



An Assessment of the Relationship between Employment and Economic Growth in the Western Cape

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Abstract

This paper examines the relationship between employment and economic growth in the Western Cape using quarterly time series data from 2008 to 2023. The correlation coefficient between employment growth and economic growth was estimated at 0.56, which indicates that the two variables have a strong positive correlation. Moreover, the empirical results estimated the employment intensity with respect to economic growth to be 0.52. This signifies that economic growth is a key driver of employment in the Western Cape.

1. Introduction

Economic growth can be achieved through improvements in productivity and growth in aggregate demand. There is a general perception that economic growth can result in the creation of more employment opportunities. However, the link between economic growth and employment is not a straightforward one. This is because higher economic growth rates do not always guarantee labour absorption. Some available literature suggests that economic growth in most developing countries has not been accompanied by an increase in employment or a decline in the unemployment rates (Haider, Jabeen, Rankaduwa and Shaheen, 2023). This phenomenon is referred to as jobless growth in the literature. The concept of jobless growth is used to describe a situation where the overall economy is growing without a corresponding increase in employment or with a rising unemployment rate.

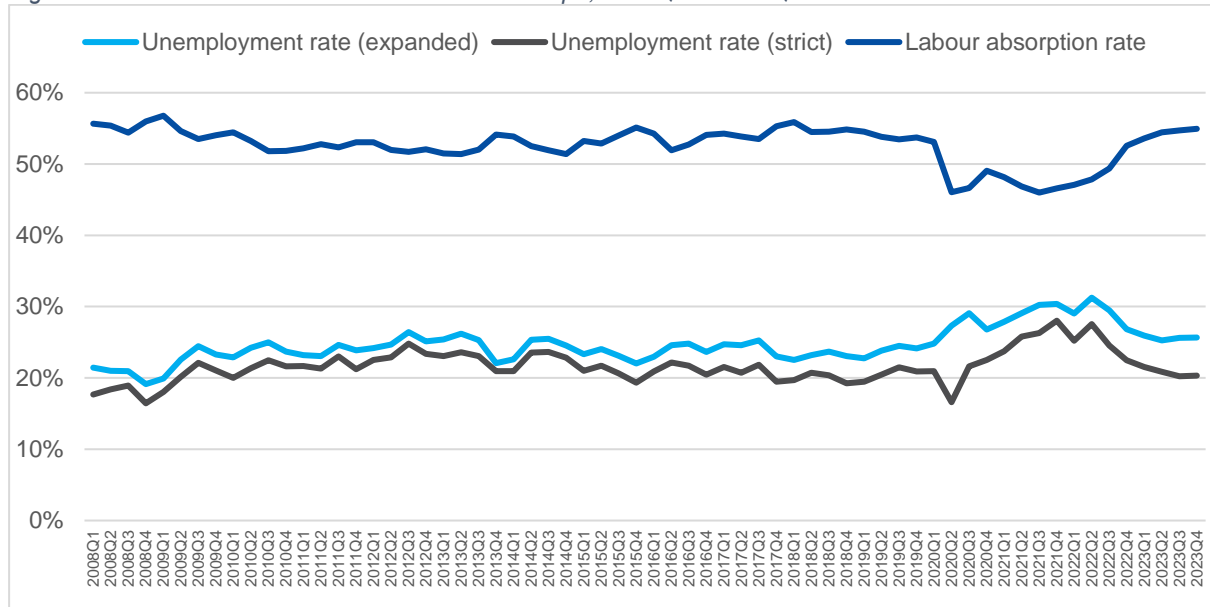
The level of employment in an economy is not only dependent on the growth rate of gross domestic product (GDP) but also on the rate at which the economy can absorb labour (Altman, 2003). When the labour absorption capacity of an economy is low, the achievement of higher growth rates may not necessarily translate into higher employment. Thus, policy must target both the achievement of higher economic growth and high labour absorption rate. The objective of this study is to analyse the nature of the relationship between economic growth and employment in the Western Cape using data from 2008Q1 to 2023Q4.

The remainder of the study is structured as follows: Section 2 provides an overview of the labour market in the Western Cape, Section 3 reviews relevant literature relating to the employment-growth nexus, while Section 4 presents the econometric methods and procedures. Section 5 provides the empirical results, while Section 6 concludes the study.

2. Overview of the Western Cape's labour market

The Western Cape's labour absorption rate averaged 52.6% from 2008Q1 to 2023Q4. The province's unemployment rate (both the strict and expanded definition) has been declining since the third quarter of 2022. As can be seen from Figure 1, the official unemployment rate (strict definition) declined by 7.2 percentage points between 2022Q2 and 2023Q4, decreasing from 27.5% in 2022Q2 to 20.3% in 2023Q4. Likewise, the unemployment rate according to the expanded definition decreased from 31.3% to 25.6% over the same period.

