectors and the structure of the economy (Okun, 1962; Ball et al., 2017).

The problem of jobless growth reflects a structural economic imbalance stemming from several causes, most notably the concentration of growth in capital-intensive sectors, which limits job creation in such sectors. Consequently, in these cases, production expansion is linked more to capital than to labor, resulting in a shortage of sufficient employment opportunities for citizens. This problem is characteristic of most resource-dependent economies, particularly those whose budgets and revenues are tied to oil exports. This underscores how a slowdown in global growth can directly impact job creation, as noted by the ILO (2025).

In Oman, high unemployment rates stem from several factors, most notably the economic structure and reliance on oil revenues. Oman Vision 2040 has therefore focused on addressing these issues through programs designed to prepare job seekers for the needs of the labor market, develop the labor market, support entrepreneurship, and, most importantly, achieve genuine economic diversification. This indicates that job creation is not solely a matter of labor market imbalances, but rather a long-term strategic imperative (Oman Vision 2040 Implementation Follow-up Unit, 2023).

Recent economic reforms in the Sultanate of Oman are geared towards economic diversification in non-oil sectors, in accordance with the recommendations of the International Monetary Fund. Oman's reform programs aim for financial stability, structural transformation, and support for non-oil activities. However, fiscal consolidation measures may limit the short-run ability of public spending to support employment creation. Economic reforms focused mainly on growth rates may not be sufficient to improve labor market conditions and increase employment levels unless they are linked to employment-generating sectors (IMF, 2026).

2.2 Economic growth and employment creation

Okun's Law is one of the most important laws that explains the relationship and correlation between economic growth and unemployment rates, and it predicts an inverse relationship between these two variables (Okun, 1962). However, later studies have emerged indicating that this relationship is not always in the same form and scope, but rather varies because of certain conditions in the economy, the most important of which are the time factor, sectoral composition, and the structure of growth (Ball et al., 2017; Kapsos, 2005). Therefore, it cannot be definitively stated that in all cases and in all economies, GDP growth can reduce unemployment.

This is particularly important for Oman, a country heavily reliant on oil revenues, which directly impacts its GDP growth. While sustained growth over the years has been driven by oil production and stability, and sometimes even the rise in oil prices, it has not always translated into growth in productive sectors that require additional labor. Therefore, Oman and the GCC states are striving to diversify their sources of income. The World Bank confirms this, noting improvements in these efforts (World Bank, 2025). However, the challenge remains: how can this diversification translate into decent and sustainable employment opportunities for citizens?

Therefore, a clear methodological analysis of the labor market is crucial for analyzing the jobless growth hypothesis. If GDP growth has a weak or statistically insignificant effect on unemployment, this may support the hypothesis that economic growth in Oman has not been sufficiently employment-generating. Thus, to assess the impact of Oman's growth model on sustainable unemployment reduction, the effect of GDP growth must be analyzed systematically (Kapsos, 2005; Al Jabri et al., 2022; IMF, 2026).

3 METHODOLOGY

To study the relationship between economic growth and unemployment in Oman, this study employs a quantitative research methodology. This methodology helps determine the state of the Omani economy and whether it is experiencing jobless growth. Therefore, the study utilizes annual time-series data covering the period from 2000 to

2025. This period witnessed significant economic fluctuations, such as oil price volatility, fiscal consolidation policies, and the impact of the COVID-19 pandemic. Annual time-series data are used to determine the relationship between GDP growth and unemployment, as this relationship may be delayed and not immediately apparent.

This study relies on annual secondary data collected from national and international sources, such as the National Centre for Statistics and Information in Oman, as well as the International Monetary Fund and the World Bank. The dependent variable in this study is the unemployment rate, while the independent variable is economic growth, specifically GDP growth. The unemployment rate is expressed as a percentage of the total labor force in Oman, while GDP growth is expressed as a percentage of annual GDP growth.

To analyze and evaluate the relationship between variables and to determine whether economic growth contributes to reducing unemployment, or if there are statistically significant indicators of the "jobless growth" phenomenon, this relationship is analyzed using unemployment as a function of GDP growth. The statistical model is constructed according to the following functional form:

$$UNEMPt = f(GDPG) \qquad (1)$$

Conversion to the econometric model:

$$UNEMPt = \beta 0 + \beta 1 GDPGt + \varepsilon t \qquad (2)$$

where:

UNEMP = Unemployment rate
GDPG = GDP growth rate
β0 = Constant term
β1 = Estimated coefficient of GDP growth
εt = Error term
t = Time period

This model is based on Okun's law and focuses on analyzing the GDP growth coefficient. According to this law, GDP growth, or economic growth in general, is expected to contribute to lower unemployment rates; therefore, the estimated coefficient of GDP growth is expected to be negative. However, if the coefficient is positive or statistically insignificant, this may indicate the presence of the "jobless growth" phenomenon in the Omani economy. This model will examine economic growth, specifically GDP growth, during the study period from 2000 to 2025 to determine whether this phenomenon is present or not.

