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Article

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The Effect of Institutional Quality and Capital Market on Unemployment in selected sub-Saharan African Economies

Patrick Omoruyi Eke , Olamilekan Shamsideen Busari 

ABSTRACT

This study tests institutional quality and the growth-finance' four-contexts hypotheses by investigating the nexus between institutional quality and capital market relative to labour market growth in seven selected sub-Saharan Africa's capital market economies comprising Nigeria, South-Africa, Mauritius, Kenya, Ghana, Cote d'Ivoire and Zimbabwe. Overtime, the dearth of long-term capital and high unemployment have been inimical to well-being of these economies. Perhaps, given the weakness of the market-mechanism in efficient resource allocation in developing economies, the neo-classists theorized integrated institutional-quality into market reforms and freedom for capacity as probable antidote to market economic philosophy. The study applied pooled mean group and generalized method of moment techniques to data obtained from the World Bank Indicators from 1990 to 2020. It establishes that capital market, proxied by market capitalization induces employment generation while quality of institution exacerbates unemployment. The interaction between institutional quality and market capitalization however significantly reduces unemployment, which suggests that quality institution may be helpful impact to unemployment reduction. The study thus affirms institutional quality hypothesis and finance led growth theory. The paper recommends market freedom, Governments and Securities and Exchange Commissions should deeply liberalize the capital markets for higher citizens' inclusion towards industrial funding and high-quality job creation; listing requirement should be eased; capital trade-points established in semi-urban centers for market deepening and liquidity

KEY WORDS: capital market, institutional quality, unemployment.

JEL Classification: G12, K20, J64.

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1. Introduction

The provision of production incentives and perfect institutions may re-define outputs of resource mobilization and allocation, risk-taking, higher productivity and optimal growth in any struggling economy. Overtime, in sub-Saharan Africa, a critical factor militating against entrepreneurship and business expansion is access to long-term capital. The capital market has remained a struggling arm

of the region's development instrument, perhaps due to low quality institutions, i.e., unfriendly business policies and discouraging regulatory authorities, while access to loans, through the dominant banking system, often is at very high cost, particularly for the small enterprises. The banking finance of the economies' real sector has institutionalized frictional financial system, that exacerbates high production cost, and hence inflationary economies. Thus, sub-Saharan economies' state of high unem-

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ployment largely reveals productivity, income and growth gaps (BusinessDay, 2023; Dornbusch et al. 2011), which may have underlie the increasing rate of insecurity concerns to governments, investors and citizens. The low-quality engagement and rising unemployment rate may however, be managed down or aggravated by the quality of her institutions.

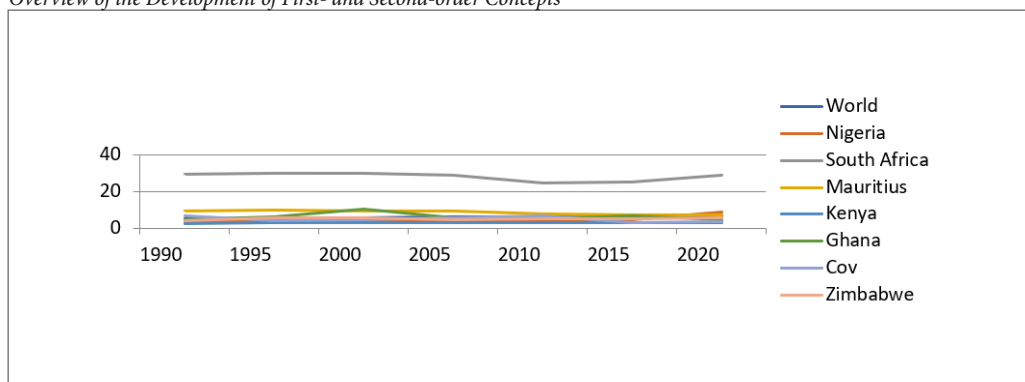
The ills of Africa's economy that have limited her required growth rate, and hence frustrated her not advancing to zenith of standard human potentials, despite huge resources have often been categorized in order of deficient institutions, infrastructures and finance (WEF, 2020). Broadly, institutional quality is the legitimate rules and guidelines that determine the successes of human activities through time (North, 1990). Furthermore, North's institution dictum, perhaps the bane of Africa's progress, are the humanity system, that is, organization, conduct, behavior and discipline. The main role of institutions in the society is to organize the people for economic activities. However, lack of quality institutions may frustrate any good intention. Okonjo-Iweala (2018) identifies inefficient and non-transparent institutions as the principal barrier to Nigeria's progress and perhaps entire African economies. Other ills identified are offshoot of weak institution, that is, corruption, inappropriate policies, state capture by leaders, rent-seeking elites, and persistence of low-quality jobs.

In the context of stock market operations and its economics, the quality of institutions may matter at firm, country and across country levels. Moreover, it may not be sufficient to adduce to labour market rigidities the continuous rise in unemployment in contemporary economies (Fehn and Fuchs, 2003). Overall, institutions thus matter, because they can keep economies from reaching their growth potentials.

In the capital market, listed small, medium and large firms are opportuned to access huge and long-tenured financial capital that may achieve cheaper and enduring project funding, that is not hurtful to inflation and also promote high quality employment generation. In terms of financial structure, banks provide primary but non-endurance funds, while the capital market is reliable for patient, forbearing and enduring financing. The inability of firms to engage in economic activity that is developmental and of viable multiplier impact to human capital and mechanical to the economic system may be related to lack of access to cheaper long-term funding via the capital market (Dudley and Hubbard, 2004). Understandably in African countries, the banking sub-sector that dominates the financial system, but, perhaps due to higher risk factors, reluctant to lend to the manufacturing and small and medium enterprises (SMES), should give the capital market the natural option. However, the capital market in many sub-Sahara economies have

Figure 1

Overview of the Development of First- and Second-order Concepts



Source: WDI databank (2024)

institutional related credibility question. Moreover, the markets are not deep, less breadth to absorb large demand for capital. Paradoxically, many real Africa's industrial concerns would rather opt for bank finance for expansion instead of the relatively cheaper capital market financing.

Figure 1 presents trend in world development indicators' (WDI) unemployment rates from 1990 to 2022 in selected sub-Sahara African economies, relative to global average of 5.8%. The average rate for South Africa's appears higher at 30%, while other selected economies moderated below 10%. Similarly, the Nigeria's unemployment rate is on rapid increase from 4.3% in 2015 to 9.01% in 2020, and as at December, 2020, report show that one of every three Nigerian (33.3%) was unemployed; youth unemployment was 42.2% (NBS, 2020).

1.1. Gap in Literature & Contribution to Knowledge

The position of literature to achieving and maintaining sustainable equilibrium resource employment and growth is still unsettled (Hoff & Stiglitz, 2000; Mareš & Sirovátka, 2005; Khraief et al. 2020). Integrated institutional framework seems to be downplayed in traditional theories of unemployment. However, of recent, the neo-classists provide a counter-argument against the neo-Keynesians' market failure argument, in favour of institutions and organizational change as the panacea to achieving optimal resource allocation, optimal growth and full-employment (Hoff and Stiglitz, 2000). The notion of freedom for capacity, lesser government hamstringing, and moderate regulations could raise the expected mobilization, allocation, and management of industrial finance via the capital market to promote national entrepreneurship and qualitative employment (Sen, 1999; Landmann, 2004; Olsson, 2012). The philosophy of capital market in developing economies may have full meaning when governance system embraces financial conservatism and promote classical liberalism.

