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DETERMINANTS OF YOUTH UNEMPLOYMENT IN SOUTH AFRICA

Abstract:

The study empirically investigates the determinants of youth unemployment in South Africa using quarterly time series data from the period of 2008 to 2015. The main objective of this study is to investigate the main determinants of youth unemployment in South Africa. The study used or employed Vector Error Correction Model (VECM). The variables used in this study are Youth unemployment, education, Gross Domestic Product (GDP), inflation and Foreign Direct Investment (FDI), all these variables affect youth unemployment directly and indirectly. The data for this study was obtained from International Monetary Fund (IMF), World Bank and South Africa reserve bank (SARB). The results showed that education has a negative relationship and statistically significant to youth unemployment. Diagnostic and stability tests revealed that the model is good and stable in determining the impact of the determinants of youth unemployment.

Keywords:

youth unemployment, determinants, vector error correction model (VECM), South Africa

JEL Classification: E24

1. Background of the study

Unemployment has been a problem and captured the attention of people lately, especially in South Africa, where the unemployment rate concerning the youth population is moderately greater than the one concerning the old population (Perugini and Signorelli, 2010).

South Africa is a country with the highest unemployment rates in the world, currently sitting at 26.5% (that is by the narrow definition of unemployment) based on the figures released by (STATSSA, 2017). Hence a quarter of people that are economically active are unemployed. The young and people having skill levels that are low are the ones that are mostly affected by the unemployment situations in South Africa (Cochrane and West, 1991). Unemployment is a real matter of concern, as it can yield devastating effects on economic welfare, crime, erosion of human capital, social exclusion, misery and social instability (Kingdom and Knight, 2007). According to Borat (2001), the incidence of employment determines the distribution of income and poverty across different groups. Due to such adverse effects the government has initiated well-meaning programs such as Skill training, job creation and public works programme but their effects have been minimal as high unemployment rates continue unabated (Akinyemi, 2010). Youth unemployment is currently sitting at a rate of 54.20 percent based on (STATSSA, 2016).

Over the last 21 years, unemployment has faced a firm stream of people looking at whether unemployment characterizes more than just disruptions in a person's working life. After twenty three years of democracy, the most irresistible problem facing South Africa is the nonexistence of sustainable economic growth and job creation (Van den Berg, 2006). South Africa has been considered to be a better place for all since the African National Congress (ANC) won the election in 1994 with majority vote of 62.6 percent (Van den Berg, 2006).

To enable Government to address the legacy of apartheid, it was important for them to improve public finances. There were challenges that Government faced such as high levels of poverty, inequality, poor education system, poor health indicators, high levels of violence and crime, increasing unemployment and underdevelopment of rural and dysfunctional urban spaces (Murwirapachena et al., 2013).

There were various economic policies that South Africa adopted to address the challenges which the country faced post-1994. As such, one of the policies were Reconstruction and Development Programme (RDP) adopted in 1994 to create strong, balanced and dynamic economy by focusing on training and education, and the youth development. Second policy was strategic transition to the Growth, Employment and Redistribution (GEAR) in 1996, aiming to grow the economy by 4.2 percent and creating 400 000 job opportunities per year. Third policy was Accelerated and Shared Growth Initiative of South Africa (ASGISA) which was adopted in 2006 after realizing that a 3 percent growth increase annually was not enough. It was aimed at halving poverty and unemployment by 2014 and reach 6 percent growth per annum by 2010 (Department of Basic Education, 2013). Fourth policy adopted was New Growth Path (NGP)

framework in 2010 and the emphasis was on large investments in social development, training and education, and aims to create 5 million jobs by 2020 (Economic Development Department, 2010). Lastly, Industrial Policy Action Plan (IPAP) adopted in 2013, sets Government's broad approach to industrialization and IPAP forms larger part of interrelated strategies and policies, stressing that sectors have different characteristics and their importance to economic growth and job creation (Department of Basic Education, 2013).

