

Business Confidence and the Economic Activity in South Africa

Augustine Adebayo Kutu¹, Harold Ngalawa², Ntokozo Nzimande³

Abstract

The objectives of this study are: to examine the impact of business confidence on economic activity in South Africa; to determine whether the indicator of business confidence can predict movements of economic activity over business cycles, and to forecast business confidence and economic activity in South Africa. Employing a Vector Autoregressive model and data from 1994Q1 – 2019Q4, we find that business confidence can predict the direction of economic activity in South Africa. It is also revealed that an increase in the level of business confidence can lead to an increase in economic growth and reduce unemployment rate. The result from the forecasting analysis indicate that economic agents can monitor the current economic situation and future direction of output growth. We recommend that policymakers should include the business confidence index as a policy tool in tracking the performance of economic activity due to its significant role in predicting economic downturns.

Keywords: *Business Cycles, Business Confidence Index, VAR Model.*

Introduction

The opinion that business confidence can predict fluctuations in the level of economic activity is popular in the literature (see for example, Taylor and McNabb, 2007; Van Luong and Vixathep, 2016; De Jongh and Mncayi, 2018). The possibility that indicators of business confidence also predict business cycles is another popular subject in the empirical literature (see Boyd and Blatt, 2012; Binge, 2020). It is believed that business confidence can serve as an early warning indicator because it contains important information on events that are likely to happen in the economy (Van Luong and Vixathep, 2016). Therefore, the response of businesses to the current economic environment can be interpreted as a function of their perceptions and evaluations of current business conditions and expectations of future eventualities. The level of these two psychological identities of perceptions and expectations impacts directly on the human nature observed in business decisions. Actions taken by businesses can to a large degree be ascribed to the level of business confidence (Pellissier, 2002).

Pellissier (2002) pointed out that in theory, business confidence can be described as the degree of sentiment toward risk-taking by businesses for any reason. If there is low business confidence in the economy, entrepreneurs (and investors), delay or postpone expenditures intended for the present period into the future. Conversely, if business confidence is high, economic agents are willing to spend under the prevailing economic conditions.

Khan and Upadhayaya (2019) analysed the relevance of business confidence and concluded that its understanding can help authorities to improve their business performance forecasts, policy formulation and implementation. The study found that business confidence contains independent information about future business growth and it has a predictive ability for investment growth. Khan and Upadhayaya (2019) further observe that business confidence has a superior forecasting power for investment relative to other conventional predictors.

In South Africa, the growth of Gross Domestic Product (GDP) declined consistently from 1.42% in 2017 to 0.79% in 2018, 0.20% in 2019 and -5.8% in 2020 (Stats SA, 2020). At the same time, it is observed that

¹ School of Economics, College of Business and economics, University of Johannesburg, Johannesburg, South Africa, Email: ade_kutu@yahoo.com, (Corresponding Author)

² Macroeconomics Research Unit, School of Accounting, Economics & Finance, University of KwaZulu-Natal, Durban, South Africa, Email: ngalawa@ukzn.ac.za.

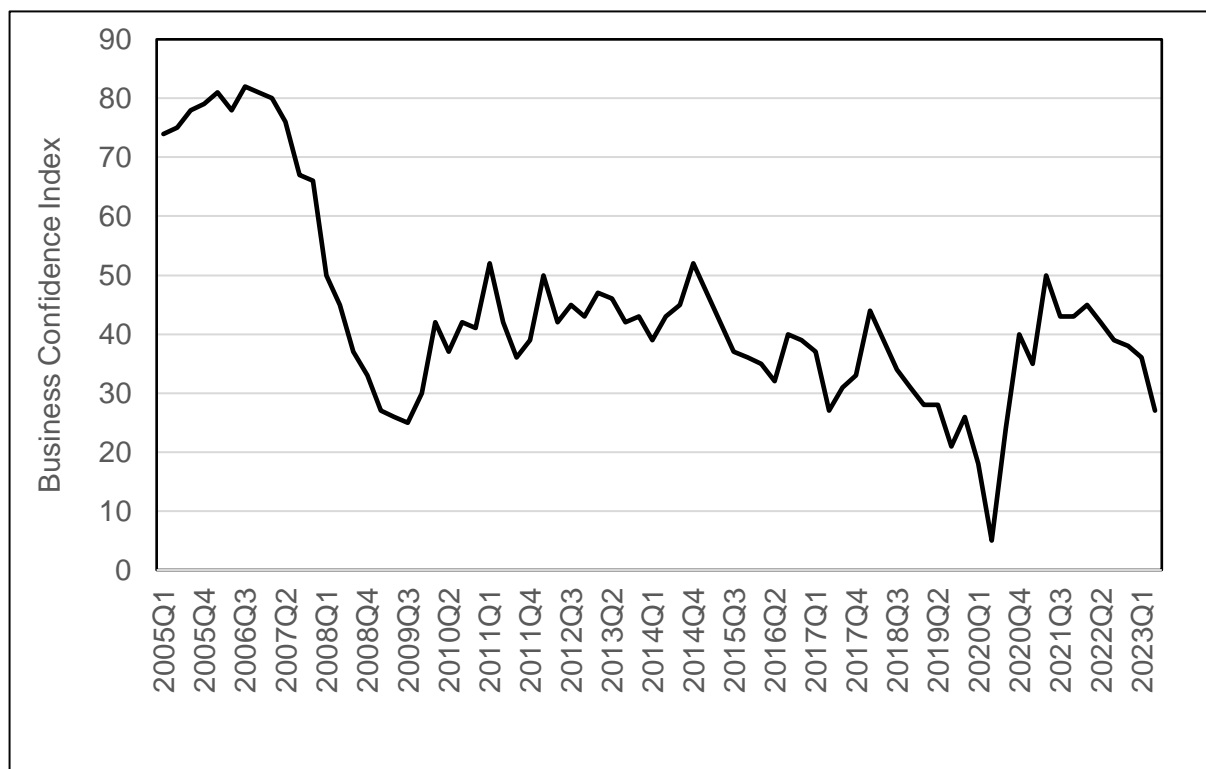
³ School of Economics and Econometrics, College of Business and economics, University of Johannesburg, Johannesburg, South Africa, Email: ntokozon@uj.ac.za.