Given the diverse consequences of unemployment in developing economies, this paper extends the knowledge of unemployment by the integration of institutional qualities in capital market mechanisms, unfitted freedom and capitalism. The

promotion of freedom for capacity and market system for resource allocation and management are required by private enterprises, which may release ingenuity and resourcefulness for creativity and entrepreneurship.

This paper thus investigates how institutions and the capital market may induce employment generation in the selected sub-Sahara African economies. Thus, the hypotheses tested are that the capital market may not significantly impact unemployment reduction; secondly, institutional quality does not significantly impact unemployment reduction. Thirdly, the interaction of capital market and quality institutions may not significantly reduce unemployment. The study adds value to the linkages in institutions-finance-employment generation literature in the selected sub-Sahara Africa. With the aid of Pesaran's pooled mean group (PMG) and generalized method of moment (GMM) techniques, the findings reveal mixed outcomes. Market capitalization significantly induces unemployment reduction, while institutional quality and energy consumption exacerbate unemployment. However, the Wald test result reveals that the study of the interaction of market capitalization and institutional quality significantly induces employment generation in the economies. However, the finding of this study is limited to the selected seven (7) capital market economies sampled out of 37 African countries operating capital market activities as at 2024.

Subsequently, the paper is sectionalized, firstly, the review of literature; next, theoretical background and methodology; next, results and discussion, and finally summary, conclusion and recommendations.

2. Literature Review

2.1. Theoretical Background

The underlying labour market theoretical literature are crystalized in the works of classical macroeconomists, Keynesians, Monetarists, neo-classicals, neo-Keynesians and institutional economists. The classical system fundamentally assumes that full employment is attainable by the existence of perfect competition, the operation of Say's law and the quantity theory (Familoni, 1989).

The Keynesian theory of unemployment is applicable in a state of disequilibrium, that is, in a state of economic depression, characterized by ineffective demand, the economy's actual output reduces below full employment potential by automatic adjustment or competitiveness to equilibrium. The Keynesian school's criticism of the classists remains that even if the economy is in equilibrium, there would be element of under-full employment, as equilibrium level of output may not guarantee or correspond to full employment.

In contemporary time, equilibrium level of output may produce employment gap. The Keyne's revolution links potential employment with investment and output growth, particularly public investment, since there could be existence of liquidity trap that could forestall fall in interest rate. To Friedman's monetarist school, the monetary theory of employment is based on the quantity of money equation. That is, an economy's output growth, employment and prices are mechanically linked to the management of money supply. Finally, to the neo-classical, expectations may better explain the behavior of the economy's investment, savings, resource employment and consumption patterns.

Institutional quality framework to resource employment is derived from North (1990), Acemoglu et al. (2005), and other institutional economists. Under this theory, choices made by entrepreneurs are not impeded by political authorities, contracts are well implemented, property right are sheltered and economic actors enjoy political freedom for optimal entrepreneurship. Market system, through strong institutions may enhance efficient productivity. However, the response of respective market institutions may differ depending on which financing model being operated, given the four hypotheses of the conventional neoclassical supply-leading; demand following; the bi-directional relations argument; and no-relationship argument (Acaravci et al., 2009; Todaro & Smith, 2011; Eke, 2017). Lately, several literatures have expanded the concept of institution. In summary, the main purpose of institution in the socio-economic development process is to establish discipline in human relations, productivity, marketing and potential risk, as lack of order may heighten

transaction and production costs.

Given this perspective, the quality of institution is likely to affect financial inclusion, productivity and output. Through the activities of institutions in the capital market, mobilizing and channeling financial resources to productive industrial and economic activities that would employ more human labor may be realized. Moreover, an efficient and effective capital market is built on existence of strong institutions that must take information management seriously (Olokoyo, 2013), because the success of long-term savings, creation of liquidity, risk diversification, rapid information dissemination, guaranteed fair-dealing among market participants and the effectiveness of delivering these functions that should end at higher economic growth and development. The processes require quality and sound institutions either as regulators or as operators (Uruakpa, 2019; Dudley & Hubbard, 2004).

In a related study Edison (2003) found significant linkage between quality of institutions (irrespective of the basis of institutional quality measurement, whether by broad-based or specific criteria) and economic performance (measured by income per capita). Therefore, it may be concluded that the economic performance of employment generation through the African Stock Market could be substantially advanced by improving the quality of her institutions.

Solow-Swan neoclassical growth model is highlighted by three factors, namely labour, technological change, and capital required for the progress of an economy (Solow, 1956; Swan, 1956). The growth theory was further improved by Mankiw et al. (1992) with the inclusion of accumulation of human capital. Also, they asserted that institutions are an important driving force for sustainable development and one of which is institutional quality, which has taken center stage in the midst of other determinants. Solow-Swan model which says output is a function of labor and capital, also considers technology, as the level of technology both positively and negatively affect output, and thus, has effect on the level of unemployment.

Keynes theory on unemployment also assumes that labour is of the neoclassical supply function.

He asserted on the relationship between aggregate demand and employment. He suggested that an increase in national output level and consumption could reduce unemployment. The aggregate demand is a function of investment and savings activities which are the activities in the capital market, whose success factor requires existence of quality institutional framework, formation, and regulation.

2.2. Empirical Review

Contemporary literatures abound on the nexus between the capital market and unemployment both within economies and across economies. Given the increasing prominence of South Africa's capital market, Nyasha et al. (2021) studied the relationship between South Africa's capital market and unemployment for the period 1980 to 2019. This paper employed autoregressive distributive-lag technique to discover that the capital market is a strong mechanics to reducing unemployment.

In 2018, Pan studied stock market and unemployment in 30 economies using monthly data October 2001 to January 2017, the paper established co-integration among the variables. Moreover, granger causality test that stock prices granger causes unemployment in all group counties. Significantly, one-way causal direction was found from stock prices to unemployment in G7 countries, while strong bilateral causal relationship between stock prices and unemployment existed in other advanced countries

The nature of interaction between the labour and financial markets and its impact on unemployment were examined among eighteen OECD economies from 1980 to 2004. The outcome revealed that financial variables are significant and positively related to the labour market (Rault & Gatti, 2010). If labour market regulation, union density, and pay bargaining coordination are low, improved market capitalization combined with less banking concentration for fund mobilisation reduces unemployment. It implies that banking finance has no other impact. When the market for labour is poorly managed and in disequilibrium, increased intermediated credit finance may raise unemployment; otherwise, it lowers

unemployment. These findings reveal that the relative benefits of bank-based and market-based finance are inextricably linked to the level of labour regulation.

In Nigeria, the relationship between capital market and unemployment was examined by Ilo (2015) from 1986 to 2012. To the study, capital market development does not reduce unemployment. It suggests that while the capital market was improving there was increasing trend of unavailability of employment generating investments. In a similar study, Oloni (2013) examined the relationship between economic growth and employment generation in Nigeria from 1990 to 2010 using the vector error correction (VEC). The paper discovered favorable nexus between employment and growth, which may suggest that growth drives employment.