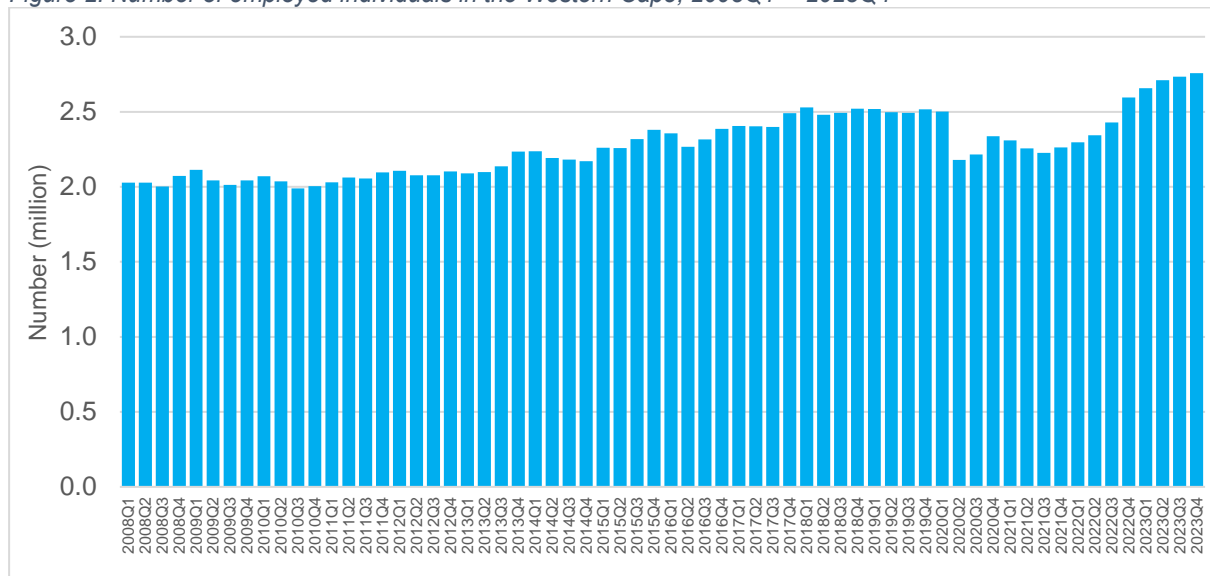
Figure 1: Labour market statistics in the Western Cape, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

Figure 2 presents the number of employed individuals in the Western Cape from 2008Q1 to 2023Q4. Approximately 730 thousand more people were employed in the province in 2023Q4 compared to 2008Q1. The level of employment in the province has been increasing since the fourth quarter of 2021, rising from approximately 2.23 million people in 2021Q3 to 2.76 million people in 2023Q4.

Figure 2: Number of employed individuals in the Western Cape, 2008Q1 – 2023Q4

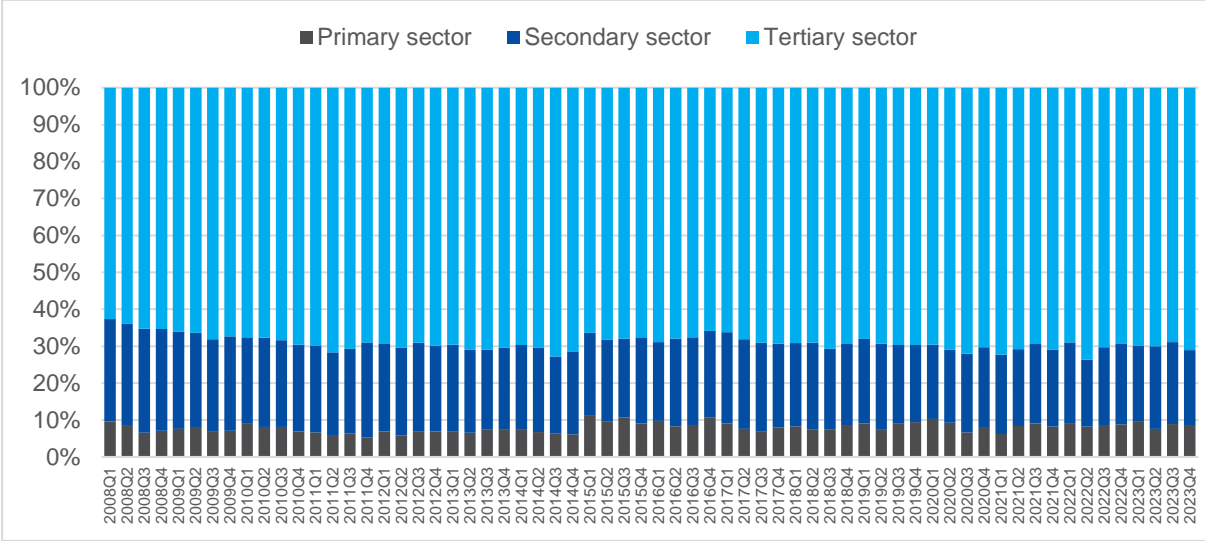


Source: Quantec (2024) and Stats SA (2024)