the country's business confidence index has been lacklustre, and on a downward trend (refer to Figure 1). The index recorded a drop of more than 38 index points, from 63 in the fourth quarter of 1994 to 26 in the fourth quarter of 2019 (see Figure 1). The drastic decline in business confidence in South Africa could be ascribed to a number of factors, such as the steady depreciation of the South African Rand (ZAR), low quantities of merchandise imports, rising inflation, rising oil prices, high energy costs and insufficient energy supply, leading to load-shedding. Whether the decline in business confidence explains, and if so, to what extent, the decline in output growth remains an unsettled matter in the literature.

There are, however, efforts by the government to resuscitate and grow the economy. While the resilience and tenacity of businesses reflect positively in some short-term business climate indicators, they do not outshine the impact of the aforementioned challenges. Low global economic growth rates are a concern and low output and trade levels add to the pressure on growth prospects.

Therefore, this study seeks to determine the impact of business confidence on economic activity in the country. The study also examines whether indicators of business confidence can predict the movement of economic activity over a business cycle, and quantitatively forecast the BCI and economic activity in South Africa.

Figure 1: South African Business Confidence Trend (2005-2023)



Source: Bureau For Economic Research, University of Stellenbosch (<https://www.ber.ac.za/>)

Some studies have linked the persistent decline in the country's GDP growth rate to the failure of economic agents to forecast and predict the economy and business cycles using business confidence indicators (de Jongh and Mncayi, 2018; Binge, 2020; Guo and He, 2020).

Taylor and McNabb (2007) studied the behaviour of business cycles and how they are related to business confidence. The study concluded that business confidence changes together in the same direction as business cycles. They further argued that business confidence plays a vital role in forecasting the direction

of economic activity, which presumes that the former causes (or at least precedes) the latter. This is consistent with Khan and Upadhayaya (2020) who found that business sentiments (confidence) have explanatory power in business cycle turning points forecasting. Brown and Cliff (2004) found a high correlation between contemporaneous market returns and sentiment changes and levels. Verma and Verma (2007) also demonstrated that sentiments significantly affect the returns of stock markets for institutions and individuals.

The foregoing discussion shows that there is overwhelming evidence of a relationship between business confidence and business cycles. While some studies demonstrate that business confidence contains certain information that precedes business cycle movements, other studies maintain that business confidence tends to play a significant role in driving business cycles. Either way, business confidence is seen as an important component in forecasting the direction of economic activity.

It is important to note that, a majority of similar studies have focused on developed countries (see Taylor and McNabb, 2007; Khan and Upadhayaya, 2020; Guo and He, 2020). These studies have analysed the impacts of business confidence on the economy. In South Africa, de Jongh and Mncayi (2018) and Binge (2020) attempted to create a new composite indicator of business confidence but did not use the business confidence to predict the movement of economic activity. Therefore, this study sets out to fill this gap and hence contribute to the body of knowledge, especially on the scarce existing literature on business cycles, economic activity and real sector business confidence in South Africa.

The Business Confidence Index (BCI) is a measure of business confidence that is used to quantify the present mood or sentiment of business people in conducting their day-to-day business (Pellissier, 2002). Thus, the BCI is leading indicator that reflects the current economic situation and future direction of commerce, monitors growth in output and presents an advance warning of economic activity turning points.

Taylor and McNabb (2007) observed that business confidence indicators are procyclical and play a significant role in predicting economic downturns. These indicators highlight future development information based on opinion surveys, production developments, stocks and orders of finished goods in a sector (OECD, 2019).