There is increasing growth in research interest on the nexus between the institutional quality and unemployment both within economies and across economies. Demeke (2022) examined the youth unemployment on political instability in Intergovernmental Authority on Development (IGAD) in an eight-country trade bloc in Africa comprising Djibouti, Ethiopia, Kenya, Somalia, Eritrea, Sudan, South-Sudan and Uganda. On the hills that youth unemployment constitutes the highest political instability across the world and specifically IGAD region. The paper therefore suggests sound youth employment policies for many purposes including internal stability in member countries.

Khraief et al. (2020) examined the dynamics of unemployment rate in 29 OECD counties from 1980 to 2013. The paper subjected unemployment data to linearity test, unit root test, thereon and applied ESTAR non-linear unit root. The empirical findings reveals that there is a strong evidence of unemployment rate stationarity among 25 OECD countries. Furthermore, the study adopted unit root test with or without structural breaks for robustness purpose to affirm their findings.

Hartwell and Malinowska (2018) examined firm level and institutional determinant of capital structure at Warsaw Stock exchange in Poland. The paper tested two key capital structure theories,

that is, the tradeoff and the pecking order theory between 2007 and 2015 the non-financial company quoted on Warsaw Stock Exchange between 2007 and 2015. The paper found out that Polish firms favored short-term finance over long-term external funding while using trade credit over bank loans in their capital structure.

Accordingly, Yartey (2008) found that an increase in property rights increase investor confidence. According to the study, productivity, institutional efficiency, and institutional architecture all have an impact on a nation's stock market success. The gross domestic product (GDP) rises when institutional quality improves, suggesting more money available for investment. Stock markets in nations with high institutional quality are more liquid.

Mareš and Sirovátka (2005) examined the impact of long-term unemployment on labour marginalization and deprivation in Czech Republic. The paper analyzed the extent of labour force marginalization and deprivation including the economic cost and consequence; unemployment issues is entrenched structurally in the structural defects of the local labour market because the increase in unemployment is in-built in inherent structural factor both on floating side. The paper supports the hypothesis that involuntary unemployment is a serious issue in Czech Republic. The findings suggest that welfare benefits are occasionally voluntarily accepted as an alternative to low and transitory earnings due to the seeming security that it offered the unemployed in Czech Republic.

2.3. Theoretical Framework

In macroeconomics theory, the labor market is linked to the product and financial market which could strengthen the capital market sub-sector and employment growth (Ilo, 2015). However, this study recognizes the state of technology progress and the role of institution in the linkage between the three markets, that is, the labour market, capital market and product market. This study adapts the neo-classical labour market framework (Olsson, 2012; Chandra, 2022). In market driven economies, labour market is assumed to operate under perfect competition based on availability of information.

Workers are hired based on the equality of marginal productivity of labour to the market wage rate, and this conclusion is arrived at based on the following profit function:

$$\Pi_t^i = (K_t^i)^\alpha (A_t L_t^i)^{1-\alpha} - w_t L_t^i - r_t K_t^i \quad (1)$$

Equation (1) represents the profit function for the capital market listed firm, where K_t^i is the physical capital held by firm i at time t , L_t^i is the labour employed by firm i , A_t is the available non-rival technology in the industry and r_t is the interest rate on capital. Applying the first order condition on equation (1), an indication of marginal productivity of labour function ($\frac{\partial \Pi_t^i}{\partial L_t^i}$), we have the firm i 's demand for labour function as follows:

$$L_t^{i,D} = K_t^i \left(\frac{(1-\alpha)A_t K_t^{i-\alpha}}{w_t} \right)^{\frac{1}{\alpha}} \quad (2)$$

Expectedly, labour demand will increase with positive shocks from firm i 's state of technological, A_t and stock of capital K_t^i . Therefore, since the neoclassicals belief that profit maximizing firm at equilibrium equate factor prices to their marginal physical product and marginal revenue product, the marginal productivity equations for labour and capital will respectively be as equation (3) and (4) respectively:

$$w = \frac{W}{P} = \frac{d\pi}{dL} = F(k) - k \frac{d}{dk} F(k) \quad (3)$$

$$p = \frac{dy}{dK} = \frac{d}{dk} F(k) \quad (4)$$

Given the labour- capital ratio, the real wage rate (w) should equal the marginal productivity of labour, while the price of capital(p) equates the marginal physical product of capital. In essence, capital market sourcing of finance should be the medium to optimal labour and capital productivity.

3. Data and Methodology

3.1. Sample Explanation and Data

The population of the study is obtained from forty-six (46) sovereign countries located in sub-Saharan Africa. The sampled population are economies that operates

Stock Exchanges. There are thirty-seven (37) countries with established capital market in Africa. However, only twenty-five (25) Stock Exchanges currently operates. The study sampled seven (7) economies, comprising: Nigeria, Kenya, Zimbabwe, Ghana, Mauritius, South Africa and Cote d'Ivoire, been the highest capitalized stock markets in sub-Sahara Africa. The types, source and description of the variables employed are contained in Table 1, while their operationalization is presented in

Table 2. The data employed for the study spanned 1990 to 2020.

3.2. Model Specification

The theory of unemployment reveals that in a competitive market economy, factors that may drive unemployment reduction are output, capital and technology (Dudley & Hubbard, 2004). This paper intuitively hypothesizes that institutional quality may be a potent

Table 1
Data Description and Source

Variable description	Type & Source	Literature justification
lumt: Unemployment	World Development Indicators	Ilo (2015); Todaro & Smith (2014); Ackley (1978)
lcmkt: Capital market	World Development Indicators, proxied by market capitalization	Dudley and Hubbard (2004)
Iqt: Institutional quality	Worldwide Governance Indicators (WGI) (2018): www.govindicators.org . Iqt is simple average of four variables: Regulatory quality, rule of law, government effectiveness, & control of corruption, obtained from WGI's web site	North (1990); Acemoglu, et al. (2005).
lepc: Energy consumption	World Development Indicators: Energy consumption per capita	Eke et al. (2020)
lgdp: Gross domestic product	World Development Indicators - a control variable	Todaro & Smith (2014)

Source: authors' compilation (2024). Variables are natural log values, except Iqt.

Table 2
Variable Operationalization

S/N	Variable Employed	How it is operationalized
i.	lumt: Unemployment	Dependent variable: total labour force able and searching for work
ii.	lcmkt: Capital market	Explanatory variable: proxied by Market capitalization, that is, total value of capital market instruments issued
iii.	Iqt: Institutional quality	Explanatory variable: integration of four (4) indices being proxy for the six (6) governance indices (WGI, 2020): regulatory quality; rule of law; government effectiveness; control of corruption; voice and accountability; Political stability.
iv.	lepc: Energy consumption	Control variable: proxied by Energy consumption per capita
v.	lgdp: Gross domestic product	Control variable

factor in the economics of unemployment via the capital market. In implicit form, the relationship between institutional quality, the financial market, the labour, and product market in semi-log form is stated as follows:

$$lunt_{i,t} = f(lcmkt_{i,t}, Iqt_{i,t}, lepc_{i,t}, lgdp_{i,t}) \quad (5)$$

Where: *lunt* is unemployment; *lcmrt* is capital market, proxied by market capitalization; *Iqt* is institutional quality; *lepc* is energy consumption per capita proxies state of technology in the economy, and *lgdp* is the product market. The explicit dynamic form of the model is:

$$lunt_{i,t} = \beta_1 lcmkt_{i,t} + \beta_2 Iqt_{i,t} + \beta_3 lepc_{i,t} + \beta_4 lgdp_{i,t} + u_{i,t} \quad (6)$$

The signs underneath represent the variables' a-priori expectations. $u_{i,t}$ is the disturbances term.

