Youth Unemployment and Rising Crime Rate in South Africa: Does Governance Matter?

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Abstract

This study examined the nexus among governance, crime rates and youth unemployment in South Africa. The study's objectives are: 1) to study the trending nexus on the categorical age-group of youth unemployment, crime rate and governance in South Africa. Variables proxying governance are the voice of accountability, political stability and the absence of violence/terrorism and regulatory quality 2) to investigate how crime rates and governance impact on unemployment in South Africa. Descriptive statistic forms the preliminary trend analysis; these alongside with dynamic auto-regressive distributive lag (ARDL) model have been engaged to achieve the study's objectives. Governance series adopted in the model includes government voice of Accountability, Political Stability and Regulatory quality alongside age groups 45–54; 15–64, 35–44, 15–24; 25–34. The findings from ARDL model are reported from three separate regimes. From r**egime one, t**he findings indicate that in the long-run and holding other variables constant, only inflation and Political Stability indicator on the average rate significantly impact on youth unemployment. Increment in inflation would cause increment in the youth unemployment by 27 units but increment in Political Stability would decrease youth unemployment by 606 units. In the short-run, the main determinants of youth unemployment are inflation rate (CPI) and Political Stability in South Africa. The result revealed that unemployment gets worse in the long-run with higher inflation rate in the country. Policies to strengthen rule of law, control of corruption and government effectiveness could create wider employment opportunities for various categories of youths, reduce the crime rate at all level.

1. Introduction

With growing rate of unemployment in the South African economy is the possible decline in the aggregate revenues accruable to the state and the implication to the state is less income available to combat crime, thereby lessening the direct costs associated with criminality through the probability of punishment. In the long-run, increasing unemployment rate is one of the major factors fostering the increase property crime level due to the fact that crime becomes more attractive relative to gaining pecuniary rewards from any legitimate labour (Cook and Zarkin, 1985; Wilson and Cook, 1985; Young, 1993; Carlson and Michalowski, 1997).

The Statistic South Africa, (2020) estimates that unemployment in South Africa mainly impacts more young people, with average representation of 60% of the population. Going by the extant controversial theories on the attempt to highlight the nexus between unemployment and crime is believed to impact both positively and negatively on the society. Theoretically, Becker's (1968) seminal model, rational choice theory (Becker, 1968), the theory of the motivational effect of crime (Cantor and Land, 1985), neo-classical and Marxist theory defend the idea of a positive relationship between unemployment and crime. Becker (1968) argued the trade-off relationship between the benefits and costs expected from the crime committed. From the theory, certain factors contribute to the net benefits of crime. Such factors include labour opportunities market and conditions. For instance, economies with higher rates of unemployment may experience a higher rate of crime. Cantor and Land (1985) emphasised the relationship between crime and unemployment as they justified the theory of motivational effect of crime. This theory states that, a high level of unemployment, all other things being equal, can lead to crime. It was further argued that, unemployment limits the access of the unemployed individuals to the market for goods and services and may push such victims to commit crime, once they perceive monetary benefits could be provided through a crime committed. Again, rational choice theory (Becker, 1968) reports that an unemployed individual may commit a crime if the perceived expected utility exceeds the utility of not committing such a crime. This theory is consistent with the neoclassical and Marxist theory (Box, 1987).

In contrast, criminal opportunity effects or the theory of opportunity effects developed by Cantor and Land (1985) indicates a negative nexus between crime and unemployment (Cohen et al., 1981). Evidence from this theory shows that, the occurrence of a crime entails three fundamental conditions: the existence of motivated offenders, the presence of appropriate targets; and the absence of effective guardians. In this study, Becker's (1968) theory that declining market opportunities (shown by rising unemployment rates) worsen legal income opportunities and thus make crime more attractive is used to analyze the effect of unemployment on crime commission in Sub-Saharan Africa (Eric, Sézard, and Daniel 2021). Numerous studies exist on the relationship crime and unemployment. However, the study that proxy role of governance from the perspective of voice of accountability, political stability and absence of violence/terrorism and regulatory quality is missing in the literature. This forms the gaps in in this study

The study earlier argued that possibility of future acquisition of legitimate job is low since a continued reduction in government revenue resulting from unemployment could further weaken the financial capability of the state from generating an enabling environment for job creation which again fosters the propensity of crime increase in the community.

This study views governance as an act of exercising legitimated power to regulate human activities in any given territory. Governance regulates the conduct of business activities in any society through policy (Mehraj and Shamim, 2020). From democratic orientation, people view governance as the government of the people, by the people and so for the people. Consequently, the welfare, economic interest, and good livelihood of the people are the necessary and sufficient condition of legitimate governance (Arora, 2007). Legitimated governance goes beyond the maintenance of law and order; hence, this variable is not captured in the study. It is a system participation and involvement whereby the elected agents that are saddled with the task to govern on behalf of the people are motivated through the mandate conferred on them to offer their best for the good of the people, throughout the daily problem solving thereby making citizen's lives more enjoyable, satisfying and liveable. Governance is given the legitimated authority to exercise administrative, economic, and political power to manage a nation's affairs. It is embedded in the manner in which power of control is exercised in the country's management of economic and social resources for development (Frey, 2008).

Government's role in any given community entails a fight and a struggle for a fair and free environment where all categories of people are expected to have access to job opportunities and employment security entrenched in policies capable of declining crime at all levels of the society to the grass root. Such struggle appear more pertinent in South Africa where the level of crime rates are generally on the increase ever since the democratic era, making it a regular

talking slang for country's politicians today. South African Police Service (SAPS) report as published in the 2018/2019 statistical bulletin, argued that commercial crimes, stock theft, together with robbery in an exasperating circumstances grew by 14.4%, 2.9%, and 1.2% respectively.

About 55% of youth unemployment in the average is the outcome of increasing rate of graduate unemployment in South Africa. By implication, to every 100% learners graduating in the country of South Africa, only 45% are gainfully employed. South African government policies on social economic issues have shown that government is not doing enough to combat crime and unemployment. Consequently, the rates of crime and unemployment have continued to grow in the same direction. It is evidenced from the fore going that the nexus among the macro-economic moderating variables that could assist to flatten the curve of crime rate and unemployment through government intervening policies are still unknown in literature despite partial works undertaken the researchers on the subject matter. One of the primary duties of governance is the creation of an enabling environment suitable for youth employment after schooling to control for any possible societal criminal activities. Consequently, understanding how government relates with rising cases of crime rate to impact on the youth unemployment in South Africa forms the gap to fill in this study

These unreceptive growing rates of crime ever since the advent of democracy beg for the question of which factors determine the rising crime level in South Africa (SA, Statistic, 2020).

Ponnan (2018) posits that increasing rise in South Africa crime rate are largely caused by the country's persistent rise in the level of unemployment over time and certain unknown factors that continues to puzzle the South African policy makers. This is because lack of access to satisfactory job strongly breeds poverty while poverty in return are strongly linked with crime since a person that is jobless will certainly find an alternative means of providing for himself by committing the crime. By implication, job creation can greatly curtail the proliferation of crime in the society (Ponan (2018). The fore going postulation found its justification in the Keynesian theory of income determination which argued that at each level of (even at zero level) income, an economic agent must consume. Statistics in recent time in South Africa has shown a steady fall in the general crime rate, however, going by regional standards, this numbers still remains very high relative to other nations in the SSA (SA, Statistic, 2020). The records reflecting the figure on crime rate in South Africa shows that annual occurrence of burglary exceeding 150 000 cases on average in South Africa. Burglary is a form of property crime, perpetuated on residential premises. Burglary as a form of crime remains on the high side posing a severe problem among the other categories of property crimes.

With the pioneering work of Becker (1968) comes the curiosity on how criminal act correlates with unemployment. Despite various assumptions put forward by researchers to link criminal activities with the state of the labour market (Fella and Gallipoli, 2007; Lochner, 2004; Entorf and Spengler, 2000; Cantor and Land, 2001; Thornberry and Christenson, 1984), the results remain inconclusive. For instance, while the first school of thought opined that unemployment in the economy has the increasing function of crime propagation (Tshabalala, 2014; Zulkifli, Ling, Kasim, and Ismail, 2016; Nordin and Almén, 2017; Ha and Andresen, 2016; Costantini et al., 2018), the second school of thought argued that the effects of unemployment on crime can hardly be determined, negative or minuscule (Bhorat, Thornton, and Van der Zee, 2017; Fallahi, Rodriquez, Blomquist and Westerlund, 2013; Rege, Skardhamar, Telle, and Votruba, 2009; Lin, 2008). It is puzzling that the role of governance on the spread of crime has been long neglected and the concept has not been given adequate attention in literature. The possible reasons could not be unconnected with the fact that there is no known variable to proxy governance in literature.

Linking governance, crime and unemployment has theoretically indicated that in a state where the government activity is efficient, citizen with a legitimate steady source of income can hardly be found committing any form criminal act. Evidence from literature has shown that most suspects found in the act of crimes are either unemployed or under-employed (Property Crime, 2018). The rising cases of crime continue to increase with youth's employment since independence in South Africa (Statistic South Africa, 2020). What is the contribution of government in the control of crime rate and unemployment in South Africa? Can literature identify the categories of the age group that are mostly unemployed? Preferring empirical response to these pertinent questions could assist to rightly understand the spill-over occurrence of unemployment from the pre-independence or democratic government activity.

This article work relies on the empirical and theoretical framework of Becker (1968) in its attempt to investigate the contribution of government in the control of crime rate and unemployment in South Africa. Becker (1968) offered explanation that crime is an outcome of significant neglect of industrial responsibility by economists. Before the advent subsequent to Becker's intervention, arguments from academic discussions were on the assumption that crimes were mainly a psychological issue resulting from social oppression and mental illness. However, Becker's (1968) economic perspective or view on crime brought new thinking that crime is an outcome of benefit and cost analysis. Becker argued further that, an economic agent would make a rational choice to commit a crime when he has compared the cost of crime and expected returns. Consequently, the aims and objectives of this study are: 1) to study the trending nexus on categorical age-group of youth unemployment, crime rate and governance in South Africa. Variables to proxy governance are voice of accountability, political stability and absence of violence/terrorism and regulatory quality 2) to investigate how crime rates and governance impact on unemployment in South Africa.