The BCI helps develop business cycle models, improve forecasts and reflect the role of psychological and social factors that determine growth (Khan and Upadhayaya, 2020). Claveria et al (2007) pointed out that business confidence surveys (as captured using BCI) improve the accuracy of forecasts for the behaviour of macroeconomic variables that is useful for monitoring the state of the economy. In a study of business confidence drivers, Kurov (2010) indicates that monetary decisions significantly affect investor confidence in bull and bear market periods in the US. Beltran and Durre (2003) on the other hand, found that stock market fluctuations have explanatory power in business confidence.

Scholars have argued that economic fluctuations and crises in an economy are a consequence of ignoring the early warning signs and a failure to predict the future of the economy (Gong, 2004). Others have linked the 2008 global economic recession to the failure of economic agents to forecast business confidence and economic activity as well as disturbances in the economy (see, for example, Christiansen et al., 2014; Knoop, 2015). As noted by Pellissier (2002), if fluctuations in an economy change the efficiency of labour and/or capital, they in turn, have an impact on the decisions of firms and workers. This changes patterns of production and consumption, which consequently affects output negatively. It is argued, therefore, that a noticeable trajectory of business confidence impacts economic activities.

Following this introduction, the rest of the paper is structured in five sections. Section 2 is the theoretical review while section 3 is the methodology. The study results are presented in Section 4. A summary and conclusions conclude the paper in Section 5.

- *Real Business Cycles Theory (RBC)*

This study is rooted in the Real Business Cycles (RBC) theory. The theory states that fluctuations in business cycles are a source of real shocks that affect market dynamics and the confidence investors have in the economy. Based on the theory, economic fluctuations and crises in the economy are a consequence of ignoring the early warning signs and a failure to predict the future of the economy (Gong, 2004). Some scholars have economic analysts have linked the 2008 global economic recession to the failure of economic agents to forecast business confidence and economic activity as well as disturbances in the economy (see, for example, Christiansen et al., 2014; Knoop, 2015).

The important indication lying in the RBC theory as noted by Pellissier (2002) is that, if a fluctuation occurs in an economy and it directly changes the efficiency of labour and/or capital, it, in turn, has an impact on the decisions of firms and workers. This automatically changes their patterns of production and consumption, which consequently affects output negatively. Therefore, the RBC theory employed in this study has some implications for the results of this study because it assumes that a noticeable trajectory of business confidence impacts economic activities. This necessitates the choice of this theory in order to predict the movement of economic activity over a business cycle in South Africa.

Methodology

Data and Data Sources

The study uses quarterly frequency data covering the period from 1994Q1 to 2019Q4. This covers the period during which complete data is available. Three variables, namely, real Gross Domestic Product (GDP), Unemployment (UNE) and Business Confidence Index (BCI) are employed for the data analysis. Real GDP, which is the value of economic output at constant national prices for the country (with 2015 as the base year), is a proxy for economic activity. Unemployment on the other hand is the number of unemployed people as a percentage of the labour force from age 16 to 65. This variable is included in the model to capture developments in the economy in which it is expected *a priori* that an increase in business confidence will lead to a decline in the unemployment rate (and vice versa). We employ the BCIs computed by the Bureau of Economic Research (BER) at the University of Stellenbosch as a measure of business confidence. The BER uses the diffusion approach to measure business confidence. Their index varies between 0 and 100, where 0 indicates an extreme lack of confidence, 50 stands for neutrality and 100 represents extreme confidence.

The South African Chamber of Commerce and Industry (SACCI) also computes a BCI as a composite indicator with base year 2020. While it would have been desirable to use this indicator as well and compare the results with the BER BCI findings, we are unable to do so because the SACCI BCI do not have available observations to provide adequate degrees of freedom.

Model Specification

Following several authors like Peersman and Smets (2002), Uhlig (2005) and Vonnak (2005),

this study employs a Vector Autoregressive (VAR) model in levels in order to avoid the loss of information that is usually associated with differenced data. The VAR in levels is employed to examine whether the BCI has a significant impact on economic activity and whether it can predict GDP movements over business cycles in South Africa. The choice of the VAR is based on the fact that the model can accommodate both stationary and non-stationary variables and thus does not require prefiltering (Taylor and McNabb, 2007). In addition, VAR model is good for forecasting and it is dynamic in nature with the ability to capture the intertwined dynamics of time series data (Zivot and Wang, 2006). Furthermore, the model is flexible and does not require identification restrictions needed for Structural Vector Autoregressive (SVAR) and other models (Elbourne and de Haan, 2009). Finally, it is a systematic and flexible approach for capturing complex real-world behaviour (Shen, 2016).