The tertiary sector accounts for the largest share of employment in the Western Cape, averaging 69.1% between 2008Q1 and 2023Q4. As shown in Figure 3, the sector’s share of employment increased from 62.7% in 2008Q1 to 71% in 2023Q4. This is as expected because the sector dominates the level of economic activity in the province. The secondary sector, with an average share of 22.9% during the period under review, was the second largest employer, while the primary sector (8%) employed the least

number of people. Moreover, the primary sector (1.8%) recorded the highest average growth rate during this period, followed by the tertiary sector (0.7%) and the second sector (0.2%).

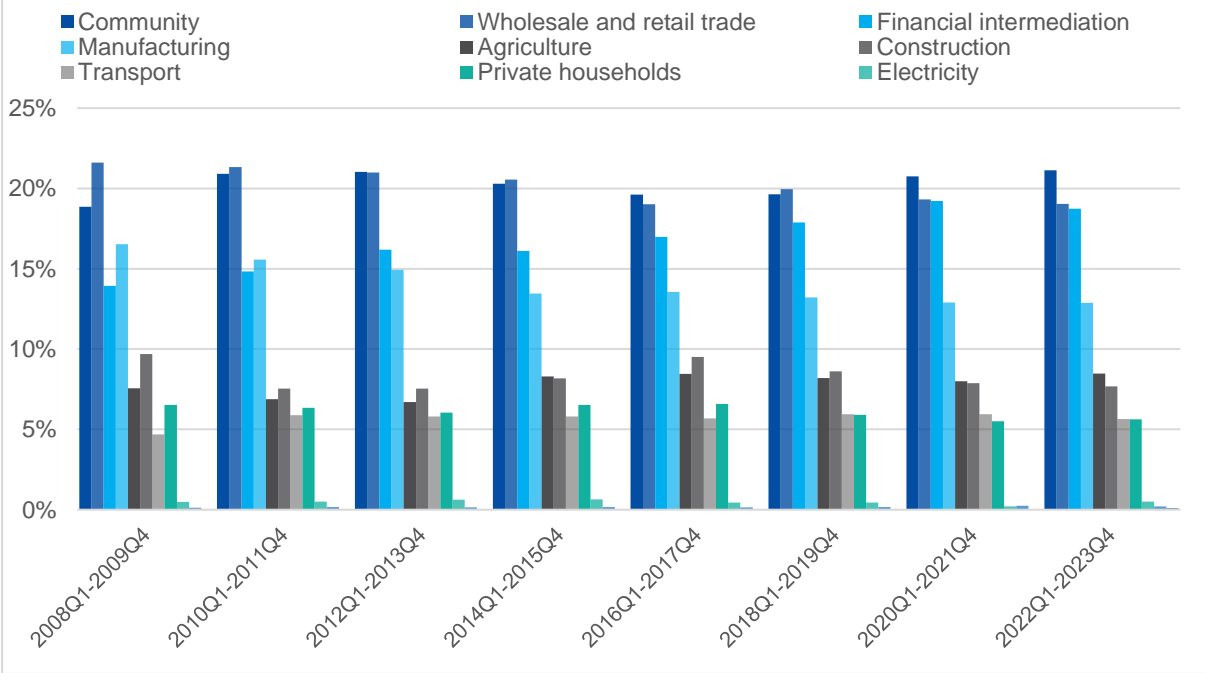
Figure 3: Western Cape’s employment per sector, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

As illustrated in Figure 4, community services, trade and financial services have been the top three industries employing most of the labour force in the Western Cape over the past couple of quarters. Employment within the community services industry increased from 18.9% during the period 2008Q1–2009Q4 to 21.1% between the first quarter of 2022 and the fourth quarter of 2023, while that of financial services increased from 13.9% to 18.7% over the same period.