2. Review of Literature: Theoretical Framework

The interacting theories found in the literature suitable for this study is the Merton's (1938) proposition of opportunity cost together with theoretical model of benefit and cost parity as advocated by Becker (1968).

Ehrlich (1975) and Becker (1968) proposed the cost and benefit framework with an economic preference. He contended that a criminal would make a rational choice in line with the cost and benefit analysis of committing a crime. The theory's justification was premised on the preference that an individual would commit a crime when he perceives that the benefits of committing a crime outweigh the cost implications of the crime. It was further disputed that the absence of job opportunity simply means lack of access to a legitimate employment opportunity and inability to access legitimate job opportunity diminishes the opportunity cost of committing a crime which consequently motivates an individual to get engaged in criminal act. Further, Merton (1938) hypothesised the theoretical proposition of opportunity cost otherwise known as strain theory. He claimed that the failure of a person to attain material success in accessing job opportunities could frustrate the economically deprived victim of low-ranking status and this might in return breed crime retaliatory effects. This

is a case when the marginalised person is positioned among the wealthy elites and this consequently justifies the crime action of the economically marginalised victim to engage in crime. Although the benefit-cost theory supports the theory advanced by Merton (1938), Sociologists argue that crime and unemployment correlated with each other positively. An exception to this assumption lies in the mechanisms advocated by theoretical opinion. Merton (1938) theorised for instance, that the positive correlation surfaces when the dissatisfied persons observed a deliberate economic deprivation in the society and therefore views the consideration of crime committed as a justifiable action against those with the privileged position of political and economic power. The emergence of positive correlation for cost and benefit theory, becomes evidenced when the benefit of committing a crime by a person outweigh the cost of the crime committed in comparison with the possibility of being arrested by the police. Again, in opportunity cost theory, the criminologists argued that unemployment negatively correlates with a crime. The inability to be gainfully employed indicates fewer goods to steal and a decline in the number crime victims in the community (Land et al., 1995; Cantor and Land, 1985, 2001; Felson and Cohen, 1980). Crime is perceived as an inverse function of unemployment since the number of persons that could become victims of criminal acts or by which a suspected thief could steal declines with an increase in unemployment.

2.2 Review of Literature: Intercontinental empirical review of literature

To assess the relevant theories on youth unemployment and crime, most research works skewed towards the support of a direct correlation between unemployment and crime. Empirically, some findings identified the impacts of unemployment on crime. For instance, studies that conclude that there are direct effects of unemployment on crime include the followings: Witt et al. (1999) found a direct relationship between male unemployment rate and crime. On the other hand, Raphael and Winter-Ebner (2001) adopted U.S. data to investigate the nexus between unemployment and property crime. Their results indicate that unemployment rate has a direct significant impact on property crime, but not on crime in the aggregate. Lee and Holoviat (2006) adopted a co-integration approach to analyse the long-term nexus between a set of crime variables and unemployment in three Pacific and Asian nations. They noted a long-term nexus between crime and unemployment among young men. Hamzah and Lau (2013) established from their findings that violent crime is directly correlated with unemployment and poverty.

Similar study that concord with the works of Hamzah and Lau (2013) are the study conducted by Ata (2011) and Dursun et al. (2011) on the Turkey economy. The study adoption times series analysis with data from 1990 to 2010. Again, Bisschop (2014) carried out a cross-sectional data analysis on the Netherlands economy for the period between 2005 and 2012. All these studies concord that crime positive effects function on unemployment. In the contrary, Philips and Land (2012) failed to identify that this nexus is also correct for burglary and robbery. Dursun et al., 2010 observed insufficiency in data availability. Consequently, the study was constrained to small sample sizes of 21 observations, thereby, subjecting the findings to micro-numerosity bias otherwise known as problems of small sample sizes.

Again, Ha and Andresen (2017) result were also constrained with sample bias. However, the reported outcome indicated direct nexus between unemployment and crime for Canadian economy when the annual data for a period 1991, 1996, and 2001 Canadian census were adopted. The findings showed a variety of results across various categories of crime both for the short and long run. Further, unemployment has the largest long-run effects on assault followed by violence and robbery respectively while short-run impact of unemployment is greatest on attack and violence. The Ha and Andresen work also indicated notable limitation of the small sample. This short coming appeared more germane as the technical distinction between short and long run might need a large sample sizes to guarantee an accurate test of co-integration. Depicting from rational choice theory, Chamlin & Cochran, (2000) justifies to what extent unemployment may be measured within the context of the unemployment–property crime relationship. ARIMA model was adopted as estimating technique to analyse the unemployment crime relationship through the adoption of Bureau of Labor Statistics (BLS) unemployment rate data alongside with alternative measures of the labour demand as predictors of monthly counts of U.S. property offenses for the years 1982 to 1996. The findings showed that while the Bureau of Labor Statistics (BLS) unemployment rate displays null relationship, the number of jobless people for 15 weeks or more and the capacity utilisation rate exhibit significant impact on the property crime level.

Review of studies conducted with Africa

Eric, Sézard, and Daniel (2021) assess the impact of unemployment on crime in the SSA. The relevance of the paper is in the enrichment of nexus between crime and unemployment in the African continent. The study has a coverage of 40 Sub Saharan African nations and it was based on the two stage Generalized Method of Moments (GMM) inspired by the empirical model of Raphael and WinterEbmer (2001) between 1990 and 2018. Youth unemployment rate is found to have a direct and significant impact on the rate of murder in SSA countries. Tshabalala, (2014) investigated the impacts of unemployment crime rate in South Africa with special attention on Empangeni and Richards Bay localities in the Kwa-Zulu Natal Province. Unemployment is assumed to be the factors responsible to many problems facing South Africa today. Such multifaceted problems include such as poverty, crime, and suicide. Particularly, Crime is the offshoot of deeper socio-political concerns in South Africa. Through the adoption of a survey design, data were collated from an average sample of 110 respondents. The respondents' composition of 20 experts on crime control and labour issues, 60 unemployed participants, and 30 convicts responded to the study's questionnaire. The findings from the study indicated that educational low level of the people is partly responsible for the increasing unemployment rate in the country and this has a positive relationship with the high level of crime.

Gap in literature

Much studies has been carried out on unemployment and crime, however, research work linking governance, with crime and unemployment in rear in literature and such study is scares in South Africa if any.

Again, much work has been carried out on youth unemployment in South Africa, however, to the knowledge of the researcher, no work has been able to group youth unemployment into categories of early, medium, and older age group with the corresponding nexus of crime and governance in South Africa just as this research is out to do.

3 Methodology

The work partly depends on existing empirical literature which inadequately handles the relevant issue of endogeneity in count data in her methodology. In this study's model, unemployment is assumed endogenous, since certain variables could jointly influence crime, unemployment, and governance. This study hereby employ some recent econometric procedures in the conduct of the study investigate the relationship among crime rate, unemployment, and governance in South Africa. The work partly depends on Control Function (CF) method as built by Lin and Wooldridge (2018) as it adequately controls for endogeneity within a count data framework. This model was an augmented version of the developed model by Papke and Wooldridge (2008) since the model simultaneously control for both idiosyncratic heterogeneity and endogeneity.

Modelling the functional relationship between governance and crime rate on youth unemployment in South Africa is hereby specified as follows:

$$Ym = \int(\mathrm{CPI} + \mathrm{CRR} + \mathrm{GDPR} + \mathrm{Gov} + \mathrm{LTR}) \quad \ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where Ym proxies youth unemployment, CPI proxies consumer price index, GDPR proxies GDP growth rate, Gov proxies governance and LTR represents literacy rate.

Equation 2 is an implicit functional form of Eq. 1, such that

$$Ym = \alpha_0 + \alpha_1 \mathrm{CPI} + \alpha_2 \mathrm{CRR} + \alpha_3 \mathrm{GDPR} + \alpha_4 \mathrm{Gov} + \alpha_5 \mathrm{LTR} \quad \ldots\ldots\ldots\ldots\ldots\ldots 2$$

However, this model retains the time series features in its implicit expression of random nexus, this functional relationship is again, transformed to model 3 as follows:

$$Ym_t = \alpha_0 + \alpha_1 \mathrm{CPI}_t + \alpha_2 \mathrm{CRR}_t + \alpha_3 \mathrm{GDPR}_t + \alpha_4 \mathrm{Gov} + \alpha_5 \mathrm{LTR}_t + \varnothing_t \quad \ldots\ldots\ldots\ldots 3$$

Since the past lag explains the present in any given dynamic model, Eq. 3 in its dynamic model hereby leads to Eq. 4 as follows:

$$Ym_t = \alpha_0 + \alpha_1 Ym_{t-1} + \alpha_2 \mathrm{CPI}_t + \alpha_3 \mathrm{CRIR}_t + \alpha_4 \mathrm{GDPR}_t + \alpha_4 \mathrm{Gov} + \alpha_5 \mathrm{LTR}_t + \varnothing_t \quad \ldots\ldots\ldots 4$$