Suppose output evolves according to the following relationship:

$$AY_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \dots + \beta_p Y_{t-p} + B\varepsilon_t \quad (1)$$

where A is a $(k \times k)$ matrix defining the contemporaneous relationship among the variables; Y_t is a $(k \times 1)$ vector of endogenous variables that range from $Y_{t-1}, Y_{t-2}, \dots, Y_{t-p}$. β_0 is a $(k \times 1)$ vector of constants; β_i ($\forall i = 1, 2, \dots, p$) are $(k \times k)$ matrices of coefficients of lagged endogenous variables; A is a $(k \times k)$ matrix whose non-zero off-diagonal elements allow for direct effects of some shocks on more than one endogenous variable in the system; and ε_t is an uncorrelated vector of error terms or structural disturbances.

The system of equations (1) is a long form VAR that cannot be estimated directly due to the contemporaneous feedback inherent in the process (Enders, 2004). The endogenous variables are allowed to affect each other in the current and past realisation time path of AY_t which make it impossible to estimate. However, the VAR can be transformed into a reduced form, implicit in the equations (see Ngalawa and Viegi, 2011). Pre-multiplying equation 1 by an inverse of matrix A gives:

$$Y_t = A^{-1}\beta_0 + A^{-1}\beta_1 Y_{t-1} + A^{-1}\beta_2 Y_{t-2} + \dots + A^{-1}\beta_p Y_{t-p} + A^{-1}B\varepsilon_t \quad (2)$$

We denote $A^{-1}\beta_0 = \alpha_0$, $A^{-1}\beta_i = \alpha_i \forall i = 1 \dots p$ and $A^{-1}B\varepsilon_t = \mu_t$.

Therefore, equation (2) becomes:

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 Y_{t-2} + \dots + \alpha_p Y_{t-p} + \mu_t \quad (3)$$

Equation (3) is a reduced form VAR or a VAR in standard form that can now be estimated. This is because, all the right-hand side variables are predetermined at time t and do not have contemporaneous (immediate) effects on each other in the model. In addition, the error term (μ_t) is a composite of shocks in Y_t (Enders, 2004). Equation (3) can be rewritten as:

$$Y_t = \Pi(L)Y_t + \mu_t \quad (4)$$

where Y_t is a vector of the South African endogenous variables used in the study; and $\Pi(L)$ is an $(n \times n)$ matrix polynomial lag that captures the relationship between the endogenous variables. From the estimates of the reduced form VAR in equation (4), the structural shocks are separated from the estimated reduced form residuals by imposing Cholesky structural factorisation on the parameters of matrices A and B as given in equation (5):

$$B\varepsilon_t = A\mu_t \quad (5)$$

Identification Scheme

The direction of causation between real output (GDP) and the rate of unemployment (UNE) is expected to run from the latter to the former as given by the Cobb–Douglas production function (see the first and second equations in system of equations 6). Given that labour is a variable factor of production, any changes in labour employed are expected to have an instantaneous effect on real output. Variations in business confidence (BCI), on the other hand, are expected to have implications on both employment and real output, while the reverse is not expected to hold (see the third equation in system of equations 6). Therefore, the relationship between the reduced-form errors and the structural disturbances is given by the following scheme:

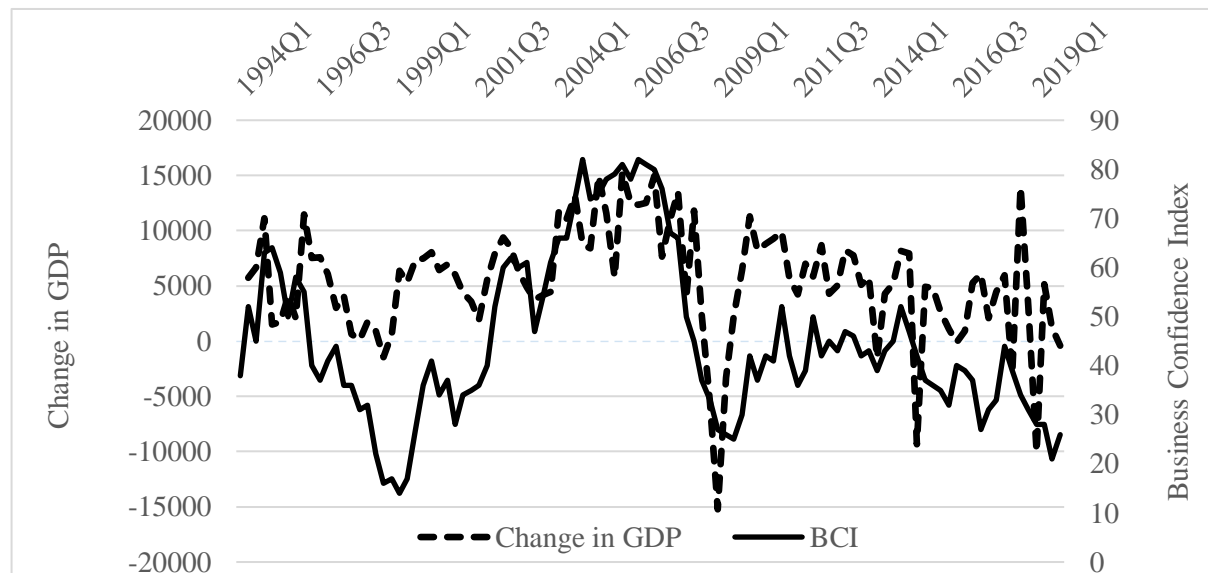
$$\begin{bmatrix} \varepsilon_t^{GDP} \\ \varepsilon_t^{UNE} \\ \varepsilon_t^{BCI} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ f_{21} & 1 & 0 \\ f_{31} & f_{32} & 1 \end{bmatrix} \begin{bmatrix} \mu_t^{GDP} \\ \mu_t^{UNE} \\ \mu_t^{BCI} \end{bmatrix} \quad (6)$$