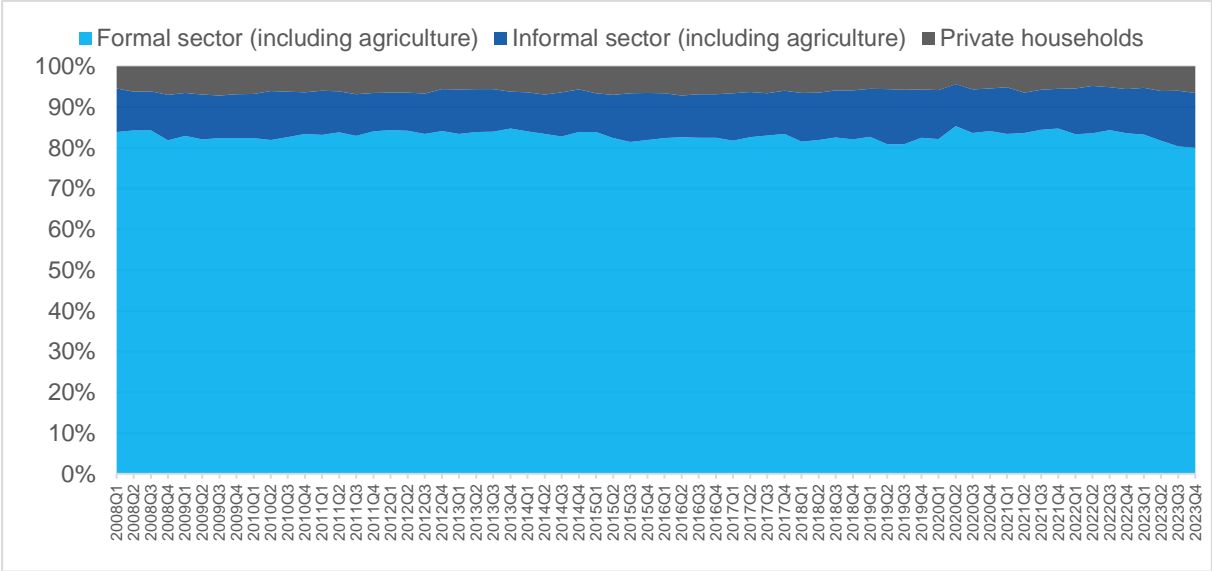
Figure 4: Western Cape’s employment per industry, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

The Western Cape has a large formal sector and a small informal sector. The formal sector was responsible for more than 80% of employment in the Western Cape between 2008Q and 2023Q4 as shown in Figure 5. The informal sector, on the other hand, accounted for an average share of 10.9% of employment over the same period, while private households accounted for 6.1%. Private households recorded the highest average growth rate (1.3%), followed by the informal sector (1.2%) and the formal sector (0.5%).

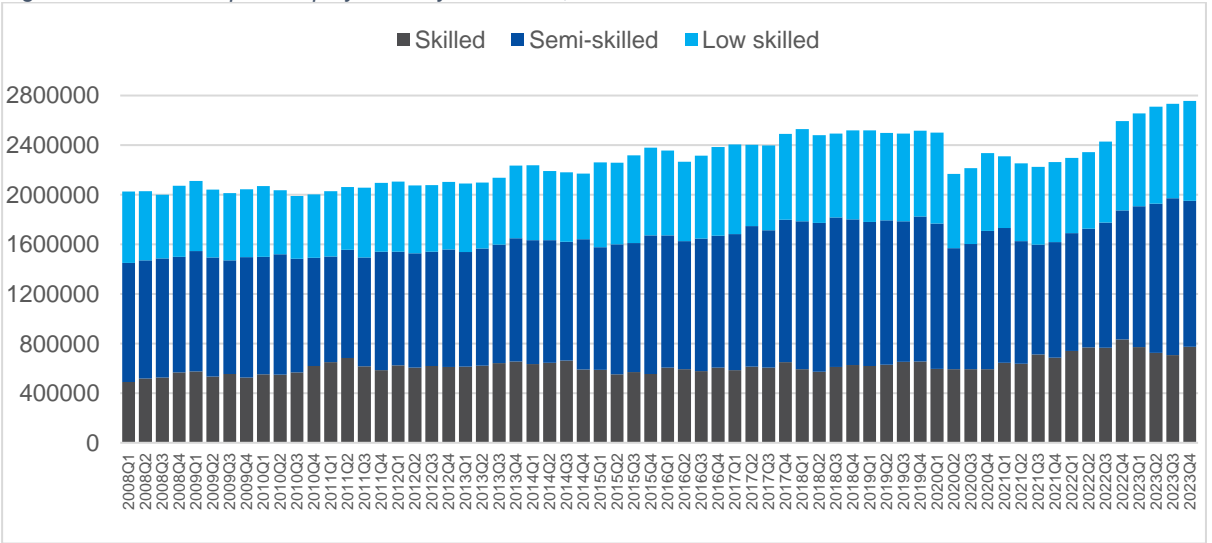
Figure 5: Western Cape's employment: formal sector vs informal sector, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

As illustrated in Figure 6, majority of the employed in the Western Cape are semi-skilled individuals. On average, an estimated 45.1% of the employed in the province from 2008Q1 to 2023Q4 were semi-skilled. Those with high skills accounted for approximately 27.5%, while about 27.4% were in low skilled employment over the same period.