This study employed Augmented Dickey-Fuller (ADF) test to undertake unit root test. Again, this study intends to use Autoregressive Distributed Lag (ARDL) Bounds test to establish the long-run and short-run equilibrium property in the model of the study. Further, this study analyses the nature and relationship by the use of ARDL model as pioneered by Pesaran, Shin, and Smith (2001). Literature has confirmed that ARDL mode could be adopted to analyse advanced models having variables that are of I(1) or the mixture of order one or zero-order, the technique is adequate when investigating adjustment speed from the short-run to long-run. The study presented augmented ARDL (p,q,r,s,t) in the model below:

$$Ym_t = \beta_0 + \sum_{i=0}^{p} \beta_1 CPI_{t-i} + \sum_{i=0}^{q} \beta_2 \mathrm{CRR}_{t-i} + \sum_{i=0}^{r} \beta_3 \mathrm{GDPR}_{t-i} + \sum_{i=0}^{s} \beta_4 \mathrm{LTR}_{t-i} + \sum_{i=1}^{t} \beta_5 Gov_{t-i} + \epsilon_t \ldots\ldots\ldots\ldots 4$$

The model in Eq. 4 above represents a stable long-run relationship as supported by the Wald test. $\varepsilon_t$is the stochastic variable at time t, β_0 stands as the intercept andβ_1-$\beta_5$proxy the parameters for the analysis of long-run model's coefficients. In order to adequately investigate the short-run nexus for all the variables under investigation, this study specifies the error correction model as follows:

$$Ym_t = \beta_0 + \sum_{i=0}^{p} \beta_1 \Delta CPI_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta \mathrm{CRR}_{t-i} + \sum_{i=0}^{r} \beta_3 \Delta \mathrm{GDPR}_{t-i} + \sum_{i=0}^{s} \beta_4 \Delta \mathrm{LTR}_{t-i} + \sum_{i=3}^{t} \beta_5 \Delta Gov_{t-i} + \phi ecm_{t-1} \epsilon_t \ldots\ldots\ldots\ldots 5$$

The ecm_{t-1}denotes the error correction term of one time lag, β_1 to $\beta_5$denote parameters in the short-run to be estimated, φ is the speed of adjustment from short-run disequilibrium to long-run equilibrium, and $\varepsilon_t$is the error term. However, the governance variables are substitutable. Where i represents voice of accountability, political stability and absence of violence/terrorism and regulatory quality.

3.3 Data Sources for the study

Data on crime rate and youth unemployment in South Africa is available at a novel local municipality-level panel dataset courtesy of Quantec. Governance Data are scarce in the literature. Nonetheless, data of functional mechanisms on voice of accountability, political stability and absence of violence/terrorism and regulatory quality are available in the world development indicators in the World Bank database. The remaining variables in the study were sourced from WDI.

4 Findings on Trend Analysis

The section that follows addresses the findings in the trend analysis carried out on the various age group categories of youths in South Africa. The axiomatic arguments in the literature for appropriate employable age group are adults between ages 15–64 where retirees and teenagers are excluded. Other categories of unemployment youth under investigation are 45–54; 35–44; 15–24; 25–34. Each age group are trended against governance variables of voice of accountability, political stability and absence of violence/terrorism and regulatory quality. The trend analysis is to study fluctuating nexus among the various categories of the age group population, crime rate governance, and inflation. The study adopted annual data from 2008 to 2018 for the trend analysis. These periods fall within democratic era of government in South Africa.

1) **Result of youth unemployment on age-group 15–64 alongside with crime rate, and each category of government variables**

Figures 1–3 showcases the trending issues relative to crime, unemployment, and voice of accountability, political stability and regulatory quality.

Every figure revealed that inflation (CPI) has continued to persistently increase against governance. It shows that government policy has failed to control for inflation all the years under investigation. Consider Fig. 1 where crime rate has maintained a rising trend marginally alongside with general unemployment. There was an initial improvement in the government voice of accountability from 2008–2013 and consequent decline thereafter from 2013–2018 periods under investigation. Unemployment increased significantly along this year of decline in the voice of accountability. It therefore suggests that governance remains inactive. Under the watch of government, unemployment and crime continued to rise with no voice of accountability to influence it. Figures 2, crime rate continued to rise marginally alongside the general unemployment, whereas political stability was constant all through from 2008 to 2018. The implication is that despite rise in crime rate and the general unemployment, governance remained stable; unrest was minimal to interrupt governance under the periods of investigation. In Fig. 3, regulatory quality remains constant (inactive and inefficient) with rise in crime rate and the aggregate unemployment all through the period under investigation.

Result for Age-group 35–44

Activities for Figs. 4–6 are reported on age 35–44 in this sub section. Population of age 35–44 acquired early educations during pre-independent regime. From the result of Fig. 4, crime rate declined sharply till 2011 after which it continued to increase marginally all through the years under investigation. It was significantly observed that voice of accountability and political stability remains constant (inefficient and inactive) with rise in crime rate and the aggregate unemployment all through the period under investigation for Figs. 4 and 5.

It therefore implies that unemployment and crime rate could not be controlled by policy measures in those years under investigation. In Fig. 6, there was initial decline in crime till 2011 with persistent rise in unemployment from 2008 till 2018; government regulatory quality remained constant all through the period until a sharp decline in 2013.

Result for age-group 25–34

Figures 7–9 reflects the result on age group 25–34 with the voice of accountability, political stability and regulatory quality. Under Fig. 7, crime declined from 2008 till 2011 and eventually increased marginally till 2018. A comparable figure is the increasing unemployment rate all through from 2008–2018. For Figs. 8 and 9, the features in crime rate follow the same pattern with Fig. 7. While regulatory quality remained constant all through the period under Fig. 9, voice of accountability declined 2013 and remained low for Fig. 8.

Result for Age-group 15–24

Figures 10–12 reflects the result for age groups 15–24. The age group is significant in South Africa. Great proportions of this age group are expected to continue with their studies in the higher institutions except for the few that seek for employment after matric. For Fig. 10, 11 and12, crime rate and inflation continued to increase consistently all through the period of investigation. There was a significant decline in the voice of accountability for Fig. 10. There were variations in the increasing level of unemployment and crime rate. It is puzzling to note that for this age, regulatory quality and political stability remain constant without much improvement. The implication on Fig. 10, 11, and 12 is that crime continued to increase marginally relative to unemployment and crime rate all through the period under investigation.

Result for age-group 45–54

Figure 13–15 showed the result for age group 45–54. The interractions beween unemplomet rate, crime rate and the voice of accountability, and political stability and and regulatory quality are evident here. Crime rate reduced significantly under the three regimes from 2008 to 2011 after which it began to rise. However, voice of accountability decline from 2013 and was submerged by unemplomet rate from 2014 to 2018 in Fig. 15. The level of unemplomet for the age group was relatively contant over time from 2008 till 2014 for voice of accountability in Fig. 15 and follow uprising with level of unemployment under regulatory quality.

Analysis and Interpretation of Result

Table 1
The result of summary statistics

Variables	CPI	CRR	GDPR	LTRA	POST	REQ	VACC	YM
Mean	92.84079	41.83110	2.616735	92.41762	0.257053	0.205554	0.136962	52.78704
Median	81.40447	37.45950	2.699995	93.10210	0.239250	0.194443	0.120328	51.82000
Maximum	164.0375	64.86430	5.603798	95.02300	0.373912	0.277094	0.213555	60.43000
Minimum	46.57834	29.90940	-1.538089	82.40210	0.192247	0.162091	0.103716	45.01000
Std. Dev.	37.50281	10.78805	1.702309	2.999313	0.054550	0.032181	0.036448	3.561877
Skewness	0.475312	0.898160	-0.226165	-1.914367	1.123582	1.468861	1.193087	0.403802
Kurtosis	1.962150	2.515725	2.818311	6.078914	3.095209	3.870033	2.880914	3.098251
Jarque-Bera	2.228422	3.893947	0.267315	27.15628	5.691164	10.56057	6.421511	0.744612
Probability	0.328174	0.142705	0.874890	0.000001	0.058100	0.005091	0.040326	0.689143
Sum	2506.701	1129.440	70.65183	2495.276	6.940438	5.549970	3.697979	1425.250
Sum Sq. Dev.	36567.97	3025.930	75.34427	233.8929	0.077368	0.026926	0.034540	329.8612
Observations	27	27	27	27	27	27	27	27
Source Authors' computation, 2023								

This study estimated common descriptive statistics for inclusive variables of youth unemployment (YM), Crime rate, inflation (CPI), GDP growth rate, literacy rate (LTR) alongside with the government voice of accountability, Political Stability and regulatory quality. Table 1 of the summary statistics reflects the outcome result for the median, mean, skewness, standard deviation, kurtosis, as indicated in the Table 1 for a sample period of twenty seven years.

Results from Table 1 shows that every member series has positive median and mean that ranges from 2.7 to 93.1 and from 2.62 to 92.6 respectively. The two member of central tendency measured in this Table 1 are mostly referred to as the first moment as they are often adopted to ensure whether the series are normally distributed or whether they are symmetrical. Variables are said to be normally distributed when their median and mean values are very close or relatively equal. A typical example from this table is the growth rate of GDP growth rate with the confirmed near zero symmetrical value. This is evidenced from the value obtained on the skewness coefficient of GDP growth rate that is near zero. Again, result from the standard deviation is meant to ensure whether the variable has the largest dispersion. If yes, then the variable is said to be very volatile. The findings indicate that CPI and the crime rate are volatile with the highest dispersion of 37.5 and 10.78 respectively. All other variables are moderately less volatile. Further, negative skewness occurred in the cases of GDP growth rate and literacy rate and result suggest that the identified two series lied at the mean left side, while all other series that skewness positively implies that their observations lied on the right side of the median and mean values.

With exception of political stability, regulatory quality, youth unemployment and literacy rate, whose kurtosis are above 3, all other series in table are playtokurtic since the value of their series are less than 3. It simply suggests that not many outliers are found in the series. Conclusively, Normality test as conducted by Jarque Bera result is an asymptotic test adopted based on the residual, for the joint hypothesis that kurtosis and skewness are 3 and 0 respectively (Gujarati 2004). A value of probability greater than 5% for the Jarqua Bera test indicates that such series is normally distributed. This is true for all the series except the government voice of accountability, regulatory quality and literacy rate whose probability value for the Jarqua-Bera statistics are less than 5%.