The ARDL model is considered suitable for small samples and can be used when variables are integrated at I(0), I(1), or both. Therefore, the unit root test is performed to ensure that the variables are not integrated of order two, I(2). Another crucial aspect of the ARDL model is its ability to examine the short-run and long-run relationship between variables. This is very important in this study, as the impact of economic growth on unemployment may appear with a delayed time lag.

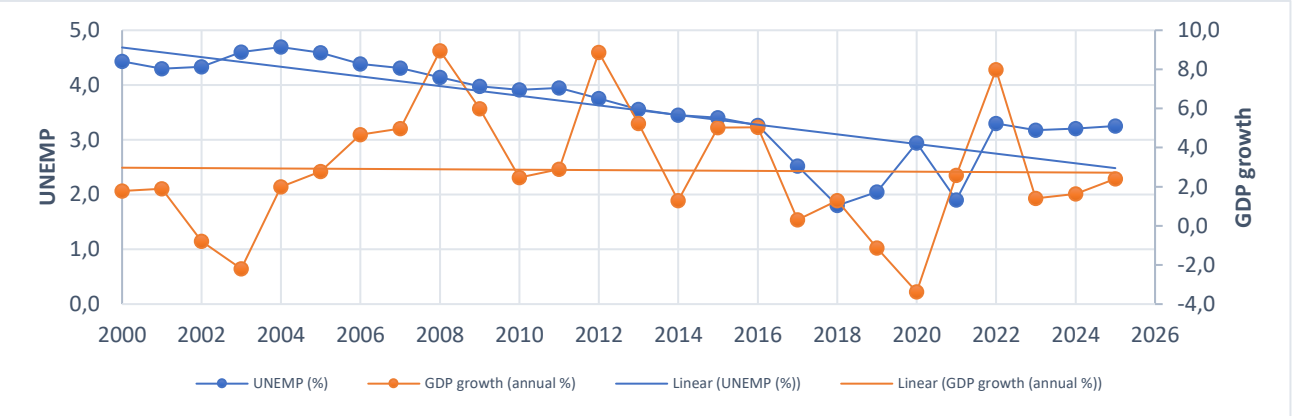
4 RESULTS AND DISCUSSION

4.1 Descriptive statistics

Descriptive statistics indicate that the average GDP growth rate was 2.845%, with a standard deviation of 3.124. GDP growth ranged from a maximum of 8.950% and a minimum of -3.380%. The Jarque-Bera probability value of 0.878 indicates GDP growth is normally distributed. The average unemployment rate was 3.584%, with a standard deviation of 0.838, ranging from a minimum of 1.8% and a maximum of 4.693%. These results suggest that unemployment during the study period fluctuated within a relatively narrow range. The unemployment rate is also normally distributed in the data series, with Jarque-Bera probability value of 0.341, which is greater than 0.05.

Figure 1

Unemployment (%) and GDP Growth (%) in Oman, 2000–2025



These results show that GDP growth was more volatile, while unemployment remained relatively stable. This suggests that changes in economic growth do not immediately affect unemployment rates, nor are their impacts strongly reflected in the overall level of change. This finding indicates that the relationship between these variables warrants further investigation to determine whether the Omani economy is experiencing a "jobless growth" phenomenon.

4.2 Unit root test

In estimating the ARDL model, analyzing the time series variables and ensuring they are integrated at I(0), I(1), or a combination thereof, prevents the non-stationary variables and potentially leads to misleading regression results. Therefore, the Augmented Dickey-Fuller (ADF) unit root test is used to determine the stationarity level of the variables at any integration.

In the ADF test, the criterion is set at a significance level of 5%. The test results show that unemployment (UNEMP) is not stationary at level, with a value exceeding 5% (0.4916). However, after calculating the first difference, unemployment becomes stationary at a probability value of 0.000, indicating that unemployment is integrated and of the first order I(1). Meanwhile, GDP growth is stationary at level (probability value of 0.0372), confirming that GDP growth is integrated of the zero order I(0).

These results show that the ARDL model is suitable for studying the relationship between GDP and unemployment in Oman, as none of the variables is integrated of order two, I(2).