3.3. Econometric Techniques

Following the outcome of mixed stationarity, the study opts for panel autoregressive distributed-lag technique and generalized method of moment (GMM). The theoretical underpinning of both techniques is a relationship process in which time and the endogenous variables play central role. Fergusson and Lim (2003) reveals that issues and problems arise when dynamic models are used, that could be crucial to correct interpretation of results.

3.3.1. Dynamic ARDL Model

The basic dynamic build-up to ARDL modelling may perhaps be the familiar multivariate ARIMA (Box and Jenkins, 1976) and Partial adjustment (PA) (Nerlove, 1958) models which recognises and attempt corrections of non-stationarity variables, and that, there is an underlying long-run relationship towards which any system tends respectively. While ARIMA provide short-run solutions, ARDL has the ECM embedded for long-run solutions. While the properties of AR(p) and MA(q) (autoregressive and moving-average respectively) are well presented literatures, the simple ARMA (1,1) structural process for hypothetical *Y* variable may take the form:

$$Y_t = \phi_1 Y_{t-1} + \phi_2 Y_{t-2} + \dots + \phi_p Y_{t-p} + u_t + \gamma_1 u_{t-1} + \gamma_2 u_{t-2} + \dots + \gamma_q u_{t-q} \quad (7)$$

Applying the lag-operator, Asteriou and Hall (2011) adapted, we have:

$$Y_t(1 - \phi_1 L - \phi_2 L^2 - \dots - \phi_p L^p) = (1 + \gamma_1 L + \gamma_2 L^2 + \dots + \gamma_q L^q) u_t \quad (8)$$

$$\Phi(L)Y_t = \Theta(L)u_t$$

Specifically, where Y_t takes the ARMA (1,1) process and ψ is constant term, it is presented as:

$$Y_t = \psi + \phi_1 Y_{t-1} + \gamma_0 u_t + \gamma_1 u_{t-1} \quad (9)$$

Since the study is of dynamic behaviour of economic relationship, a model for such is here specified (Baltagi, 2009):

$$Y_{it} = \delta Y_{i,t-1} + X'_{it} \beta + \mu_i + v_{i,t}, \quad i = 1, \dots, N, \quad t = 1, \dots, T \quad (10)$$

The standard form of Pesaran's panel ARDL (p,q) version is further presented as follows:

$$\lambda(L)Y_{it} = \alpha_i + \beta(L)X_{it} + u_{it} \quad (11)$$

Where L is the polynomial distributed lag for variable x and y , u_{it} is the error term. A generalized panel data framework of the following form is adopted:

$$y_{it} = w_{it} \delta + X'_{it} \beta + u_{it}; \quad i = 1, \dots, n; \quad t = 1, \dots, T; \quad u_{it} = \mu_i + v_{it} \quad (12)$$

Where w_{it} is a vector of predetermined variables, which includes y .

3.3.2. GMM Estimator

It is critical to test for autocorrelation in dynamic models, that contain lagged dependent variables, hence an appropriate framework is developed. The instrumental variable (IV) method is applied as solution to the likely bias of the exogenous variables in the first-order auto-regressive process. Given that the dynamic model presented in equation (10) overtime may be weakened by autocorrelation among explanatory variables, and interaction effects from possible heterogeneity among the economies, Arellano and Bond (1991) differencing estimator as possible solution is proposed. By differencing equation (10) to eliminate effects of any time-invariant regressors, equation (13) is obtained

$$Y_{it} - Y_{i,t-1} = \delta(Y_{i,t-1} - Y_{i,t-2}) + (X'_{it} - X'_{i,t-1})\beta + (V_{it} - V_{i,t-1}) \quad (13)$$

It is noted that $(V_{it} - V_{i,t-1})$ conforms to MA (1) with unit root. Arellano and Bond (1991) further propose a test for hypothesis that no second-order serial correlation for the remainder disturbances of the differenced equation, with the assumption that:

$$E(\Delta V_{it} \Delta V_{i,t-2}) = 0 \tag{14}$$

3.3.3. VAR Order and Unit Root Framework

The standard VAR order selection system is applied for the maximum number of order(s) in the model using criteria of final predictive error (FPE), Akaike information (AIC), Schwarz information (SI), Hannan-Quinn (HQ), and, sequential modified LR.

An ample of panel unit-root test frameworks exist, which extend from the contemporary ADF and DF univariate frameworks. The Levin-Lin-Chu (LLC) (2002) version (Asteriou & Hall, 2011) is of the form:

$$\Delta Y_{i,t} = \alpha_i + \rho Y_{i,t-1} + \sum_{k=1}^n \theta_k \Delta Y_{i,t-k} + \delta_i t + \varepsilon_i + u_{i,t} \tag{15}$$

Where: α_i and ε_i represent unit-specific fixed effects and unit-specific time effects respectively.

Where cross-sectional dependency is assumed, a cross-sectional error dependency version (Pesaran, 2015) is of the form:

$$\Delta Y_{i,t} = -\mu_i \phi_i + \phi_i Y_{i,t-k} + u_{i,t} \tag{16}$$

Where: $u_{it} = \gamma_i' f_i + \xi_{it}$, f_i is an $m \times 1$ vector of serially uncorrelated unobserved common factors. Furthermore, due to the assumption of homogeneity of ρ coefficient across the units in LLC version, the Im, Pesaran and Shin (IPS) version improves the framework by ρ_i for each unit (i) as follows:

$$\Delta Y_{i,t} = \alpha_i + \rho_i Y_{i,t-1} + \sum_{k=1}^n \theta_{ik} \Delta Y_{i,t-k} + \delta_i t + u_{i,t} \tag{17}$$

3.3.4. Cointegration Framework

Where two or more variables are individually integrated or of random-walk components, there exist stationarity in their combination, they are said to be cointegrated. Pedroni (2000) present a specification under assumption of high incidence of heterogeneity and trend among cross-sectional unit errors:

$$Y_{i,t} = \phi_i + \phi_j + \sum_{m=1}^M \beta_{im} X_{m,t} + \varepsilon_{i,t}, \quad m=1, 2, \dots, M \tag{18}$$

M stands for multiple, across different regressors in the panel.

4. Results and Discussion of Findings

4.1. Results

4.1.1. Descriptive Statistics

The highlights of the variables' statistics are presented in Table 3. The maximum rate of unemployment among the seven economies occurred in South Africa with 33% in 2002, while the lowest rate occurred in Kenya with 1.25% in 2019. The maximum value of market capitalization of \$374m (US dollar) occurred in South Africa in 2017 while the minimum value occurred in Cote d'Ivoire in 1994 with \$11.5m. The maximum index of institutional quality occurred in Ghana in 1996 with 0.8 and minimum index in Zimbabwe with -2.16 in 2009. The highest value of energy consumption (kg of oil) per capita occurred in South Africa with 4,587 in 2008 while the lowest value of 269.15 occurred in Ghana in 2008. The country with the highest GDP was Nigeria with \$5.5 trillion in 2014 and lowest occurred in Mauritius with \$1.04 trillion in 1984. The highest standard deviation (volatility) in the series is in energy consumption per capita of South Africa, which implies that the country has the highest energy variability.