Table 2
The result of Correlation Test

	CPI	CRR	GDPR	LTRA	POST	REQ	VACC	YM
CPI	1354.369	-299.3091	-32.89929	23.68500	-1.457456	-0.555895	-0.810424	29.90268
CRR	-299.3091	112.0715	3.955187	-5.848201	0.555411	0.261840	0.348798	-4.566592
GDPR	-32.89929	3.955187	2.790529	-1.198724	0.020732	0.002448	0.002877	0.632794
LTRA	23.68500	-5.848201	-1.198724	8.662699	-0.039327	-0.026624	-0.024122	1.272042
POST	-1.457456	0.555411	0.020732	-0.039327	0.002865	0.001414	0.001778	-0.034758
REQ	-0.555895	0.261840	0.002448	-0.026624	0.001414	0.000997	0.000986	-0.035658
VACC	-0.810424	0.348798	0.002877	-0.024122	0.001778	0.000986	0.001279	-0.033852
YM	29.90268	-4.566592	0.632794	1.272042	-0.034758	-0.035658	-0.033852	12.21708

Source: Authors' computation, 2023

Again, Table 2 showcases the result from the common correlation test conducted on the series youth unemployment, inflation, crime rate, GDP growth rate literacy rate alongside with the government voice of accountability, Political Stability and regulatory quality. The result is often adopted to ensure that no two

explanatory variables have an exact linear or perfect relationship with each other. These exact/perfect relationships otherwise known as multicollinearity are problematic in economics. When two regressors exhibit a magnitude of nexus up to 80% or above in any given correlation outcome, it clearly indicates the presence of a multicollinearity and such parameter estimates are likely to be biased or inefficient regressors. Sometimes, such estimated results may not be significant and the model may not be adequate enough for policy measures.

Result from Table 2 reveals that the study's model has the problem of multicollinearity as the regressors, particular among the government voice of accountability, Political Stability and regulatory quality variables with correlation coefficients greater than 80% with other series in the study's model. This challenging outcome must be circumvented by separately choosing each of the governance series at a time in the analysis of three un-identical models.

Unit Root Tests

Two separate unit root tests have been adopted in this paper to examine the nature of stationary of the series. The two unit root test methods adopted for this investigation are the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF). Unit root test are mostly used to ascertain that variables have a random walk or not. It ensures if the mean series revertible or not or whether a series has unit root or not. This investigation needs the clarity since variables with a non-stationary series often results in a non-sense regression. Further, tests for stationarity were meant to confirm the appropriate method of analysis to be adopted for the study. The findings from the adopted method has indicated the combination of I(0) and I(1) series for both the Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) unit root tests. Subsequently, there is the need to adopt ARDL model as appropriate estimating technique for the study.

Table 3: the result of Unit Root Test

Vars	ADF Unit Root Test				DF Unit Root Test	
	T-stat	Level	1st Diff.	T-stat	Level	1st Diff.
YM	-4.295657	XXX	0.0026	-4.375017	XXX	0.0002
CPI	-3.999044	XXX	0.0230	10.59458	XXX	0.0000
CRI	-3.032382	XXX	0.0040	2.165484	XXX	0.0410
GDPR	-2.764132	0.0773	XXX	-2.819897	0.0093	XXX
POST	-4.668109	XXX	0.0011	-4.717613	XXX	0.0001
LTR	-4.791645	0.0009	XXX	-5.947304	0.0000	XXX
VACC	-3.637033	XXX	0.0122	-3.70248	XXX	0.0011
REQ	-6.631859	XXX	0.0000	-6.649714	XXX	0.0000

Source Authors' computation, 2023

The findings of the stationary test are hereby presented in the Table 3. From the result, it indicates that with the exception of GDP growth rate and literacy rate, which are stationary at level as were reported for both tests, all other series are stationary after the first difference. It therefore indicates that the series will not steadily deviate from their mean values; consequently, it means that they are mean reverting. Summarily, both tests (ADF and DF tests) showss that the series are a combination of I(0) and I(1). For the purpose of emphasis; inflation, youth unemployment, Crime rate, and the Political Stability, regulatory quality and government voice of accountability are all I(1) whereas only the GDP growth rate and literacy variable (LTR) was stationary at I(0).

The ARDL Result

The preliminary tests, particularly the unit root test the suggested the adoption of ARDL estimation for the study. The rule of thumb is to adopt the technique of ARDL model should the series be order zero and one integrated; consequently, the adoption of the ARDL model sequence to the study's objective which the researchers aimed at investigating. This process follows four separate stages. The starting stage requires the analysis of the ARDL model when the error correction term [i.e.$\theta_i \left[YUEM_{t-1} - \gamma_i X_{t-1}\right]$] is not included. It should be recalled that one of the objective of this work is to investigate how each of the three governance variables react to youth unemployment. Table 4 presents the result of ARDL analysis with youth unemployment as the endogenous variable while the explanatory variables includes crime rate, CPI, literacy rate, GDP growth rate, and the **Political Stability** indicator (PSRC). The findings indicate that in the long-run and holding other variables constant, only inflation and Political Stability indicator on the average rate significantly impact on youth unemployment. This implies that all things being equal, on the average rate youth unemployment could be influenced by both policies influencing stability in governance and general price stability. Increment in inflation would cause increment in the youth unemployment by 27 units but increment in Political Stability would decrease youth unemployment by 606 units. These results have much policy implication to the South African government which needs speedy intervention and response by the government in order to control for high rate of unemployment in the future. The rise in general price level of goods and services would lead to starvation and hunger particularly with the increase in the unemployment among youths. Government's project capable of generating jobs for the youths will require more investible fund for the financing of capital project and with numerous alternative uses for money available in the coffer of government, it results into more unemployment as more youth graduates into the labour market. However, with the stability of government, long term policies would be executed thereby reducing unemployment among youths.

Again, the findings indicate that in the short-run, the main determinants of youth unemployment are inflation rate (CPI) and Political Stability in South Africa. Precisely, inflation rate increases youth unemployment on average during the short-run by about 11.1%, ceteris paribus. Since the result showed that inflation

rate had a higher level of effects on youth unemployment in the long-run comparable to the short-run impacts indicate that unemployment gets worse-off in the long-run with higher inflation rate in South Africa.

However, Political Stability raises youth unemployment significantly the short-run but declines it in the long-run. The short-run vague outcome could be attributable to incompetency in the government policy which improves over time in the long-run. Consequently, **Political Stability** significantly causes the rate of youth unemployment to decline by 11.1 units in the long-run. In addition, the findings further showed that crime rate failed to significantly impact on the rate of youth unemployment in the short and long-run in South Africa. There are two paths to the explanation to this puzzle. Firstly, the level of crime control in the country could have translated to higher job creation through the gains acquired through robbery in the system thereby leading to a decline the number of youth currently unemployed. Secondly, it may be that majority of the youth in the country are engaged in crime as a way of earning a living permissible by careless handling by police which becomes a norm in the society. Consequently, they failed to view themselves as unemployed. Consequently, the larger the number of youths engaged in crime, the fewer the rate of youth unemployment in South Africa.

Table 4
the result of ARDL with Political Stability as Governance Variable

Dependent Variable: YUEM				
Selected Model: ARDL(1, 0, 0, 0, 2, 0)				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CPI)	0.111327	0.043229	2.575274	0.0203
D(CRR)	-0.127860	0.155843	-0.820444	0.4240
D(GDPR)	0.046129	0.466076	0.098972	0.9224
D(PSRC)	-0.218358	1.194561	-0.182793	0.8573
D(PSRC(-1))	2.337099	1.164326	2.007255	0.0619
D(LITR)	0.040257	0.198129	0.203187	0.8416
ECT(-1)	-0.406420	0.199341	-2.038816	0.0583
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.273921	0.113832	2.406367	0.0286
CRIM	-0.314601	0.411321	-0.764856	0.4555
GDPG	0.113500	1.111519	0.102112	0.9199
PSRC	-6.069029	3.037178	-1.998246	0.0630
LITR	0.099054	0.480746	0.206041	0.8394
C	72.392423	62.482133	1.158610	0.2636

Source: Authors' computation, 2023

Table 5
the result of Bound Test and Diagnostic

ARDL Bounds Test			
Null Hypothesis: No long-run relationships exist			
Test Statistic	Value	k	
F-statistic	3.801268	5	
Critical Value Bounds			
Significance	I0 Bound	I1 Bound	
10%	2.26	3.35	
5%	2.62	3.79	
2.5%	2.96	4.18	
1%	3.41	4.68	
Breusch-Godfrey Serial Correlation LM Test		Heteroskedasticity Test: Breusch-Pagan-Godfrey	
F-statistic 0.143004	Prob. F(2,10) 0.8685	F-statistic 0.372765	Prob. F(11,12) 0.9436
Obs*R-sqd 0.667334	Prob. Chi-Squ(2) 0.7163	Obs*R-sqd 6.112262	Prob. Chi-Sq(11) 0.8658
Source: Authors' computation, 2023			

Stage two requires the performance of diagnostic checks on the model under investigation together with the long-run bound test as specified by Pesaran et al., (1999) to ascertain whether the variables under investigation possesses the features of long-run relationship. If the F-statistics calculated under the long-run nexus is higher than the tabulated upper bound Pesaran et al., (1999) value at the degree of freedom of *k* (*k* is the total number of explanatory variables in the study's model), it assumed that those variables have the long-run co-integration, otherwise known as long-run relationship. If at 10% or 5% level of significance with *k* degree of freedom, it is assumed that co-integration exists among the variables. However, if the reverse is the case, is it assumed that no long-run nexus among the variables. However, if the value is less than the lower bound, it affirmed that co-integration failed to exist and if it lies between the two bounds, then the test is inconclusive. In the third stage, with the speed of adjustment term (ECT), the study disaggregates its findings into their long and short-run co-integrating form. With the error correction term's validity, the study assessed to know if the system can possibly revert back to equilibrium whenever there is short-run or temporary disequilibrium. In the fourth stage, it is necessary to undertake the model's diagnostic checks.