The system of equations (as shown in 5 and 6) shows that in theory, this amounts to estimating the reduced form VAR, and separating the structural economic shocks from the estimated reduced form residuals by imposing minimal restrictions on the matrices A and B akin to Cholesky decomposition as given by Cheng (2006).

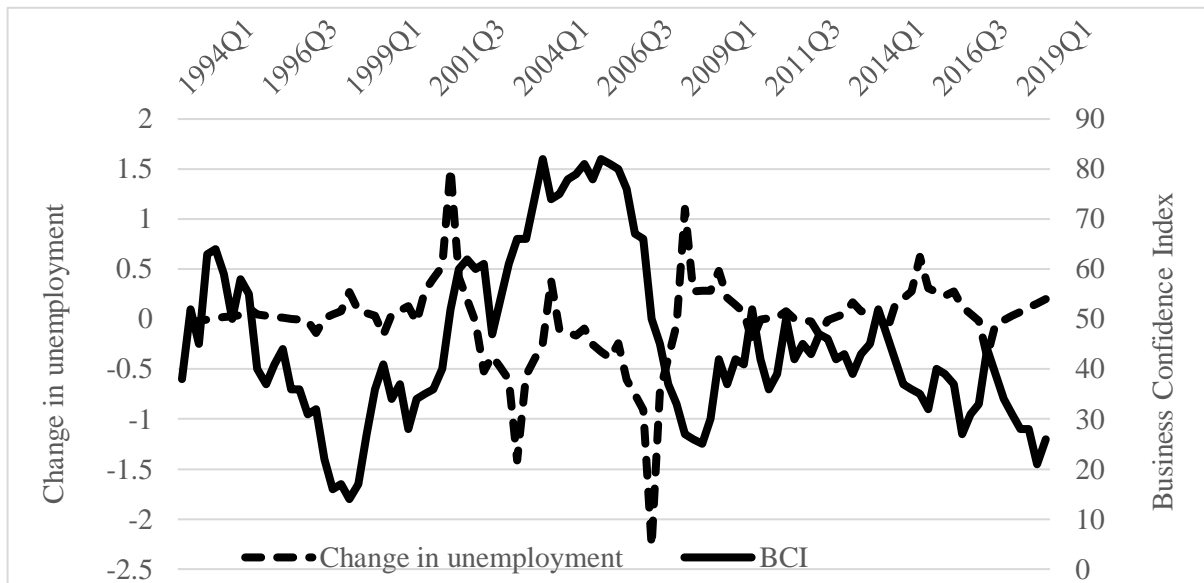
Study Results

Eyeball inspection of a plot of change in GDP (primary vertical axis) and BCI (secondary vertical axis) between 1994 and 2019 reveals that the two variables may be highly correlated (see Figure 1). A plot of a change in unemployment (primary vertical axis) and BCI (secondary vertical axis) over the same period also shows that the between 1994 and 2019 reveals that the two variables may be highly correlated (Figure 2).

Figure 1: Change in GDP and Business Confidence Index in South Africa (1994-2019)



Data source: Federal Reserve Bank of St Louis and Bureau of Economic Research, University of Stellenbosch.

Figure 2: Change In Unemployment and Business Confidence Index In South Africa (1994-2019)

Data source: Federal Reserve Bank of St Louis and Bureau of Economic Research, University of Stellenbosch.

However, the nature of the exact relationship between the two change in GDP and unemployment on the one hand and the business confidence index on the other, cannot be specified with absolute certainty using eyeball inspection of the two figures. Therefore, a descriptive statistics is conducted on the dataset. As revealed by Runfola et al. (2019), descriptive statistics helps researchers to have a first-hand information about the characteristic features of the data, as well as detecting outlier (Mishra, et al., 2019). The descriptive statistics of the business confidence index, GDI and the unemployment rate in South Africa are presented in Table 1.