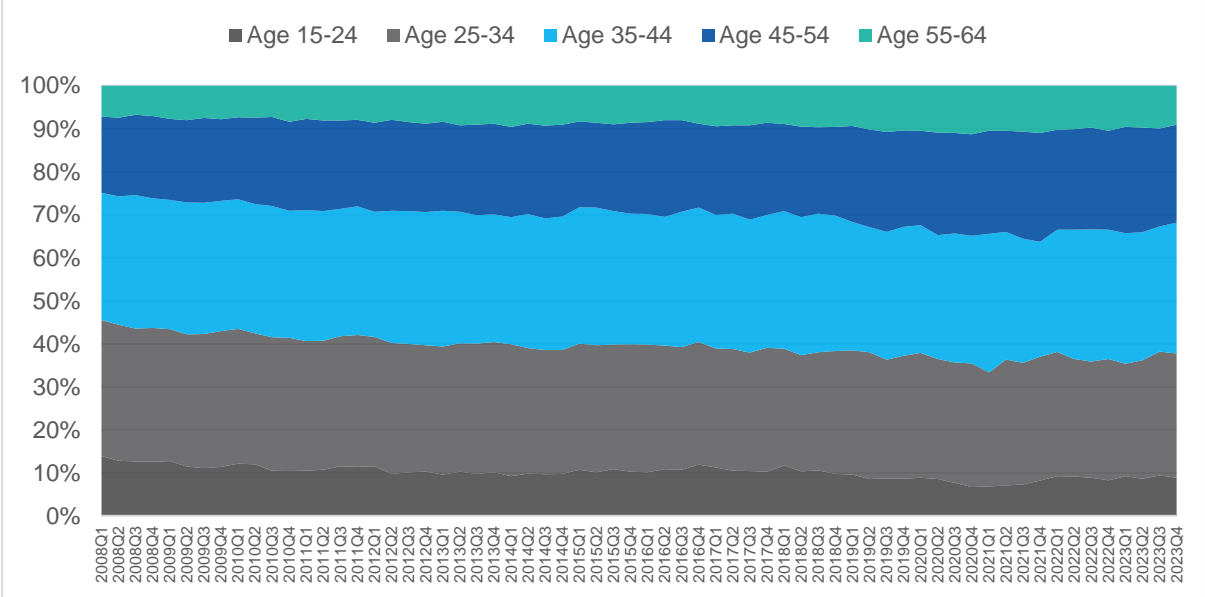
Figure 6: Western Cape's employment: by skills level, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

In terms of the age profile of the employed in the Western Cape, approximately three-fifths of the employed are between the ages of 25 and 44. Individuals aged 35 to 44 accounted for approximately 30.3% of employment in the province from 2008Q1 to 2023Q4, while about 29.3% of the employed were between the ages of 25 and 34, as shown in Figure 7.

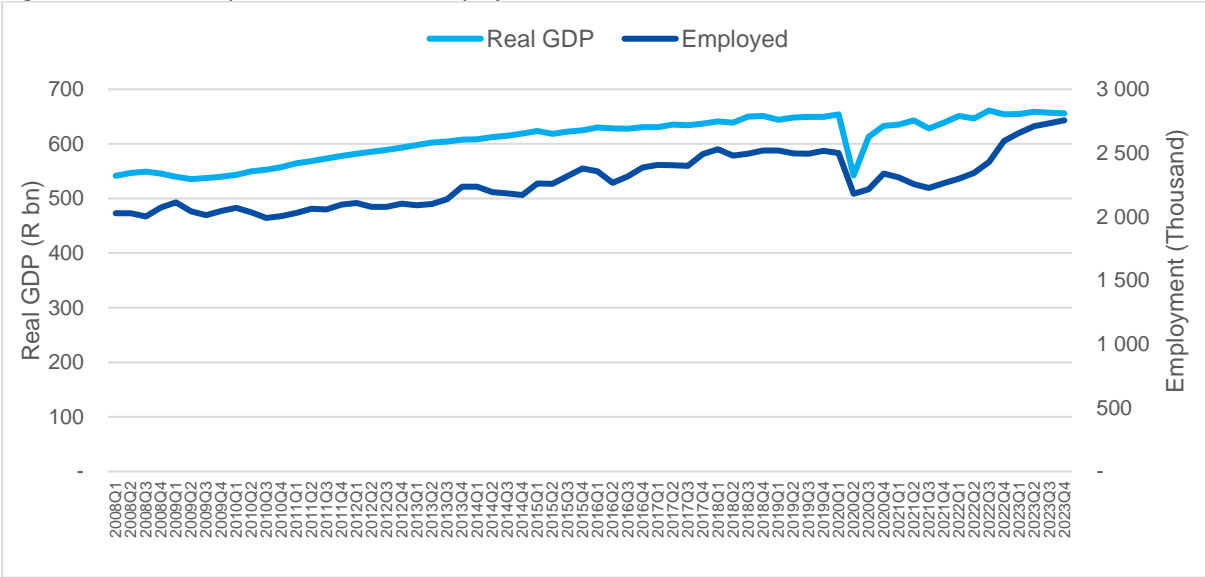
Figure 7: Western Cape's employment: by age category, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

Figure 8 shows the Western Cape's employment and real GDP trends from 2008Q to 2023Q4. It can be observed from the figure that there is a positive relationship between the two variables. Real GDP increased from R541.58 billion in 2008Q1 to R655.90 billion in 2023Q, representing an average growth rate of 0.3% per quarter. The average quarterly growth rate of employment was relatively higher at 0.5% (see Figure A1 in the Appendix), having increased from 2.03 million people in 2008Q1 to 2.76 million people in 2023Q4.