The study's alternative and nulls hypotheses for the long-run relationship for all variables can be stated as follows:

H_1: $\gamma_1 \neq \gamma_2 \neq \ldots\ldots\ldots \neq \gamma_n \neq 0$ (long-run relationship exists)…….(6)

Ho: $\gamma_1 = \gamma_2 = \ldots\ldots\ldots = \gamma_n = 0$ (long run relationship failed to exist)…….(7)

Table 5 presents the diagnostic findings of the bound testing and the outcome indicates that co-integration does strongly exist among the variables under investigation. Since the calculated F-Statistics value at 3.8013 is higher than the upper bound value (3.79). Therefore, the study accepts the alternative and failed to accept the null hypothesis. It implies that there is long-run relationship among variables; consequently, the study proceeds to check if the finding shows that the model is stable dynamically.

From the findings, the study noted that there is short-run disequilibrium in the system which is being corrected at the speed of 40.6% per annum in the long-run. For instance, the study wants to know if the contemporaneous disturbances take it away from equilibrium in the short-run or threatens the system; the system can revert back to equilibrium in the long-run at an adjustment speed of 40.6% per cent per annum. The study's result revealed that the model is dynamically stable since it can be made to converge back to equilibrium. Consequently, it may take the economy less than two and half years to attain equilibrium whenever there is short-run disequilibrium.

Table 6
the result of serial correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	5.052446	Prob. F(2,14)	0.0223
Obs*R-squared	10.48013	Prob. Chi-Square(2)	0.0053

Source: Authors' computation, 2023

Table 6 is the result on the test for serial correlation. The significance of the F-statistic clearly indicates mild problem of serial correlation is observed in the model.

Table 7
the result of heteroskedisticity Source: Authors' computation, 2023

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.519450	Prob. F(8,16)	0.8249
Obs*R-squared	5.154399	Prob. Chi-Square(8)	0.7410
Scaled explained SS	3.418830	Prob. Chi-Square(8)	0.9054

Table 7 is the result on the test for heteroskedisticity. The none significance of the F-statistic clearly indicates no problem of heteroskedisticity is observed in the model.

Table 8
the result of regulatory quality and crime on youth unemployment

ARDL Cointegrating And Long Run Form				
Dependent Variable: YUEM				
Selected Model: ARDL(3, 2, 1, 2, 2, 2)				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(YM(-1))	0.515337	0.279879	1.841285	0.1152
D(YM(-2))	-0.390513	0.227780	-1.714431	0.1373
D(CPI)	0.865234	0.367466	2.354595	0.0567
D(CPI(-1))	-2.571611	0.598684	-4.295442	0.0051
D(CRR)	-1.017827	0.360505	-2.823338	0.0302
D(GDPR)	-3.074943	0.780926	-3.937561	0.0076
D(GDPR(-1))	-1.056272	0.513355	-2.057585	0.0853
D(RSRC)	5.295141	1.104083	4.795963	0.0030
D(RSRC(-1))	3.892038	0.963704	4.038624	0.0068
D(LTR)	-0.430842	0.245325	-1.756207	0.1296
D(LTR(-1))	0.382891	0.232222	1.648815	0.1503
ECT(-1)	0.513404	0.320063	1.604071	0.1598
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-0.173894	0.193035	-0.900842	0.4024
CRR	0.576348	0.611587	0.942382	0.3824
GDPR	5.919758	2.850206	2.076958	0.0831
RSRC	1.150367	3.713235	0.309802	0.7672
LTR	2.845509	1.487291	1.913216	0.1042
C	-253.253305	156.853421	-1.614586	0.1575
Source: Authors' computation, 2023				

To examine how the model two behaves when youth unemployment interact with regulatory quality both in the short and long run, the Table 8 reflects the ARDL result of analysis with youth unemployment as the endogenous variable with, GDP growth rate, CPI, literacy rate, crime rate and the regulatory quality indicator. Precisely, in the short-run, inflation rate associate with about 86.5% increase on youth unemployment on average during, ceteris paribus. It simply implies that a 1% increase in inflation will cause youth unemployment to increase 86.5% in the short run. However, in the long-run, inflation, regulatory quality, literacy rate, crime rate failed to significantly impact on youth unemployment. This shows that youth unemployment is insensitive to variations in the explanatory variables except GDP growth rate in the long run. Whereas in the short run all explanatory variables except literacy rate could significantly impact on youth unemployment. The fact that the result revealed that inflation rate and other explanatory variables less literacy rate had a higher degree of impact on youth unemployment in the short-run than during the long-run under regulatory quality is an indication that unemployment gets better off in the short-run with the experience of liquidity trap in inflation rate and other explanatory variables less literacy rate in the country at the long run. Again, there is inverse relationship between crime rate and youth unemployment in the short run. The reasons for this relationship could be similar to what is obtainable under the regime of political stability.

Table 9: the result of serial correlation			
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.937161	Prob. F(2,4)	0.1641
Obs*R-squared	14.27781	Prob. Chi-Square(2)	0.0008

Source: Authors' computation, 2023; Note: N_0: serial correlation is observable in the model; N_a: there is no detection of serial correlation in the observed model.

Table 9 is the result on the test for serial correlation. We reject null hypothesis of serial correlation in the model. The non-significance of the F-statistic clearly indicates no problem of serial correlation is observed in the model.

Table 10
The result of heteroskedisticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.757733	Prob. F(17,6)	0.6985
Obs*R-squared	16.37347	Prob. Chi-Square(17)	0.4975
Scaled explained SS	0.521188	Prob. Chi-Square(17)	1.0000
Source: Authors' computation, 2023			
Note: N_0: heteroskedasticity is observable in the model; N_a: there is no detection of heteroskedasticity in the observed model. Table 10 reveals the finding on the test for heteroskedisticity. From the table, the non-significance of the F-statistic clearly indicates that problem of heteroskedisticity was not observed in the model. Consequently, we reject the result of null hypothesis.			

Table 11
the result of government voice of accountability and crime on youth unemployment

ARDL Cointegrating And Long Run Form				
Dependent Variable: YM				
Selected Model: ARDL(3, 2, 1, 2, 2, 2)				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(YM(-1))	0.595922	0.326748	1.823799	0.1180
D(YM(-2))	0.296484	0.282772	1.048489	0.3348
D(CPI)	0.239454	0.366140	0.653995	0.5374
D(CPI(-1))	-0.816440	0.554825	-1.471528	0.1916
D(CRR)	-1.381283	0.472808	-2.921444	0.0266
D(GDPR)	0.061086	0.860450	0.070993	0.9457
D(GDPR(-1))	-1.449618	0.601716	-2.409139	0.0526
D(VSRC)	0.232485	0.414094	0.561430	0.5948
D(VSRC(-1))	1.886831	0.452692	4.168024	0.0059
D(LTR)	-0.289661	0.254774	-1.136933	0.2989
D(LTR(-1))	0.721955	0.280554	2.573315	0.0421
ECT(-1)	-0.990879	0.431794	-2.294798	0.0615
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.125575	0.028910	4.343615	0.0049
CRR	-1.162770	0.526750	-2.207442	0.0694
GDPR	1.265431	1.054778	1.199714	0.2755
VSRC	-2.228316	0.800900	-2.782266	0.0319
LTR	-1.593519	0.998550	-1.595832	0.1616
C	264.348426	122.296832	2.161531	0.0739
Source: Authors' computation, 2023				

Table 11 displayed the ARDL result of analysis with youth unemployment as the endogenous variable with, GDP growth rate, CPI, literacy rate, crime rate and the government voice of accountability. It is evidenced from the long run result that only inflation, crime rate and government voice of accountability significantly impact on youth unemployment. While inflation has positive impact on youth unemployment in the model, crime rate and government voice of accountability had inverse and indirect relationship with youth unemployment. A unit increase in inflation would cause youth unemployment to increase by 12.5 units. Whereas, a unit increase in crime rate and government voice of accountability would decrease youth unemployment by 1.16 and 2.22 respectively. In the short-run, only crime rate, lag of GDP growth rate, lag of government voice of accountability and lag of literacy rate significantly impact on youth unemployment. It was noticed from the result that while crime rate and lag of GDP growth rate exhibited inverse relationships, lag of government voice of accountability and lag of literacy rate have direct relationship with youth unemployment.

Table 12
:the result on the test for serial correlation

F-statistic	**1.892977**	**Prob. F(2,4)**	**0.2639**
Obs*R-squared	11.67010	Prob. Chi-Square(2)	0.0029

Source: Authors' computation, 2023; Note: N_0: serial correlation is observable in the model; N_a: there is no detection of serial correlation in the observed model.

Table 12 is the result on the test for serial correlation. We reject null hypothesis of serial correlation in the model. The non-significance of the F-statistic clearly indicates no problem of serial correlation is observed in the model.

Table 13
the result of heteroskedisticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.976436	Prob. F(17,6)	0.2045
Obs*R-squared	20.36358	Prob. Chi-Square(17)	0.2561
Scaled explained SS	1.397828	Prob. Chi-Square(17)	1.0000
Source: Authors' computation, 2023			

Table 13 is the result on the test for heteroskedisticity. The none significance of the F-statistic clearly indicates no problem of heteroskedisticity is observed in the model.