4.1.2. Correlation Analysis

Correlation analysis expresses preliminary test of variables' association. In Table 4, the correlation between the labor market (represented by unemployment rate (lumt)) and the capital market (proxied by market capitalization (lcmkt)) is negative while, there exist positive association between labour market and institutional quality (Iqt). Energy consumption per capita (lepc) and gross national product (lgdp) are also positively associated. The result suggests that energy per capita may be associated with growth of national output (lgdp). The mixed association between these variables (lcmkt, Iqt, lgdp) and labour market (lumt) is justified in Keynes (1936) general equilibrium theory that different market failures could affect the labour market equilibrium. The positive association between the capital market and employment suggests that

Table 3
Descriptive Statistics

	lumt	lcmkt	lqt	lepc	lgdp
Maximum.	33.29	3.74E+17	0.8587	4587.02	5.47E+11
Minimum	1.2546	1152430.	-2.1684	269.15	1.04E+09
Std. Dev.	8.3194	2.45E+16	0.7059	800.38	1.22E+11
Skewness	0.6609	15.0800	-0.7703	1.5914	1.9693
Kurtosis	1.9917	230.061	3.1326	4.5675	5.9015
J.B.	27.178	515917.0	23.514	123.78	235.33
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000
Obser.	236	236	236	236	236

whenever the market experience a boom more labour resources would be employed.

Energy consumption per capita (lepc) and institutional quality (lqt) are positively associated with unemployment (lumt) which suggests that both variables may drive increased rate of unemployment. While poor energy mix and its shortage have been the bane of many African economies, the quality of institutions have also remained negative indices in the World Bank's world governance statistics from inception in 1996. Akor (2022) in his summary of institutional quality in Nigeria notes that, virtually every institution in Nigeria acts contrary to its purpose, since evidence abound of how governments at all level work against their primary responsibilities of law and order, peace and security. Similarly, GDP, a control variable also presents positive association with unemployment (lumt), which suggests that economic growth may not be backed by growth in labour resource employment in the economies.

4.1.3. Var Lag-order and Unit Root Analysis

Four (4) lag-order statistics selected maximum one (1) lag order, that is, the final predictive error (FPE), Akaike information (AIC), Schwarz information (SC), Hannan-Quinn (HQ), while sequential modified LR suggested two (2). The study however applied one lag-order.

Table 5 reveals the result of the unit root test. While unemployment (lumt) is stationary at level the other four variables: lcmkt, lqt, lepc, lgdp are stationary at first difference. The outcome of the unit root test suggests that panel autoregressive distributed lag (PARDL) technique and GMM may produce better outputs (Granger and Newbold, 1987).

4.2. Post-estimation Diagnostic Test

4.2.1. Ramsey RESET Test

The result of the test presented in Table 6 suggests absence of specification error, at significant level of

Table 4
Correlation Matrix

Variables	Lumt	Lcmkt	lqt	lepc	lgdp
lumt	1.000				
lcmkt	-0.011	1.000			
lqt	0.446	0.167	1.000		
lepc	0.436	0.165	0.399	1.000	
lgdp	0.089	0.117	-0.236	0.556	1.000

Table 5
Test for Stationarity

Variables.	Common unit root assumed		Common unit root process assumed		
	LLC test	IPS test	ADF-FCs	PP	Integ.
Lumt	-3.402*	-3.425*	43.281*	21.643**	I(0)
Lmcp	-3.164*	-5.785*	65.820*	340.14*	I(1)
Iqt	-8.447*	-8.626*	85.910*	595.28*	I(1)
Lepc	-3.644*	-7.519*	74.721*	251.06*	I(1)
Lgdp	-5.623*	-5.507*	51.010*	71.858*	I(1)

Source: authors' computation (2024). Integ. stands for level of integration. * & ** indicate significance at 0.01 and 0.05 respectively

Table 6
Ramsey RESET Table

Test type	Value	Df	Prob.
QLR*	1.069	1	0.301

5 percent. Moreover, the variables inverse roots of AR polynomial are situated within the circle of the horizontal axis, which indicates that the model may be stable in the long-run.

4.2.2. Serial Correlation and Heteroscedasticity Analyses

Presented in Table 7 is a test for serial correlation. The study fails to reject the null hypothesis which suggests that there is no serial correlation in the series at lag 2.

Presented in table 8 is the test for Homoscedasticity. The study rejects the null hypothesis of homoscedasticity in the panel series which indicates

that the series are heteroscedastic.

4.2.3. Co-integration Result

Co-integration among the variables was achieved, given the test statistics of Pedroni (2000) and Kao (1999). The results are presented in Tables 9 and 10 respectively.

4.2.4. GMM Serial-correlation Test

The study test for serial-correlation using Arellano and Bond technique, with outcomes which fails to reject the null hypothesis of no serial correlation at the AR(1) and AR (2) orders, as presented in Table 11.

Table 7
Serial Correlation

Lag	LRE* stat	Df	Prob.	Rao F-stat	Df	Prob.
1	53.819	25	0.000	2.194	(25, 800.2)	0.000
2	28.248	25	0.297	1.134	(25, 800.2)	0.297

Table 8
Heteroscedasticity Test

Chi-sq	Df	Prob.
219.971	150	0.000

Table 9*Pedroni's Cointegration Test*

	Trend Assump.	AR coeff.	Statistics	Prob.	Weighted Stat.	Prob.
Panel PP-Stat.	no trend	Common	-2.163	0.015	-1.437	0.075
Panel ADF-Stat.	no trend	Common	-1.799	0.036	-3.081	0.001
Group PP-Stat.	no trend	Individual	-1.461	0.072	-	-
Group ADF-Stat.	no trend	Individual	-2.503	0.006	-	-

Table 10*Kao Residual Co-integration Test*

Test type	Trend assumption	Statistics	Prob.
ADF	Deterministic individual & trend	3.119	0.000

Table 11*Arellano-Bond Serial Correlation Test*

Test order	m-statistic	rho	se(rho)	prob.
AR(1)	-0.938407	-2.647483	2.821252	0.3480
AR(2)	-1.233294	-1.673642	1.357050	0.2175

4.3. ARDL: Short-run Results

Presented in Table 12 is the result of the adjustment of the short-run. The cointegration coefficient, a proxy for the dynamic adjustment mechanism is in standard negative mode and significant at 1%. This suggests that the short-run error or disequilibrium is adjustable annually by approximately 11% towards equilibrium in the long-run. The standard error of the regression is relatively low which

suggests that the data is relatively stable.

The explanatory variables in the short-run produce mixed outcomes relative to theory. In line with rational expectation capital raising, quality of institutions and productivity (output) increase employment of labour resource (Landmann, 2004). This position is justified in the result, as 1 percent change in Market capitalization reduces the level of unemployment (lmrt) by 0.9 percent. Similarly, a 1 per-

Table 12*ARDL: Short-run Dynamics; Dependent Variable - lumt*

	Coimt.	lcmkt	lqt	Lepc	lgdp
Coefficient	-0.1057	-0.0088	-0.2040	0.1190	-0.2800
Std. Error	(0.0319)	(0.0204)	(0.1570)	(0.1247)	(0.1840)
Prob.	0.0011	0.6635	0.1953	0.3412	0.1290
S.E. of regr.	0.2253				

cent increase in institutional quality produces 20.4 percent decrease in unemployment. The energy consumption per capita (*lepc*) is however positively related to unemployment. The energy consumption outcome provides evidence on the state of energy deficiency, and thus may account for overall underdevelopment of the economies. GDP is a control variable and the coefficient agrees with a-priori.