2 An Overview of Literature

This study is underpin by the following theories the Classical Theory of unemployment. The Classical Theory of unemployment is grounded on Say's law of markets and the assumption of flexible wage, interest rates and prices. Money wage will be reduced if fall in the manufacture causes the unemployment. Decrease in wage money leads to increase in demand for labor as it will equal to its supply. Keynes put his place in comparison with classical economics at all chances. Keynes talked about the General theory with the estimate that nominal wage was stable as a way of trying to clarify his point. Keynes said that the core of his disagreement was quite the same as to wage money were vulnerable to change or not. In Keynesian theory, the activity purpose inconsistent with employment and level of output were seen as a rule for nominal wages. Levels of wages would mostly remain unaffected because decrease in nominal wage would not lead in decreased unemployment. Changes in nominal wage results in multiple effects on production and employment which are problematic to make (Meccheri, 2005).

Several research has been done regarding determinants of unemployment. Choudhry et al. (2013), Marelli, and Vakulenko (2014), Sam and Pokhariyal (2012) investigated the determinants of youth unemployment in developed countries. Demidova and Signorelli (2012), Khumalo (2014), Ebaidalla (2016), Muhdin (2016), Danacica (2014), Gebere (2011), Msigwa and Kipesha (2013) among others investigated determinants of youth unemployment in developing countries. Pastore and Giuliani (2014), Wakene (2014), Panzaru (2013), Dagume and Gyekye (2016), Kyei and Gyekye (2011) examined determinants of youth unemployment in South Africa. Different results were found in developing, developed countries and South Africa due to differences in data sets, methodologies and countries of study.

3. Methodology

The estimation technique that will be used in this study is the Vector Error Correction Model (VECM). Which is a good model for estimating the determinants of youth unemployment in South Africa. This model will carry certain tests as well which are: stationary tests, cointegration, diagnostic and stability tests and. A vector error correction (VEC) model is a limited VAR intended for use with nonstationary series that are known to be cointegrated. The VEC has cointegration relations incorporated with the specification so it limits the long-run behavior of the endogenous factors to unite to

their cointegrating relationships while taking into consideration short-run modification elements. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected bit by bit through a progression of partial short-run adjustments.

4.2 Model Specification

To determine the determinants of youth unemployment in South Africa, The model was adopted from Choudhry et al. (2012), Anyanwu (2013) and (2014).

The model is expressed as follows:

$$YU_{it} = B_0 + B_1GDP_{it} + B_2INF_{it} + B_3TRD_{it} + B_4INV_{it} + B_5EDU_{it} + B_6FER_{it} + B_7BUR_{it} + \mu_{it} \dots\dots\dots Eq 1$$

Whereby *i* and *t* signify country and period of time correspondingly. The YU_{it} variable denoted as Youth Unemployment is the dependent variable. B_0 Is constant. Whereas, GDP is growth of domestic product, INF is inflation rate, TRD is trade openness, INV is domestic investment, EDU is education, FER is fertility rate and BUR is bureaucracy quality. According to Acemoglu et al. (2004) the bureaucracy quality variable is used to examine the impact quality of institutional, since institutions that are conducive to the growth and labor productive are captured. Lastly μ is error term. In this study the model is modified as follows:

$$YU_{it} = B_0 + B_1EDU_{it} + B_2GDP_{it} + B_3INF_{it} + B_4FDI + \mu_{it} \dots\dots\dots Eq 2$$

Whereby, YU_{it} denoted Youth Unemployment is the dependent variable. β_0 Is constant. Whereas, GDP is growth of domestic product, FDI is foreign domestic investment, EDU is education, and μ is error term.

In order to eliminate the effect of outlier, all the variables are transformed into the logarithm form because logarithmic values will reduce the tendency of fluctuation over time. Therefore, the regression will be as follows:

$$LYU = \beta_0 + LEDU + LGDP + FDI + \mu_{it} \dots\dots\dots Eq 3$$

4.3 Data Issues

The study uses quarterly data from 2008-2015. The data is collected from South African Reserve Bank (SARB). To avoid spurious regression, the data is tested for unit root. In this study, the Philips Perron and the Augmented Dickey-Fuller tests are used to test for a unit root.