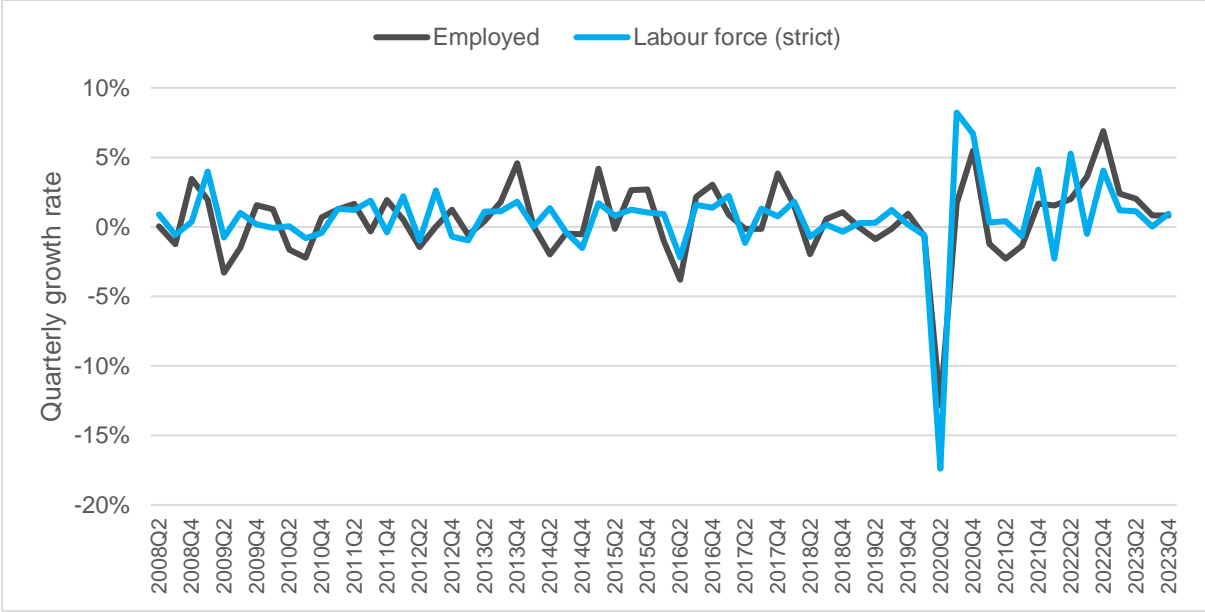
Figure 8: Western Cape's real GDP and employment, 2008Q1 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

Figure 9 depicts a co-movement between the growth rates of employment and the growth rates of the labour force. On average, employment increased by 0.5% between 2008Q2 and 2023Q4, while the labour force expanded by 0.6% over the same period.

Figure 9: Growth rates of employment and labour force, 2008Q2 – 2023Q4



Source: Quantec (2024) and Stats SA (2024)

3. Literature review

This section reviews the literature pertaining to the employment-growth nexus. Keynes (1936) proposed that aggregate demand drives changes in GDP which causes changes in employment. The Keynesian model also states that low growth of effective demand causes unemployment. Moreover, Okun’s law asserts that there is an inverse relationship between real GDP and the unemployment rate. The Classical Theory, on the other hand, claims that both the demand for and the supply of labour are dependent on real wage. Thus, employment is determined by the price of labour according to the Classical Theory.

Meyer and Sanusi (2019) examined the relationship between domestic investment, employment and economic growth using South African data from 1995Q1 to 2016Q4. They observed that there was a bi-directional causality between economic growth and employment, while investment has a positive long-run impact of employment, with causality running from investment to employment.

Haider et al. (2023) analysed the relationship between employment and economic growth in both developed and developing countries from 1970 to 2019. The findings indicated that although both developing and developed countries have a positive employment elasticity with respect to GDP, the magnitude of the employment elasticity is relatively low in developing countries compared to their developed counterparts.

After examining the direction of causality between economic growth and employment in South Africa, Leshoro (2013) observed that an increase in the level of employment does not lead to an increase in real GDP, but causality runs from real GDP to employment. This means that economic growth leads to employment in South Africa.