4.4. ARDL: Long-run Results: Dependent Variable – *lumt*

Presented in Table 13 are results of ARDL technique, that is, PMG and MG version, the dynamic fixed effect (DFE), and GMM. However, the Hausman test presented in section 4.5 reveals that PMG is preferable to MG and DFE. From the PMG and supported by GMM, market capitalization relationship with *lumt* significantly conforms with a-priori, that is, negatively related, and the GMM output reveals that institutional quality (*Iqt*) significantly negates a-priori, that is, it increases the rate of unemployment, which suggests that the quality of institutions accentuate unemployment in the region. This GMM result conforms with the correlation statistics. The results reveal that a 1 percent increase in market capitalization and institutional quality could reduce unemployment by 12.02 percent and accentuate unemployment by 29.24 percent respectively. The output of positive coefficient of institutional quality against unemployment may have

been confounding. It suggests a ‘system’ that does not work, and hence couldn’t be relied upon to stimulate employment generation and transform the living condition of the people.

The PMG technique reveals that *lgdp* conforms to a-priori, while using both the PMG and GMM techniques energy consumption does not. The result reveals that a 1 percent increase in overall national output reduce unemployment by 8.5%, while energy consumption does not significantly reduce unemployment. At country level study, the regression results suggest that except for Nigeria, South Africa and Zimbabwe, other economies- Ghana, Mauritius, and Cote d’Ivoire do not have sufficient energy support for unemployment reduction. Overall, it suggests that the low energy consumption rate in the sub-region does not induce growth of labour employment. In very populated economy such as Nigeria, under-capacity energy generation and consumption has been the bane of accomplishing economic potentials, as the industrial sector relies substantially on diesel-powered generators. The role of adequate energy consumption for employment generation and long-term sustainability cannot be overemphasized. It underlies the country’s industrial and manufacturing development. Many African economies are deficient in energy production and consumption, which has earned her the status of region of industrial underdeveloped economies (UC-TAD, 2017).

Table 13
ARDL Long-run Result: Dependent Variable – lumt

	PMG		MG		DFE		GMM	
	Coeff.	S.D	Coeff.	S.D	Coeff.	S.D	Coeff.	S.D
<i>Lcmkt</i>	-0.120**	(0.06)	0.118	(0.209)	0.069	(0.185)	-0.081*	(0.076)
<i>Iqt</i>	-0.326	(0.398)	0.392	(0.280)	-0.085	(0.374)	0.2924***	(0.087)
<i>lepc</i>	1.1058**	(0.248)	0.896	(1.219)	0.1667	(0.977)	0.6245***	(0.021)
<i>lgdp</i>	-0.0854	(0.085)	-0.028	(0.022)	-0.052*	(0.031)	0.3226	(0.524)

Note: *** =1%, **=5%, and *=10%.

Table 14
*Wald Test for *lcmkt* and *Iqt**

Test Statistic	Value	Df	Probability
F-statistic	2.5258	(2, 202)	0.0825
Chi-square	5.0517	2	0.0800

4.5. Hausman Test: MG & PMG

The Hausman test statistics of -19.98 suggest that PMG results are more preferable than MG results.

4.6. Wald Test Result: *lcmkt* and *iq*

The test to ascertain the interaction of *lcmkt* and *iq* as driver of unemployment reduction is presented in Table 14. The result suggests that the interaction of both variables may jointly and significantly reduce unemployment at 10 percent. It infers that quality of institution and the capital market could generate intended employment outcomes.

4.7. PMG & MG Country Results

PMG & MG country results: The short-run (error correction) dynamic coefficient for individual countries presented in Table 15 are negatively signed in line with a-priori. That is, except for Zimbabwe, the adjustment process to equilibrium in all the economies, produce positive short-run dynamic adjustment outcome, which suggests co-integrating equations. For Zimbabwe, the output may imply that Zimbabwe's unemployment market could be prone to explosion rather than equilibrium and stability in the long-term. The broad implications of instability and disequilibrium of unemployment are adverse multiplier effects and miserable spillover consequences, such as inflation, lower public revenue, high public debt, widening income inequality, hardship and insecurity.

4.8. Discussion of Findings

The level outcome suggests that sub-Saharan Africa capital market is a long-term instrument for unemployment reduction. Also noted, although institutional quality does not directly advance unemployment reduction, however, its interaction with market capitalization shows significant outcome on unemployment reduction. It implies that quality institutions could turn around the market for improved productivity and employment generation. Institutions that produce quality regulation, effectively organized against corrupt, respect for rule of law and quick judicial process, would produce strong corporate governance culture, that overall, would have positive impact on employment. Since consumption and saving have

complementary relation, African region yearns for institutional mechanics to channel the huge money supply into latent long-run savings/speculative investments/ industrial productivity growths through the capital market, that is of job-creation for higher growth rate rather than the current negligible import-dependent consumption growth, whose consequences include 'exportation of employment' and 'importation of unemployment'. A fundamental characteristic of African economies is its high-skewness towards distributional economic activities and consumption of imports, as population explodes. A fundamental take-away of the received Keynes' General Equilibrium Theory for African complex economies should be to encourage higher marginal propensity to save (MPS) relative to marginal propensity to consume (MPC) towards generating productive capital (Olofin, 2000).

On government effectiveness, lack of it may have produced wrong and anti-development policies that are uncomfortable to initiatives, entrepreneurship, overall investments and hence unemployment. African continent is blessed with diversified natural resources, but has been held back by institutional challenges, greed and corruption problems (Businessday, 2023). Lack of quality institutions result in inefficiently and abysmally-run quoted firms, which produce little or no addition to shareholders' wealth. Weak performing institutions may have resulted in under-investment, holding back required resources for Africa's capital market growth and higher GDP growth rate. In line with the efficient market theory, the primary responsibility of the corporate finance's manager is to maximize shareholders' wealth, by carrying out investment and operational decisions that would add value to income and hence the stock price.