Table 14
Short run comparative results

Variables	Political Stability	Regulatory quality	Government voice of Accountability
D(CPI)	0.111327**	0.865234***	XXX
D(CPI-1))	XXX	-2.571611*	XXX
D(CRIM)	XXX	-1.017827**	xxx
D(GDPG)	XXX	-3.074943*	XXX
D(GDPG(-1))	XXX	-1.056272	-1.449618***
Governance	XXX	5.295141*	-1.381283**
Lag of Governance	2.337099***	3.892038*	1.886831*
D(LITR)	XXX	XXX	XXX
D(LITR(-1))	XXX	XXX	0.721955**
ECT(-1)	-0.406420***	XXX	-0.990879***
Source: Authors' computation, 2023: Note: 1%=*; 5% =**; 10%=***			

Table 14 attempts to compare the short run contributions of Government voice of accountability, Regulatory quality and Political Stability on youth unemployment in South Africa. From Table 14, inflation (CPI) impact more on youth unemployment under Regulatory quality regime than Political Stability but no impact of inflation was felt under Government voice of accountability. Again, there was a declining crime rate (CRR) with corresponding increase on youth unemployment under Regulatory quality regime with no effect felt under other regimes with respect to crime. With increase in Government voice of Accountability is decline in youth unemployment. Previous regimes for all governance are a notable increase in youth unemployment in South Africa. This could possibly predict why crime persists among youth. Literacy rate failed to significantly impact on the youth unemployment in South Africa in all regimes. It therefore implies that for all the regimes, literacy rate failed to cause variation in youth unemployment in South Africa. This occurs in the implementation of universal basic education policy by government where basic education is compulsory for all children at the primary school. In a situation where basic education became mandatory for all children is otherwise known as literacy rate, then its variation may not really has much effects on unemployment rate in any regime.

Table 15
Long run comparative results

Variables	Political Stability	Regulatory quality	Government voice of Accountability
CPI	0.111327**	XXX	0.125575*
CRIM	XXX	XXX	-1.162770***
GDPR	XXX	5.919758***	XXX
Governance	-6.069029***	XXX	-2.228316**
LITR	XXX	XXX	XXX
C	XXX	XXX	0.0739***
Source: Authors' computation, 2023: Note: 1%=*; 5% =**; 10%=***			

Table 15 compares the long-run contributions of Government voice of accountability, Regulatory quality and Political Stability on youth unemployment in South Africa. We observed from the study that for all the three regimes under investigation, literacy rate could not cause variation in youth unemployment in South Africa. There are more impacts in the inflation increase on the youth unemployment in the regime of government voice of Accountability than Political Stability regimes but with no effect in the regime of Regulatory quality. This is expected if the Political Stability brings about improvement to most performance of economic activities in South Africa. In the regime of government voice of accountability, increasing crime rate decreases youth

unemployment. Through transparent government, government policy is in favour of the youth unemployment through incentives and grants to the youth. This policy did not encourage the youth to seek for employment despite increase in crime rate in the country.

Conclusion

The study investigated Youth Unemployment and Rising Crime Rate and in South Africa: Does Governance Matter? The study's objectives are: 1) to examine the trending nexus of various categories of age-group of youth unemployment, crime rate and governance in South Africa. 2) To investigate the contribution of governance and crime on South African unemployment. Descriptive statistic forms the preliminary trend analysis; these alongside with dynamic auto regressive distributive lag (ARDL) model have been engaged to achieve the study's objectives. Governance series adopted in the model includes government voice of Accountability, Political Stability and Regulatory quality alongside age groups 45–54; 15–64, 35–44, 15–24; 25–34. These identified age group unemployment rates were allowed to interact with other macroeconomic variables in the study. We provided evidences from the study that various level of the age group were found to differently responsive to increase or decrease in unemployment and crime rate. More essentially, under age group 15–24; there was an initial improvement in the government voice of accountability from 2008–2013 and consequent decline thereafter from 2013–2018 periods under investigation. Unemployment increased significantly along this year of decline in the voice of accountability. It therefore suggests that governance remains inactive. Under the watch of government, unemployment and crime continued to rise with no voice of accountability to influence it. Under age group 35–44; It was significantly observed that voice of accountability and political stability remains constant (inefficient and inactive) with rise in crime rate and the aggregate unemployment all through the period under investigation for Figs. 4 and 5. It therefore implies that unemployment and crime rate could not be controlled by policy measures in those years under investigation. In Fig. 6, there was initial decline in crime till 2011 with persistent rise in unemployment from 2008 till 2018.

Under age group 25–34; in Fig. 7, crime declined from 2008 till 2011 and eventually increased marginally till 2018. A comparable figure is the increasing unemployment rate all through from 2008–2018. For Figs. 8 and 9, the features in crime rate follow the same pattern with Fig. 7. Lastly; for age group 15–24; crime rate and inflation continued to increase consistently all through the period of investigation. There was a significant decline in the voice of accountability for Fig. 10. There were variations in the increasing level of unemployment and crime rate. Regulatory quality and political stability remain constant without much improvement. The implication on Fig. 10, 11, and 12 is that crime continued to increase marginally relative to unemployment and crime rate all through the period under investigation.

The findings from ARDL model are reported from three separate regimes in this study.

Regime one: Political Stability- The findings indicate that in the long-run and holding other variables constant, only inflation and Political Stability indicator on the average rate significantly impact on youth unemployment. Increment in inflation would cause increment in the youth unemployment by 27 units but increment in Political Stability would decrease youth unemployment by 606 units. Again, the findings indicate that in the short-run, the main determinants of youth unemployment are inflation rate (CPI) and Political Stability in South Africa. Precisely, inflation rate increases youth unemployment on average during the short-run by about 11.1%, ceteris paribus. However, Political Stability raises youth unemployment significantly in the short-run but declines it in the long-run. The short-run vague outcome could be attributable to incompetency in the government policy which improves over time in the long-run. Consequently, Political Stability significantly causes the rate of youth unemployment to decline by 11.1 units in the long-run.

Regime two: Regulatory quality- in the short-run, inflation rate associate with about 86.5% increase on youth unemployment on average during, ceteris paribus. It simply implies that a 1% increase in inflation will cause youth unemployment to increase 86.5% in the short run. In the long-run, inflation, regulatory quality, literacy rate, crime rate failed to significantly impact on youth unemployment. This shows that youth unemployment is insensitive to variations in the explanatory variables except GDP growth rate in the long run. Whereas in the short run all explanatory variables except literacy rate could significantly impact on youth unemployment. The fact that the result revealed that inflation rate and other explanatory variables less literacy rate had a higher degree of impact on youth unemployment in the short-run than during the long-run under regulatory quality is an indication that unemployment gets better off in the short-run with the experience of liquidity trap in inflation rate and other explanatory variables less literacy rate in the country at the long run.

Regime three: Government voice of accountability- It is evidenced from the long run result that only inflation, crime rate and government voice of accountability significantly impact on youth unemployment. While inflation has positive impact on youth unemployment in the model, crime rate and government voice of accountability had inverse relationship with youth unemployment. A unit increase in inflation would cause youth unemployment to increase by 12.5 units. Whereas, a unit increase in crime rate and government voice of accountability would decrease youth unemployment by 1.16 and 2.22 respectively. In the short-run, only crime rate, lag of GDP growth rate, lag of government voice of accountability and lag of literacy rate significantly impact on youth unemployment. It was noticed from the result that while crime rate and lag of GDP growth rate exhibited inverse relationships, lag of government voice of accountability and lag of literacy rate have direct relationship with youth unemployment.

It is recommended that results peculiar to each regime; namely, regime of government voice of accountability, regime of regulatory quality and regime of Political Stability should be translated into policy document not only in inflation targeting but the control for youth unemployment and crime rate in South Africa.

Declarations

Ethics declarations:

Ethics approval and consent to participate: Not Applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare that there are no competing interests on this article.