Table 4.1: Unit root results

Augmented Dickey Fuller				Phillips Perron		
Variable	none	Intercept	Trend & Intercept	none	intercept	Trend & intercept
LYU	0.8895	-1.1564	-1.9487	0.8735	-1.9771	-0.5598
DLYU	-5.3376**	-7.7236***	-7.4584***	-5.3376**	-5.4900**	-12.5390***
LEDU	-0.4956	-0.9300	-1.6731	-0.9314	-0.4867	-1.3417
DLEDU	-10.2608***	-5.9456***	-6.2316***	-5.3851***	-5.8681***	-13.5692***
LGDP	0.7700	0.9152	-1.5465	2.8866	-0.5783	-2.7032
DLGDP	-6.4903***	-9.3706***	-5.7934***	-5.1515**	-9.2021***	-5.7373***
LFDI	0.03134	-0.7296	-0.5474	-0.0556	-0.8358	-0.2359
DLFDI	-6.3696***	-6.2359***	-6.0954***	-7.5724***	-7.1437***	-7.3983***

*** represents 1% level of significance, ** 5% level of significance and * 10% level of significance

Results in Table 4.1 shows that the null hypothesis cannot be rejected at 1% level meaning that the variables non stationarity in levels. After first differencing, the null hypothesis was rejected at 1% level of significance.

5 Main findings

5.1 Cointegration Analysis

Unit root results shown in Table 4.1 show that all the variables are integrated of the same order. Given that variable are integrated of the same order, the next step is test for cointegration to determine whether there is existence of a long run relationship. This study uses the Johansen's (1991, 1995) maximum likelihood approach.

In using the Johansen test, there is a need to decide ideal lag length which takes out serial-connection in the residuals and additionally choosing the deterministic pattern assumptions for the VAR model. In this study, the choice is made utilizing order of 2 lags with a specific end goal to allow change and achieve well performed residuals in the model. Table 5.1 affirms the lag length chosen by various criteria data. One lag was selected using the lag order selection criteria. Meaning that the Johansen cointegration test is performed using one lag.

Table 5.1: Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-125.0478	NA	0.004008	8.669851	8.903384	8.74456
1	-24.29585	161.2031*	2.64e-05*	3.619723*	5.020921*	4.067979*
2	-5.359165	23.98647	4.60e-05	4.023944	6.592806	4.845745

*indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

Table 5.3 shows cointegration trace test results. The results show the existence of two cointegrating vectors. Therefore, we reject the null hypothesis of no cointegration. Results show that the trace statistic of 89.52 is greater than the critical value of 69.81. In addition, trace statistic of 56.96 is greater than the critical value of 47.85. Maximum eigen value test results in Table 5.4 show no evidence of cointegration. The max-eigen statistic are less than the critical values.

Table 5.3: Trace Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.662206	89.52358	69.81889	0.0006
At most 1*	0.558734	56.96404	47.85613	0.0055
At most 2	0.402957	32.4208329	29.79707	0.0244
At most 3	0.259121	16.94783	15.49471	0.1300
At most 4	0.232801	7.950289	3.841466	0.2048

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 5.4: Maximum Eigen Value Test

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.662206	32.55954	33.87687	0.0712
At most 1*	0.558734	24.54321	27.58434	0.1169
At most 2*	0.402957	15.47300	21.13162	0.2571
At most 3*	0.259121	8.997546	14.26460	0.2864
At most 4*	0.232801	7.950289	3.841466	0.0048

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

5.2 Vector Error Correction Model

The existence of two cointegration vectors in the previous section suggests that VECM can be utilized. This enables us to recognise the short-term and long term determinants of youth unemployment.

5.2.1 Long Run Terms

Synopsis of the long run parameters in the model is accounted for in Table 5.5 beneath.