Given allocative efficiency theory, the stock market channels resources to their most productive users towards higher employment of resources. The finance manager relies on the stock market's institutional framework to correctly value the firm's shares. Furthermore, except for existence of efficiently institutionalized corporate governance system, these outcomes may not be realized. In this study, institutional quality (*Iqt*) is the average of regulatory quality, rule of law, government effec-

Table 15*Pooled Mean Group (PMG) Estimation*

Short-run dynamics: Nigeria			
Variable	Coef.	T. Stat.	Prob.
EC	-0.0157	-0.25	0.800
D(lcmkt)	-0.0076	-0.27	0.786
D(Iqt)	-0.3142	-1.43	0.153
D(lepc)	-0.3823	-0.56	0.578
D(lgdp)	-0.0045	-0.89	0.376
C	0.0794	0.43	0.666
Short-run dynamics: South Africa			
Variable	Coef.	T. Stat.	Prob.
EC	-0.086***	-2.58	0.010
D(lcmkt)	0.069**	2.34	0.019
D(Iqt)	0.1497	0.87	0.386
D(lepc)	-0.0798	-0.80	0.426
D(lgdp)	0.0068*	1.83	0.068
C	0.4846*	1.81	0.071
Short-run dynamics: Mauritius			
Variable	Coef.	T. Stat.	Prob.
EC	-0.149**	-2.06	0.040
D(lcmkt)	0.0429	1.38	0.168
D(Iqt)	0.0738	0.49	0.624
D(lepc)	0.0121	0.10	0.920
D(lgdp)	0.0037	0.72	0.474
C	0.6510	1.50	0.135
Short-run dynamics: Kenya			
Variable	Coef.	T. Stat.	Prob.
EC	-0.115***	-3.6	0.002
D(lcmkt)	0.0021	0.12	0.903
D(Iqt)	0.04759	0.33	0.740
D(lepc)	0.5660	1.65	0.100
D(lgdp)	-0.0004	-0.16	0.874
C	0.2897	1.29	0.187
Short-run dynamics: Ghana			
Variable	Coef.	T.Stat.	Prob.
EC	-0.365	-0.51	0.613
D(lcmkt)	0.0039	0.13	0.894
D(Iqt)	0.1062	0.42	0.674
D(lepc)	0.4626	1.21	0.226
D(lgdp)	-0.0106	-1.39	0.164
C	0.1295	0.50	0.620
Short run dynamics: Cote d'Ivoire			
Variable	Coef.	T. Stat.	Prob.
EC	-0.497***	-5.28	0.000
D(lcmkt)	0.0064	0.25	0.800

Table 15*Pooled Mean Group (PMG) Estimation (Continued)*

Short run dynamics: Cote d'Ivoire			
Variable	Coef.	T. Stat.	Prob.
D(Iqt)	0.4392	1.63	0.103
D(lepc)	0.2206	1.01	0.314
D(lgdp)	0.0209***	3.66	0.000
C	1.4708	1.63	0.104
Short-run dynamics: Zimbabwe			
Variable	Coef.	T-Stat.	Prob.
EC	0.0162	0.82	0.415
D(lcmkt)	2544.62	0.33	0.744
D(Iqt)	0.1940**	2.09	0.036
D(lepc)	-0.2019	-0.53	0.593
D(lgdp)	0.0002	0.16	0.875
C	-19.388	-0.33	0.743
<i>Mean group (MG) estimation</i>			
Long-run equilibrium: Nigeria			
Variable	Coef.	T. Stat.	Prob.
Full: lcmkt	-0.4510	-1.09	0.277
Iqt	1.5693	0.92	0.356
lepc	5.7512	1.01	0.311
lgdp	-0.1344	-1.50	0.133
Short-run dynamic: Nigeria			
Variable	Coef.	T-Stat.	Prob.
EC	-0.1287	-1.27	0.203
D(lcmkt)	0.0358	0.90	0.371
D(Iqt)	-0.4583	-1.78	0.074
D(lepc)	-0.3295	-0.42	0.675
D(lgdp)	0.0034	0.50	0.619
C	-4.2771	-1.01	0.315
Long-run equilibrium: South Africa			
Variable	Coef.	T. Stat.	Prob.
Full: lcmkt	-0.1058	-0.39	0.695
Iqt	-0.2511	-0.48	0.634
lepc	-1.9840**	-1.96	0.050
lgdp	-0.1181	-0.54	0.587
Short-run dynamic: South Africa			
Variable	Coef.	T-Stat.	Prob.
EC	-0.2229*	-1.74	0.082
D(lcmkt)	0.9403**	2.14	0.032
D(Iqt)	0.1269	0.67	0.504
D(lepc)	0.1402	0.90	0.369
D(lgdp)	0.0010	0.20	0.839
C	4.3626**	2.37	0.018

Table 15*Mean group (MG) estimation* (Continued)

Long-run equilibrium: Mauritius			
Variable	Coef.	T. Stat.	Prob.
Full: lcmkt	-0.0432	-0.35	0.725
Iqt	0.2503	0.42	0.672
lepc	-0.8510	-1.23	0.220
lgdp	-0.0268	-0.75	0.456
Short-run dynamics: Mauritius			
Variable	Coef.	T-Stat.	Prob.
EC	-0.262*	-1.86	0.063
D(lcmkt)	0.0539	1.34	0.179
D(Iqt)	0.0492	0.26	0.796
D(lepc)	0.1212	0.67	0.501
D(lgdp)	0.0022	0.30	0.761
C	2.0786	1.54	0.124
Long run equilibrium: Kenya			
Variable	Coef.	T. Stat.	Prob.
Full: lcmkt	-0.0266	-0.68	0.497
Iqt	-0.1217	-0.48	0.630
lepc	0.1400	0.43	0.667
lgdp	-0.0113	-1.02	0.308
Short-run dynamics: Kenya			
Variable	Coef.	T-Stat.	Prob.
EC	-0.499**	-2.52	0.012
D(lcmkt)	0.0084	0.37	0.714
D(Iqt)	0.0909	0.63	0.531
D(lepc)	0.0249	0.05	0.956
D(lgdp)	0.0020	0.56	0.576
C	0.1001	0.09	0.926
Long-run equilibrium: Ghana			
Variable	Coef.	T-Stat.	Prob.
Full: lcmkt	0.0978	0.24	0.811
Iqt	1.2018	0.59	0.553
lepc	5.2465	1.39	0.163
lgdp	0.0504	0.45	0.651
Short-run dynamics: Ghana			
Variable	Coef.	T-Stat.	Prob.
EC	-0.1172	-1.41	0.157
D(lcmk)	-0.0008	-0.02	0.981
D(Iqt)	-0.0634	-0.24	0.813
D(lepc)	-0.1530	-0.34	0.733
D(lgdp)	-0.0117	-1.22	0.224
C	-3.374***	-2.60	0.009

Table 15*Mean group (MG) estimation* (Continued)

Long-run equilibrium: Cote d'Ivoire			
Variable	Coef.	T. Stat.	Prob.
Full: lcmkt	0.0485	0.72	0.0471
Iqt	-0.3529	-1.78	0.075
lepc	-0.4200	-0.68	0.494
lgdp	-0.0671	-2.75	0.006
Short-run dynamics: Cote d'Ivoire			
Variable	Coef.	T-Stat.	Prob.
EC	-0.488***	-4.00	0.000
D(lcmkt)	-0.0018	-0.05	0.961
D(Iqt)	0.4297	1.17	0.243
D(lepc)	0.2470	0.84	0.402
D(lgdp)	0.0212***	2.77	0.006
C	1.839	0.94	0.346
Long-run equilibrium: Zimbabwe			
Variable	Coef.	T. stat.	Prob.
Full: lcmkt	1.309***	2.85	0.004
Iqt	0.447***	4.38	0.000
lepc	-1.611***	-2.67	0.008
Gdp	0.0067**	2.09	0.037
Short-run dynamics: Zimbabwe			
Variable	Coef.	T-stat.	Prob.
EC	-0.476***	-4.30	0.000
D(lcmkt)	-239.80	-0.36	0.720
D(Iqt)	-0.056	-0.55	0.582
D(lepc)	0.2863	0.76	0.450
D(lgdp)	-0.0023	-1.55	0.121
C	22.314	0.44	0.662

Source: Note: ***=1%, **=5%, and *=10%

tiveness and control of corruption variables. Many sub-Saharan Africa's stock markets operate weak regulatory quality that underscores the low public acknowledgement, distrust and weak confidence. Global investment players often regard African markets as volatile, hence christened as frontier investment destination (World Bank, 2015). The capital market ecosystem would require strong corporate board integrity to eliminate board capture that has characterized many of the quoted companies, such that board trust by retail and institutional investors is rear dream, particularly the indigenous quoted firms.