Table 1

ADF Unit Root Test Results

Variable	Level Prob.	First Difference Prob.	Decision
GDPG	0.0372	0	I(0)
UNEMP	0.4916	0	I(1)

4.3 ARDL model results and bounds test

ARDL model was estimated to study the relationship between unemployment and GDP growth. The automatic lag selection using the Schwarz Information Criterion selected the ARDL(1,0) model. The results showed that the lagged unemployment variable, UNEMP (-1), was positive and statistically significant at the 1% level, with a coefficient of 0.825876 and a probability of 0.0000. These results indicate that unemployment remains high and strongly influenced by its previous level in Oman.

Meanwhile, the GDP growth coefficient was positive but not statistically significant, with a probability value of 0.8550, which is above the significance level of 5%. This confirms that GDP growth does not have a statistically significant impact on unemployment in this estimated model. This can be explained by the fact that economic growth in Oman does not directly affect the reduction of the unemployment rate during the study period.

To examine the long-term relationship between GDP growth and unemployment, the ARDL bounds test was applied. The lower bound for the critical value was set at 5%, and the calculated F-statistic is 0.866484. Therefore, the null hypothesis that there is no relationship between growth levels and unemployment cannot be rejected based on this value. This result indicates that there is no evidence of a long-term equilibrium relationship between unemployment and GDP growth.

These findings reinforce the " jobless growth" phenomenon in the Omani economy, as the impact of GDP growth on unemployment is negligible, and there is no long-term relationship between the two variables. These results suggest that economic

growth in Oman does not have a significant impact on job creation, reflecting the structure of the Omani economy.

4.4 Diagnostic tests

To verify the model's reliability, several diagnostic tests were performed. These tests are commonly used in time-series analysis to examine the residual normality, serial correlation, and to determine the model's specification and stability (Gujarati & Porter, 2009; Wooldridge, 2016).

The model does not suffer from serial correlation, with a probability value are 0.1633 for one lag and 0.3741 for two lags, both exceeding 5% in the Breusch-Godfrey Serial Correlation LM test. The residuals are normally distributed with a probability value of 0.2140 according to the Jarque-Bera test. The results also indicate that the model is generally stable, as demonstrated by CUSUM and CUSUMSQ.

While some results indicate that GDP growth does not fully explain the unemployment rate in Oman, the Breusch-Pagan-Godfrey test shows heterogeneity with a p-value of 0.0148. Similarly, the Ramsey RESET test is statistically significant at 0.0085. These results suggest that the model may suffer from instability and potential bias.

Based on the preceding tests, the model is considered acceptable in terms of serial correlation, normality, and overall stability.

4.5 Discussion of jobless growth in Oman

The results of the tests in this model indicate that economic growth in Oman has not automatically contributed to a reduction in unemployment rates, and there is no confirmation of a long-term relationship between the variables. Moreover, the unemployment variable cannot be adequately explained by GDP growth alone. These results are consistent with the "jobless growth" phenomenon. The emergence of this phenomenon in the Omani economy may be attributed to the heavy reliance on oil revenues, a capital-intensive sector that contributes significantly to GDP growth but has a very limited contribution to creating jobs for citizens. The results also indicate that

unemployment is not only affected by economic growth, but also by other influential factors such as the structure of the Omani labor market. The Omani labor market suffers from segmentation of labor market, reliance on expatriate labor, concentration on capital-intensive sectors, and the limited impact of non-oil sectors on the economy. Therefore, the Omani National Strategy, Oman Vision 2040, should be evaluated not only from an economic perspective, focusing on steady and continuous economic growth, but also on its ability to create sustainable job opportunities. In conclusion, these findings provide evidence of possibility of the "jobless growth" phenomenon in the Omani economy, and therefore, focusing on labor-intensive sectors and emerging sectors capable of creating job opportunities for citizens should be a national priority in the coming years.

5 CONCLUSION AND POLICY IMPLICATION

The results of this study concluded that GDP growth had no statistically significant impact on unemployment in Oman during the study period from 2000 to 2025. The results also confirmed the absence of a long-term relationship between the two variables. Therefore, reducing unemployment rates requires the Omani government to adopt policies that not only focus on increasing GDP but also comprehensively address all aspects of the economy, most importantly the labor market and its capacity to create sufficient job opportunities for citizens. To achieve this, Omani government policymakers should develop indicators based on employment rates that are aligned with GDP growth when evaluating and formulating development plans. This would promote economic growth that supports the creation of sufficient and sustainable job opportunities and enhance the labor market's ability to play an active role in the economic sectors, in accordance with Oman Vision 2040.

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