Akçoraoğlu (2010) explored the relationship between economic growth and employment in Turkey using data from 1995Q1 to 2007Q4. The results of the study revealed that there is a bi-directional causal relationship between real GDP and employment in Turkey. Moreover, the employment elasticity of GDP was estimated to be 0.20, which shows that there is a positive relationship between employment and real GDP.

Herman (2011) investigated the impact that economic growth has on employment across European Union (EU) countries over the period 2000–2020. According to the study, the employment elasticity of economic growth is low in the EU. Furthermore, Seyfried (2005) studied the relationship between economic growth and employment across the ten largest states in the US from 1990 to 2003. The employment elasticity for the entire US was estimated to be 0.47, while state specific employment elasticity ranged from 0.31 to 0.61.

4. Methodology

This study uses the ordinary least squares (OLS) method to examine the relationship between employment and economic growth in the Western Cape. According to Hill, Griffiths and Lim (2012), the OLS method can be used to estimate the unknown parameters in a linear regression model. However, using the OLS estimation method on non-stationary time series data will result in a spurious regression. The Augmented Dickey-Fuller (ADF) test is adopted to check the stationarity of non-stationarity of the variables of interest. Time series data is regarded as stationary if the series’ mean and variance remain constant over time, otherwise it is non-stationary.

4.1 Model specification

The employment intensity of economic growth can be expressed as:

$$EMPLGr = f(GDPGr) \text{ _____(1)}$$

where employment growth (EMPLGr) is set as a function of real GDP growth (GDPGr).

The model can be expressed as:

$$EMPLGr = \beta_0 + \beta_1GDPGr + \varepsilon_t \text{ _____(2)}$$

where β_0 is the intercept, β_1 is the coefficient, and ε_t is the error term. The relationships between employment growth and real GDP per growth is expected to be positive.

4.2 Data

The study uses quarterly time series data from the second quarter of 2008 to the fourth quarter of 2023 to estimate the model specified in the previous section. The list of variables used in this study and their definitions are provided in Table 1.

Table 1: List of Variables

Variable	Definition	Source
Employment growth (EMPLGr)	Changes in the level of employment from one period to another.	Quantec and Stats SA
Real GDP growth (GDPGr)	Growth rate of real GDP at constant 2015 prices (seasonally adjusted and annualised) from one period to another.	

5. Results and discussion

This section presents both the descriptive statistics and the empirical results of the study.

5.1 Descriptive statistics

Table 2 presents the correlation matrix between employment and GDP as well as the summary statistics of the variables. It can be observed that employment is positively and significantly correlated with economic growth. The correlation coefficient is 0.5621 and is statistically significant at the 1% level. The average growth rate of employment (0.53%) was slightly higher than that of real GDP growth (0.35%). While the maximum GDP growth rate recorded in a quarter was 13.1% during the period under review, the maximum quarterly growth rate of employment was 6.9%. Furthermore, the minimum quarterly growth rates for employment and real GDP were -12.9% and -17.1% respectively.

Table 2: Correlation matrix and summary statistics

	EMPLGr	GDPGr
EMPLGr	1.0000	
GDPGr	0.5621***	1.0000
Mean	0.0053	0.0035
Median	0.0068	0.0056
Maximum	0.0689	0.1307
Minimum	-0.1285	-0.1706
Std. Dev.	0.0267	0.0286
Observations	63	63

Note: *** 1% significance level; ** 5% significance level; * 10% significance level

5.2 Econometric analysis and empirical findings

This section discusses the empirical results of the study. Before examining the relationship between employment and economic growth, the variables are tested to ascertain their order of integration.

5.2.1 Unit root test

The results of the unit root test, which used the Schwarz Information Criterion (SIC) to determine the appropriate lag length, are presented in Table 3. The graphical analysis can be found in Figure A1 in the appendix. The ADF test results show that both the growth rates of employment (EMPLGr) and real GDP (GDPGr) are stationary at levels. This is because the absolute values of the estimated ADF test exceed the critical value at the 5% level of significance or better. Hence, we reject the null hypothesis, which states that the series has a unit root and conclude that both variables are integrated of order zero.

Table 3: Augmented Dickey-Fuller test results

Variable	Level		
	Intercept	Trend and intercept	No intercept and trend
EMPLGr	-7.1904***	-7.2082***	-6.6327***
GDPGr	-8.3130***	-8.2494***	-11.5348***

Note: *** 1% significance level; ** 5% significance level; * 10% significance level

5.2 Regression results

Table 4 presents the estimated coefficients from the OLS regression analysis to determine the relationship between employment and economic growth.

The results show that there is a positive relationship between employment and economic growth in the Western Cape. The results indicate that employment growth increases by approximately 0.52 for every unit increase in GDP growth rate. This signifies that the Western Cape's employment intensity with respect to economic growth was 0.52. This is consistent with studies by Seyfried (2005), Akçoraoğlu (2010) and Haider et al. (2023).