The link of institutional quality and capital

market towards unemployment reduction require an assessment of the corporate governance question in many quoted African corporate firms. The low-quality corporate governance culture has been rather rife, and may have instigated the continuous low patronage of the continent's bond market for larger capital raising for business expansion, project development and resource employment. Many multinational firms, including the quoted firms, prefer low-capacity bank loans for expansion rather than the corporate bonds. Ironically, in many African markets except South Africa, government bonds dominate the bond issue market, while the banking sector dominates the corporate bond issue

market at relatively higher cost (Eke et al., 2020), an indication that while the public sector dominates the investment climate, banking dominates African financial structure. It further supports the claim that the banking capital-issues transmit to short-end credit market at higher cost, which exacerbates inflation, and hence unemployment, which may evidence a maladapted financial system (Olokoyo, 2013).

Contemporaneously, the result presents some implications, because many researchers on the subject matter had revealed that the capital market does not reduce unemployment (Ilo, 2015). The outcome of this paper reveals that capital market indeed impacts employment and would need to be encouraged through friendly fiscal and monetary policies on existing rules and regulations of operators by the Securities and Exchange Commissions (SECs) (Dudley and Hubbard, 2004). An improved legal framework for capital liberalization and stronger legal reforms may attract the real-sector firms to long-tenured capital raising culture via the capital market, rather than the short-term banking institutions. The real sectors have better established employment generating industrial concerns (Eke, 2017). When these concerns are encouraged to be listed on the Exchange to attract public trust and confidence, the opportunity for expansion at minimal cost is ensured, thus generate high employment capacity. Moreover, given the significant outcome of the interaction model of institutional quality and capital market towards reducing unemployment in the region, it thus provides higher returns. The growth of the capital market is synonymous to the growth of economy's private enterprises as the main source of economic diversification and growth. Capital market remains ideal to sustainable industrialization and project financing with longer-term gestation periods (Olokoyo, 2013) and diversified employment base, as evidenced in many western industrial economies.

Industrial growth and development hinge on availability of long-term capital, high energy production and consumption, and quality institutions. These facts seem to be eluding many African economies. Due to the perverse nature of their financial system (Olokoyo, 2013), sub-Saharan African econ-

omies have not been able to break loose from the short-term bank-based financial system to a more desired long-term market-based financial system to further industrialization, employment, growth and development.

The relationship between energy consumption per capita and unemployment is positive, which negates a-priori, hence may imply that, energy supply sources have not been cost-competitive to induce employment generation capacity of industrial and other concerns. From the knowledge of African economies, sub-Saharan African economies have been highly limited by low quality energy supply hence very low industrialization effort is achieved over the years. Adequate and constant supply of energy is needed to drive industrial and manufacturing concerns which would be the major source of employment for teeming population in sub-Sahara Africa.

Lastly, the gross domestic product, a control variable in the model is negatively related to unemployment which implies that total growth rate of the economies reduces the level of unemployment. This is in line with the Keynesian preposition that increase in aggregate demand could reduce the rate of unemployment in periods of disequilibrium.

5. Summary, Conclusion and Recommendations

5.1. Summary and Conclusion

The study investigates the effect of institutional quality and capital market on unemployment, and the joint-influence of institutional quality and capital market on unemployment in seven selected sub-Saharan economies, using dynamic panel ARDL's PMG and GMM techniques. Quality institution was found to drive the capital market towards unemployment reduction, while the joint-influence of institutional quality and capital market induce unemployment reduction. The study concludes by affirming the institution theory, as pillar of economic growth, and in particular, finance for growth theorem is also upheld as capital market drive unemployment reduction. The study confirmed long-run co-integration between quality of institution, market capitalization and employment. The energy

consumption has positive influence on unemployment which indicates low level of energy production and consumption, while GDP has negative relationship with unemployment, which is evidence of employment generated growth. To Okun's law in economic development theory, a 1 percent increase in unemployment rate would produce 2 percent decrease in gross domestic product. Therefore, a rise in the GDP could lead to reduction in unemployment (Ackey, 1978; Noor et al., 2007).

5.2. Recommendations

The capital market has greater responsibility to develop the long-end yield curve and deepen the financial system, through which individuals and institutions operate to attract and manage resources for employment. Based on the findings, first, the paper recommends market freedom; next, the capital market policies and regulatory institutions, should employ business-friendly supervisions and regulations to encourage ease-of-doing business environment, that would encourage capital market operators to survive tough business environment, attract and sustain retail and institutional investors; ease listing rules particularly to attract the small and medium enterprises.

Thirdly, the paper recommends the SEC to deepen the capital market (CM) through public education and enlightenment for mass participation and make informed investors' decision; establish capital trade points in semi-urban centers; introduce diversified investment instruments and risk mitigating derivative instruments. The effects would encourage cheaper production funding for employment of labour.

Fourthly, on negative institutional quality (Iqt) nexus to employment generation, require that policies by Ministries, Departments and Agencies (MDAs) of governments should be progressively constructed and harmonized, that would recognize the efforts of African entrepreneurship for capital market listing. Policies that frustrate the free flow of capital and trade should be avoided.

Fifthly, the link from Iqt to CM's effect on employment and growth could be addressed by best-practice corporate governance system, ensure enduring sustainable institution, being the key to driving resource employment and economic growth. A corporate governance system that guarantees investors' trust will at-

tract retail investors, leading to higher liquidity and successful corporate issues, particularly the very low manufacturing firms' corporate bond issuing.

Next, in the era of economic uncertainty, quality institution can moderate capital market investments, forecasts and outcomes. Therefore, there is need for training and re-orientation of government ministries, agencies, and personnel responsible for institutional policies, rules and regulations

Seventhly, the SEC should introduce legislations to promote ease of doing business in the capital market and ensure continuous capital liberalization to attracting cheaper capital, particularly foreign capital inflows and diaspora remittances into the long-tenured credit market for industrial growth, and hence create jobs

Furthermore, energy consumption per capita is found not to drive unemployment reduction. Consequently, there is compulsion to make sub-Saharan business space investment friendly, by governments providing stable energy supply that would improve industrialization, employment and economic growth.

Finally, given that the Central Banks in many developing economies operate on weak independence, governments in the African region should innovate more on fiscal policies for more sayings pass-through to capital market resources mobilization, such as encouraging voluntary and higher pension savings. Macroeconomic theory reveals that in developing economies fiscal policies have more sustainable impact to drive supply-side economics, industrial growth, and promote employment generation than monetary policies (Olofin, 2000).

The study further recommends that a study on other emerging capital markets' regions, that is, global-regional economies be investigated. Moreover, comparatively, other sustainable sources of finance, namely, green finance, blue finance and climate finance can be employed in studies, to induce quality job creation.

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