Table 5.5: Results of Long Run Cointegration Equation.

VARIABLE	COEFFICIENT	STANDARD ERROR	T-STATISTIC
LYU	1.00	-	-
LEDU	-0.2591	4.101	-5.688
LGDP	-0.3656	3.445	-6.401
LFDI	1.8601	7.700	-2.416
Constant	-277.666	-	-

The long term effect of the independent variables on LOGYU, presented in Table 5.5 is demonstrated utilizing equation 5.1.

$$\text{LOGYU} = 277.666 - 0.2591\text{LEDU} + 0.3656\text{GDP} + 1.8601\text{LFDI} \dots \dots \dots 5.1$$

Equation 5.1 illustrates that all the variables have a negative long run relationship with LYU. Since all the variables have absolute test values higher than 2, the explanatory variables are statistically significant.

One unit increase in LEDU will result in 25.9 percent decrease in LYU. The relationship is in line with the theory. As more youth or young individuals are educated, the more they gain the knowledge and search for job to work and apply their knowledge, which in return decreases youth unemployment. Education also enhances the country or state as more young individuals are ready to apply their knowledge and be creative.

One unit increase in LGDP will result in 36.5 percent decrease in LYU. When the economy grows, it increases or creates more job opportunities therefore, youth unemployment decreases. One unit increase in FDI will result in 18 percent decrease in LYU. The relationship is compatible with the theory. This is a vital element since it offers an indicator of the upcoming productive capability of the economy. When economy grows unemployment should decrease, therefore it is expected that there is a negative relationship between unemployment and investment.

5.2.2 Short Run Relationship

Table 5.6: Error Correction Results

VARIABLES	COEFFICIENT	STANDARD ERROR	T-STATISTIC
DLYU	-0.297340	0.01040	-2.86033
DLEDU	-0.010652	0.00721	-1.47756
DLGDP	-0.007148	0.00582	-1.22894
DLFDI	-0.056743	0.77837	-0.64373

The coefficient of the differenced dependent variable (-0.297) is statistically significant with a t- value of approximately -2.860. This show that the speed of adjustment is approximately 29.7%; implying that if there is a deviation from equilibrium, 29.7 of youth unemployment is corrected in one year as the variable moves towards restoring equilibrium.

5.3 Diagnostic Tests

The model was for fitness to validate the parameter evaluation of the outcomes. Three main test were carried out, that is, the white test, Jarque –Bera test and the Langrange Multiplier test. Table 5.7 results show that the model does not suffer from serial correlation, there is no heteroscedasticity and residuals are normally distributed.

Table 5.7: Diagnostic Tests Results

TEST	NULL HYPOTHESIS	T-STATISTIC	PROBABILITY
White (Chi-sq.)	No heteroscedasticity	160.4046	0.8502
Jarque-Bera	There is normal distribution	5.749790	0.8358
Langrange Multiplier (LM)	No serial correlation	13.59282	0.9684

6 Conclusions and recommendations

The main aim of this study was to discuss the determinants of youth unemployment in South Africa from 2008Q1 to 2015Q4 utilizing secondary time series data. The study used VECM to test the determinants of youth unemployment. As expected by the study, results showed that education, GDP and FDI leads to a reduction in youth unemployment. The diagnostic checks concluded that the model is good.

6.1 Policy implications and recommendations

This study recommends that education levels in terms of individuals attending schools and universities must increase in order to improve the state's condition and

development, which automatically will also decrease youth unemployment and putting the country in better position in terms of ranking with the rest of the countries as well.

The government should try to encourage the youth in attending schools by developing creational activities to boost their mind and change the young person's way of thinking towards education. Governments should also try to provide free education to those individuals who are not in the state of paying the fees because that also is a cause why young individuals don't attend school or drop out later on. One of the policy recommendation could also be from primary to secondary rates. Sensitizing the young individuals or youths on the availability of funds and also mentoring them on business plans development and proposals.

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