Table 4: OLS regression coefficients

Dependent variable: EMPLGr		
Independent variable	Coefficients	
GDPGr	0.5232***	(0.0986)
Constant	0.0034	(0.0028)
Adjusted R-squared	0.3047	
Jarque-Bera	2.4341	prob. 0.2961
Breusch-Pagan-Godfrey - Prob. Chi-Square(1)	0.9001	
Breusch-Godfrey - Prob. Chi-Square()	0.0854	

Standard errors in parentheses

*** p < 0.01, ** p < 0.05, * p < 0.10

The post-estimation diagnostic tests for heteroscedasticity, serial correlation and normal distribution indicate that there are no concerns with the model. The Breusch-Pagan-Godfrey heteroscedasticity test checks whether the residuals are heteroscedastic or homoscedastic. Given the Chi-Square probability

value in Table 4, we fail to reject the null hypothesis of no heteroscedasticity and conclude that the residuals are homoscedastic. With respect to the normality assumption, the Jarque-Bera statistic indicates that the residuals are normally distributed because the null hypothesis of normal distribution cannot be rejected at the 5% level of significance. Finally, the results from the Breusch-Godfrey serial correlation test depict no sign of serial correlation because the Chi-Square probability value is greater than 5%.

6. Conclusion

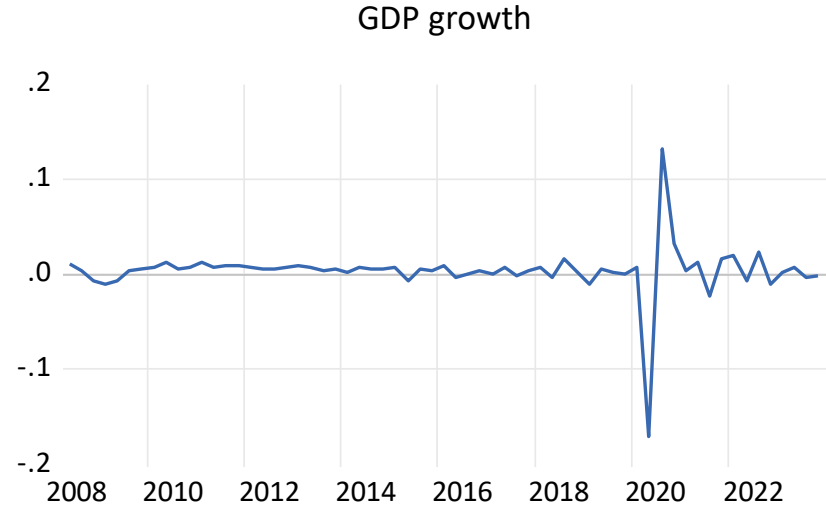
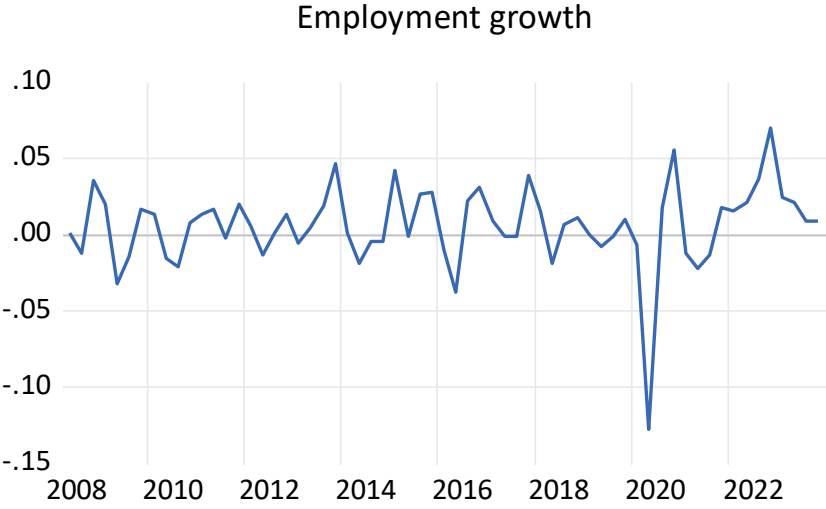
The aim of this study was to ascertain how employment is related to economic growth in the Western Cape using quarterly time series data from the second quarter of 2008 to the fourth quarter of 2023. The findings of the study revealed that there is a positive and statistically significant relationship between employment and economic growth. The employment intensity of economic growth was estimated at 0.52. The major conclusion derived from this study is that economic growth plays an important role in employment creation in the Western Cape. Thus, the implementation of growth stimulating policies would drive employment growth in the province.

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Appendix

Figure A1: Graphical analysis of the variables in their levels



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