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Figures

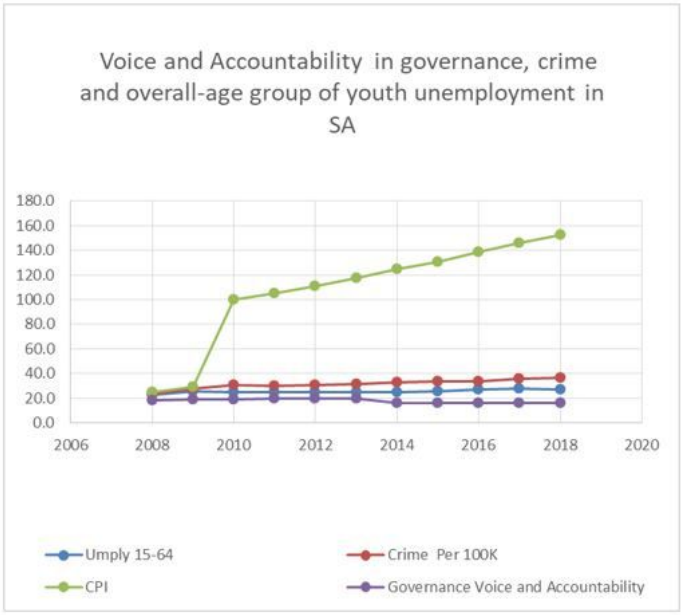

Figure 1

showing crime and voice of accountability

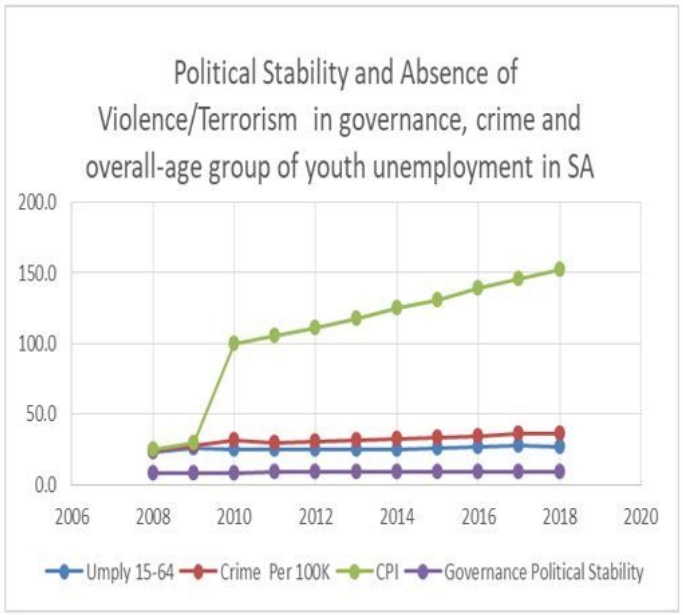

Figure 2

showing crime and political stability

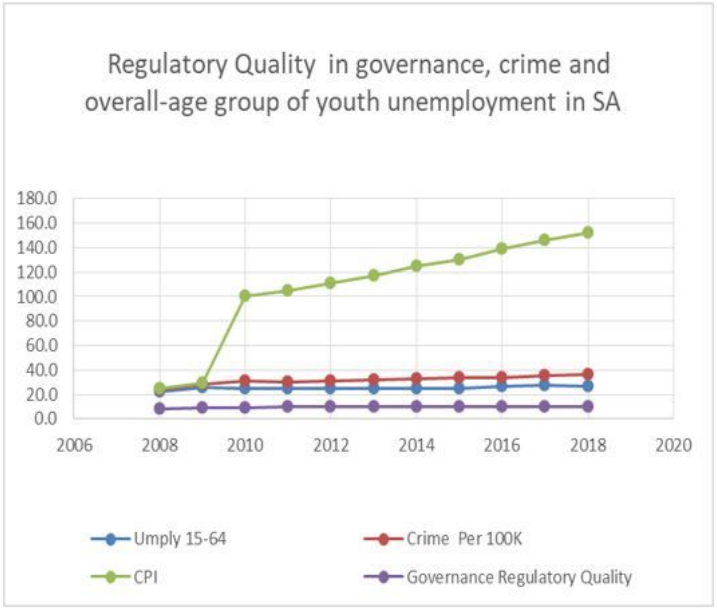

Figure 3

crime and regulatory quality

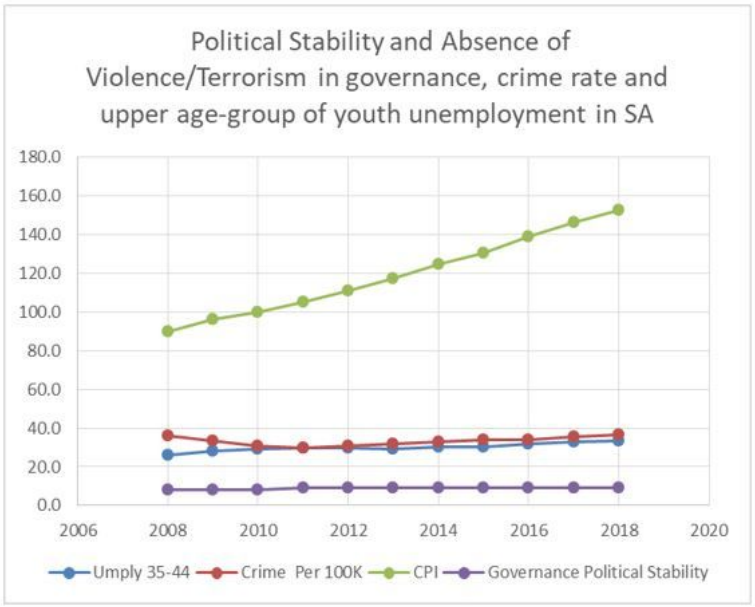

Figure 4

showing crime and voice of accountability

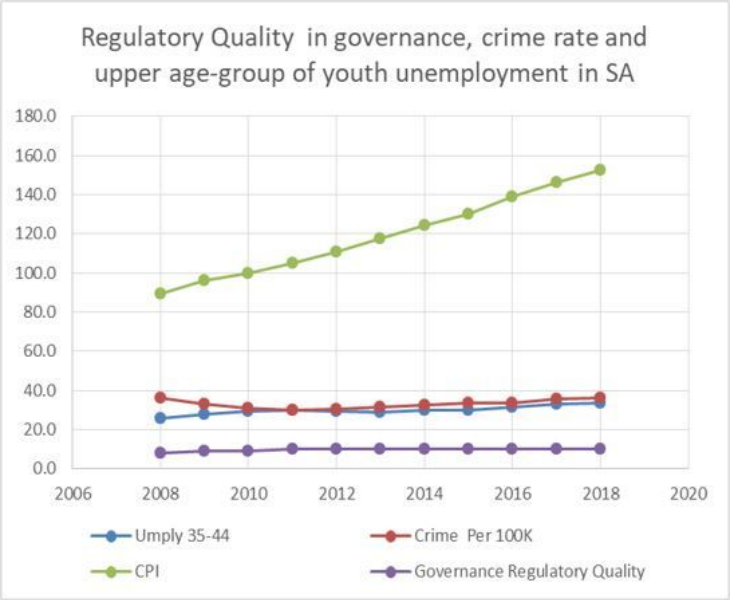

Figure 5

showing crime and political stability

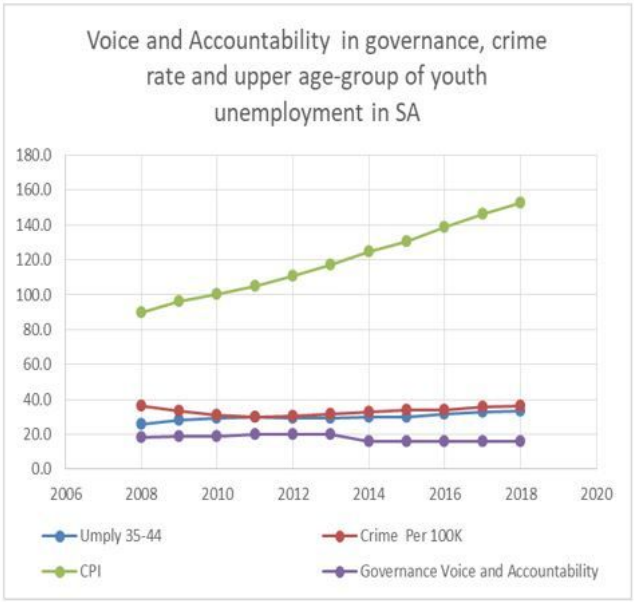

Figure 6

crime and regulatory quality

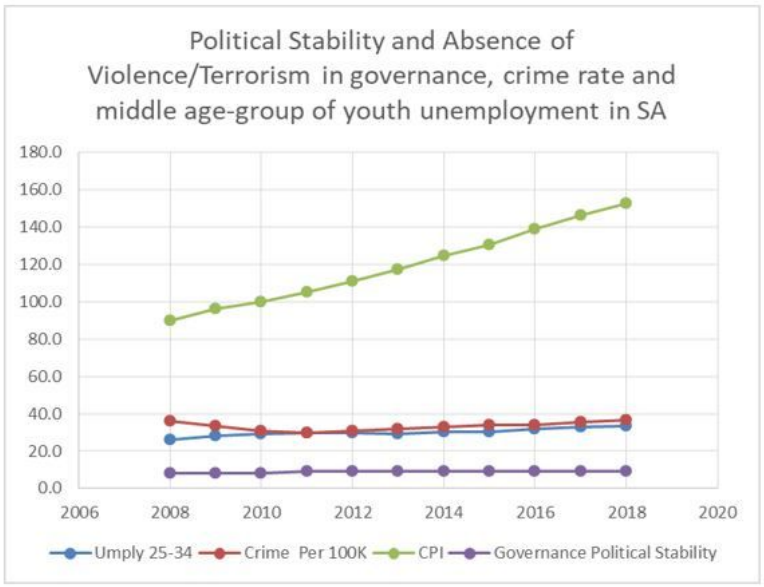

Figure 7

showing crime and voice of accountability