Table 1. Descriptive Statistics

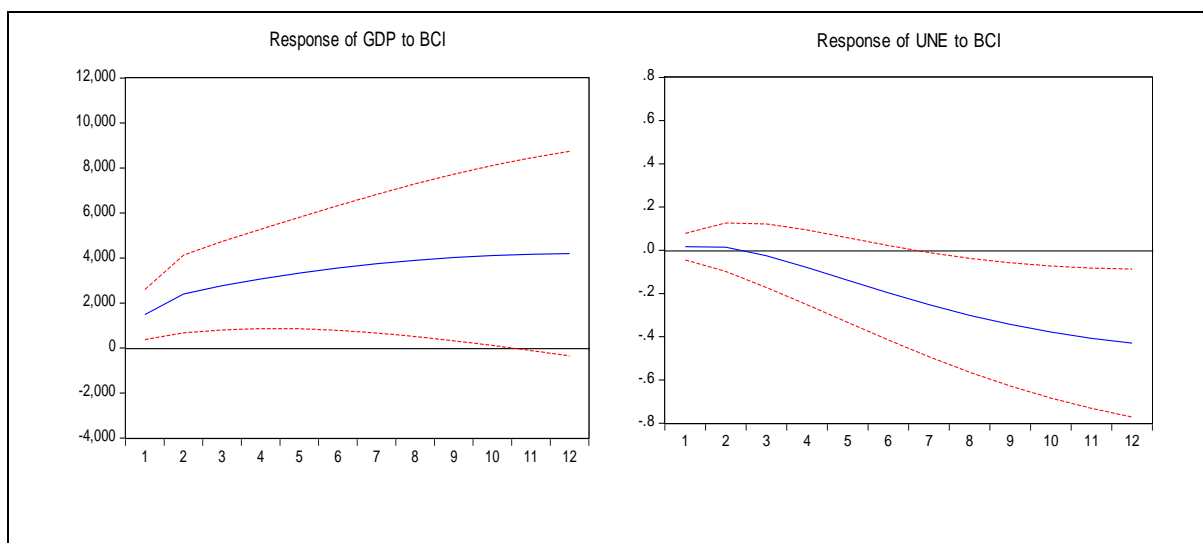
	BCI	GDP	Unemployment rate
Mean	45.24038	889882.6	27.78996
Median	42.00000	926821.5	27.84852
Maximum	82.00000	1151605	33.6828
Minimum	14.00000	586899.4	22.01331
Std. Dev.	16.68992	187061.8	2.836611
Skewness	0.629704	-0.114018	-0.018724
Kurtosis	2.715159	1.504432	2.148559
Jarque Bera	7.224730	9.917807	3.147533
Probability	0.026988	0.007021	0.207263
Sum	4705.000	92547787	2890.156
Sum Sq. Dev.	28690.99	3.60E+12	828.7754
Observations	104	104	104

Figure 3 presents estimation results of the VAR, displaying the impact of a one-standard-deviation of the business confidence index on change in GDP and unemployment. The Figure shows that a one-standard-deviation positive shock on business confidence leads to a significant instantaneous increase in real GDP. This holds for about 10 periods, after which the relationship becomes insignificant. This means that as business confidence is high, growth in output accelerates and economic agents are willing to spend at the prevailing economic conditions to boost production and hence economic activity. This finding conforms

to Pellissier (2002) and Kershoff (2019) who revealed that an increase in business confidence has a positive impact on the economy. The instantaneous increase in the change in output suggests that economic agents use their variable resources more intensely in the short to medium term, with a given level of fixed capital.

Figure 3 further shows that a positive shock on business confidence index reduces unemployment. This effect occurs with a lag of seven periods. It must be, therefore, that the increase in output that occurs in the first seven months is a result of using the existing labour more intensively than was previously the case. Seven periods, therefore, may be a long enough period for business establishments to hire more labour and invest in more capital to support the increased level of output. This impact is seen to significantly persist from period seven until the end of the simulation period (period 12). Thus, even though output returns to equilibrium by period 11, the firms tend to be stuck with higher levels of employed people. This may be a product of the strong presence of organised labour in South Africa.

Figure 3: Response Of GDP And UNE To Fluctuations From BCI



Figures 4 and 5 show whether indicators of BCI can predict movement of economic activity over a business cycle in South Africa. Following Andreou et al. (2000) and den Haan (2000), the correlations between series based on correlations from the VAR model at different horizons and the Hodrick–Percott (HP) filter are employed. The findings reveal that the BCI can adequately predict the movement of economic activity over a business cycle in South Africa. Based on the similar dynamic characteristics of the variables, there appear to be a strong positive and negative correlation among the variables at the same time horizon, and the volatilities among them are similar. There exist a cross-correlation among variables and the general pattern of co-movement is very similar. In addition, there is evidence of close association among the three variables. The correlation is predominantly closed (moves together) over the time horizon, implying that confidence indicators are good indicators in predicting movement of economic activity. The BCI is found to have a persistent and similar trend relationship with output level and unemployment in the economy. This finding is similar to Khan and Upadhyaya (2020) who revealed that all components of investments growth (as captured by GDP) are closely related to BCI.