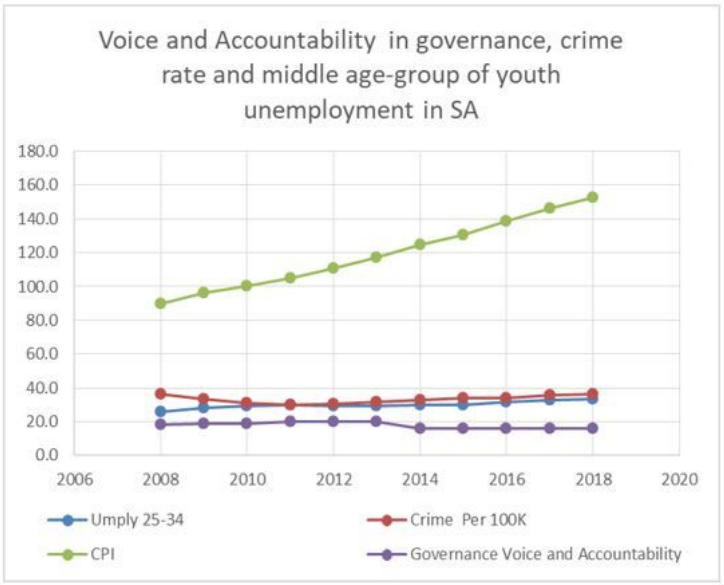

Figure 8

showing crime and political stability

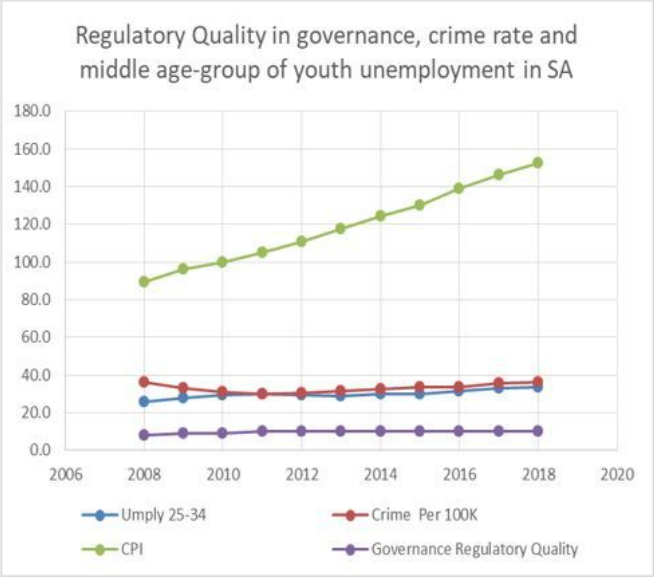

Figure 9

crime and regulatory quality

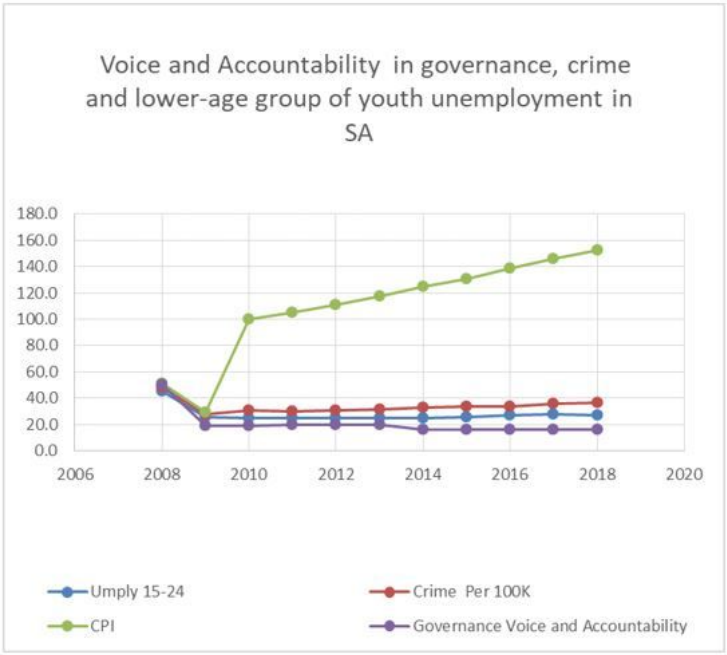

Figure 10

showing crime and voice of accountability

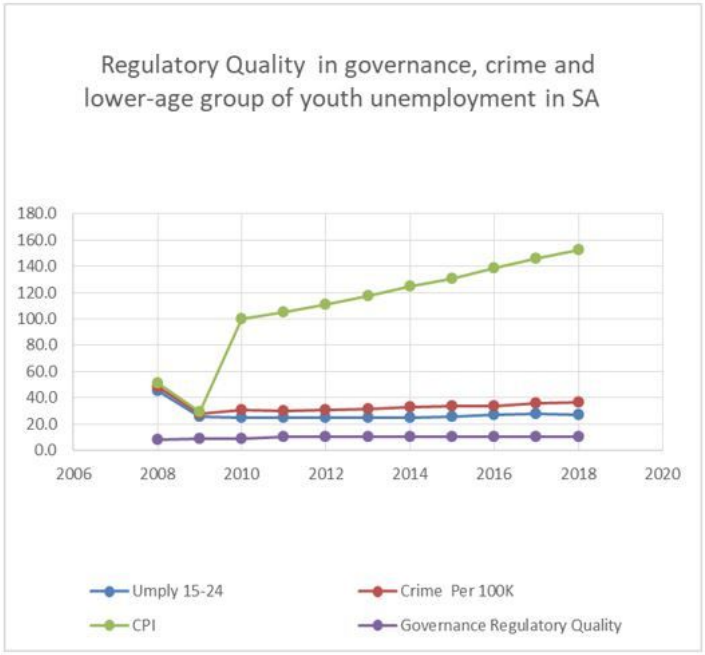

Figure 11

showing crime and regulatory quality

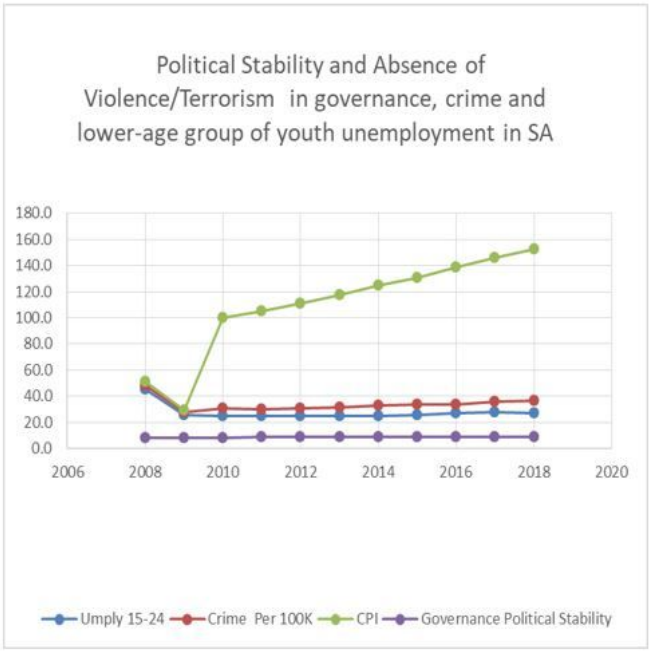

Figure 12

crime and political stability

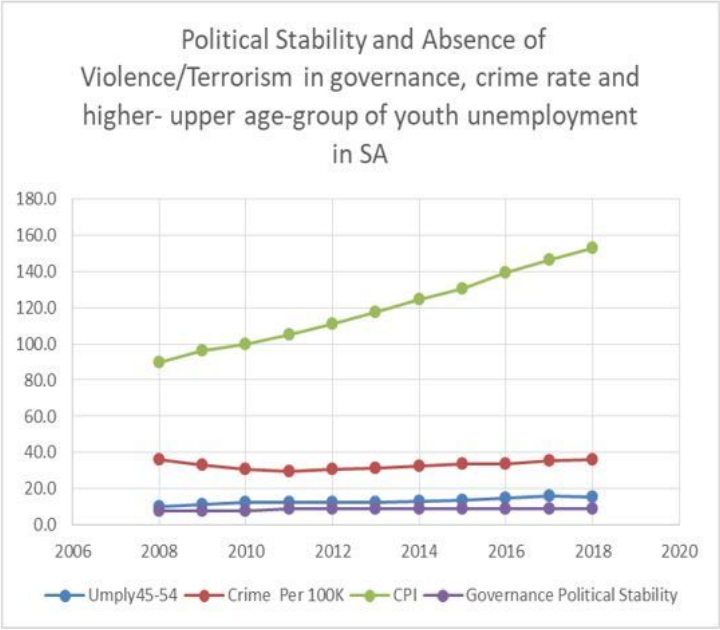

Figure 13

showing crime and political stability

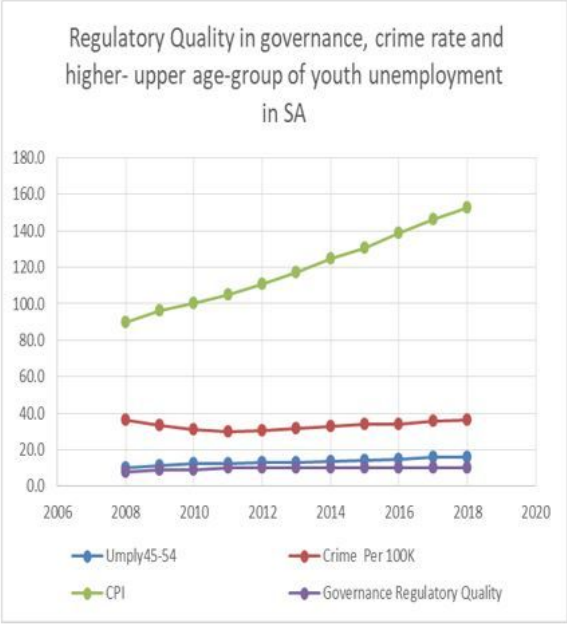

Figure 14

showing crime and regulatory quality

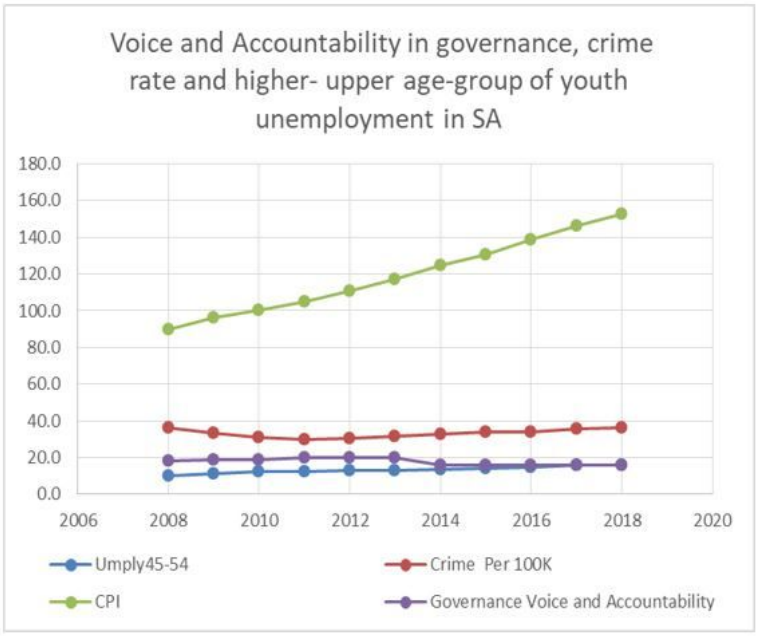

Figure 15

crime and voice of accountability