Figure 4: Business Confidence (BCI), Output (GDP) and Unemployment (UNE)

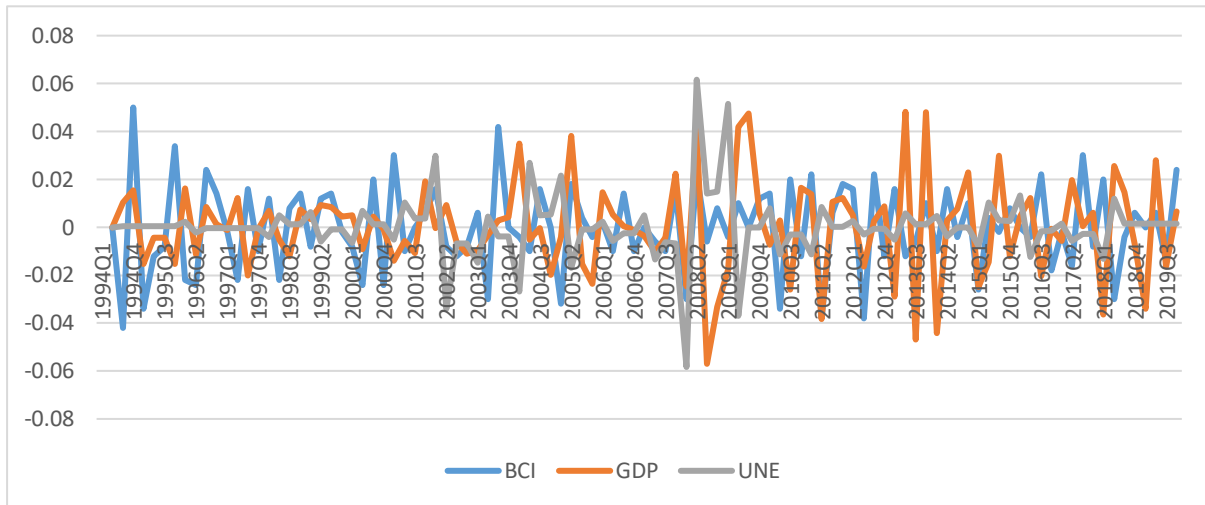


Figure 5: Movement of Economic Activity over a Business Cycle

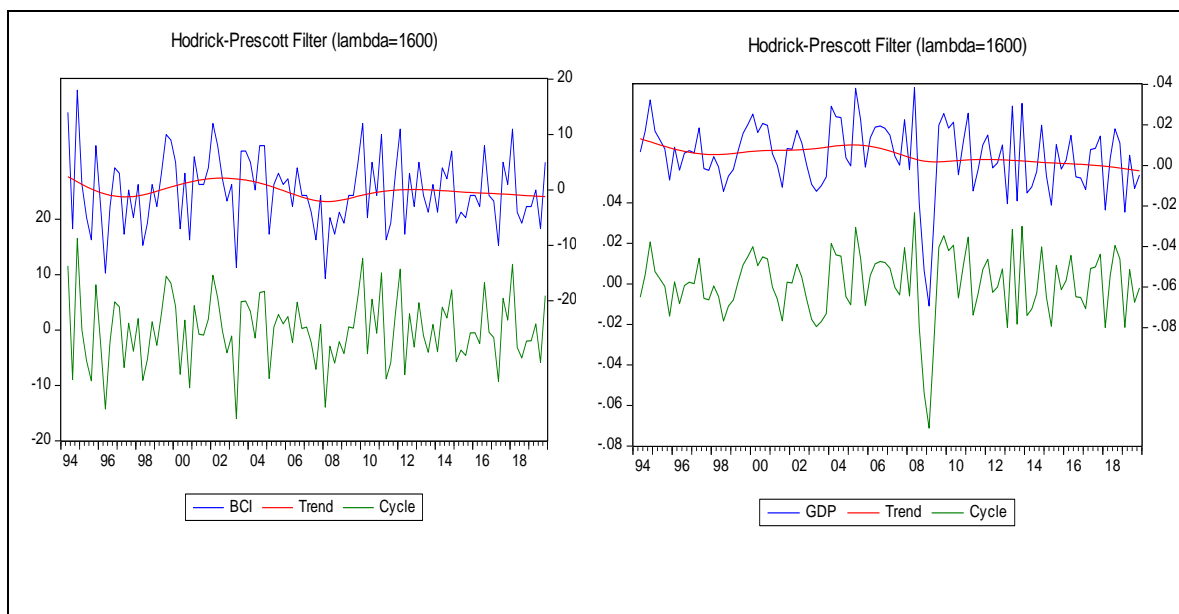
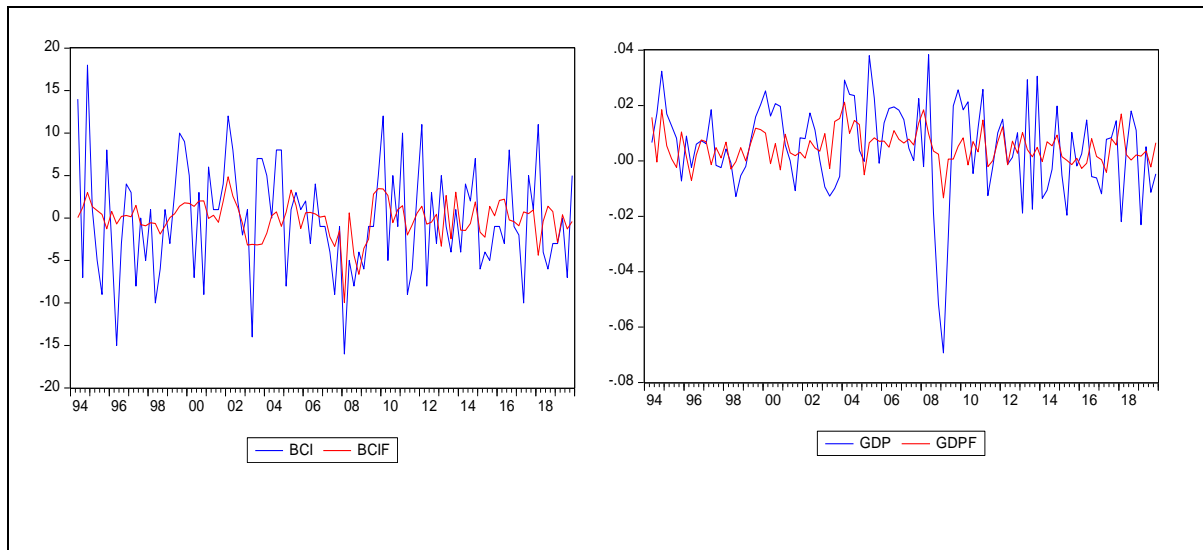


Figure 6 on the other hand presents the VAR forecast error variance of the BCI and economic activity in South Africa. The forecast error margin line (the gap between the actual value and forecast value) is very small. That is, they move together, implying that the forecasting power of the VAR regression model is satisfactory. According to Clarida et al. (2003) and Kutu et al. (2016), the smaller the error margin line, the more satisfactory the predictive power of the model. In contrast, the wider the gap between the actual value and the forecasted value, the less satisfactory is the predictive power of the model. Therefore, consistent with the impulse response analysis, we found that the BCI has strong predictive ability to forecast the performance of the economy. Our finding conforms to Khan and Upadhayaya (2019). The sentiment of business people in conducting their day-to-day business has a significant impact on economic activity. The trend shows that the BCI reflects the current economic situation and future direction of the growth in output. With this result (as derived from the forecasting analysis), economic agents can successfully monitor the growth of the economy and presents an advance warning of downturns or turning points using the BCI. This means they can develop new business cycle models and improve investment forecasts in order to be able to promote investment and economic growth.

Figure 6: VAR Forecast Errors of The BCI And Economic Activity

Summary and Conclusion

This paper set out to achieve three primary objectives, namely, to determine the impact of business confidence on economic activity in South Africa; to examine whether indicators of Business Confidence can predict the movement of economic activity over a business cycle; and to quantitatively forecast business confidence and economic activity in South Africa. The real sector business confidence indicator is found to significantly affect economic activity. An increase in business confidence level lead to a positive increase in economic activity (real GDP) while its decrease leads to an increase in unemployment in the economy (and vice versa).

The results further confirm that the BCI is a good indicator for predicting the trends of economic activity in the country. We found that the BCI has strong predictive ability to forecast the performance of the economy (GDP). The study findings show that business sentiment or confidence does not only play a significant role in determining economic activity, but also acts as a key leading indicator towards predicting future investment and economic activity in South Africa. This finding is consistent with De Jongh and Mncayi (2018) who carried out an econometric analysis of the impact of business confidence and investment on economic growth in South Africa. It also conforms to Khan and Upadhayaya (2019) who revealed that business confidence matters for investment decisions.

It is also worth noting that the results from the forecasting analysis is encouraging. In line with Taylor and McNabb (2007), the result shows that the business confidence indicator has a good predictive power in identifying turning points in the business cycle. The sentiment of business people in conducting their day-to-day activity has a significant impact on economic activity. This implies that economic agents can monitor the current economic situation and future direction of growth in output and present an advance warning of economic sign using the business confidence indicator. The result derived from the analysis is capable of providing early signal changes in economic activity and can be widely used in macroeconomic assessments and quantitatively forecast the BCI and economic activity in South Africa. We recommend that policymakers should incorporate the BCI as a policy instrument and employ it in tracking the performance of economic activity, as it is capable of playing a significant role in predicting economic downturns in South Africa.

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