

INSTITUTIONAL ENVIRONMENT AND UNEMPLOYMENT HYSTERESIS IN NIGERIA – ANY EVIDENCE FOR JOBLESS GROWTH? A MARKOV SWITCHING APPROACH

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Abstract: Unemployment hysteresis is the persistence rate of unemployment that postdates an initial decline in economic growth. This study seeks to investigate the role of institutional environment and macroeconomic fundamentals in the mist of high unemployment rate in the country. And to ascertain if there is any evidence for jobless growth. The technique of analysis is the Markov Switching Dynamic Regression (MSDR) and owing to the structural adjustment programme launched in 1985, the period of investigation spans 1986 – 2021. The preference for the MSDR technique is to investigate regime-switching patterns of output in Nigeria and show evidence for the various slopes, swings and structural changes in macroeconomic policies over the period under investigation. The study found evidence for unemployment hysteresis in Nigeria but this expected result would likely hinge on the incongruence of institutions and macroeconomic fundamentals rather than due to any structural technological change in Nigeria. The required proportions of macroeconomic policies and stable institutions to reduce unemployment, and the lag period to become effective, are further suggested. Defense.

Keywords: Unemployment hysteresis, Institutions, Jobless growth, Macroeconomic Fundamentals, Markov switching dynamic regression.

JEL Classification: J64, O33, J62, E58, C51

1. Introduction

The rate of Unemployment remains serious problem despite the spontaneous rate of growth documented over time (Nwosa, 2016). In 2015 it was a collective agreement in the United States to establish a Sustainable Development Goals (SDGs) where it was characterized to absence of poverty and no Hunger respectively while other specifics is on presentable jobs enhance growth rate which must be accomplished by 2030. It was agreed that at every point in time 90 people globally must leave the poverty line beginning from now (2015) to end extreme poverty. In actualizing this in developing countries and specifically Nigeria, 57 and at least 12 people have to be taken out of poverty every minute respectively (UN Report, 2015). Ironically, rather than taking poor people out of the poverty line, the number of poor people has continued to skyrocket due largely to environmental terror such as kidnapping, high rate of insecurity, political terror, farmers' clashes and other social vices across the country and even Africa at large hereby enhancing the rate of unemployment in the country (Orkar & Shaminja, 2019).

Unemployment remains one of the cogent challenges confronting macroeconomic fundamentals, unemployment is on the high side, the major challenges of unemployment begin immediately after the

advent of crude oil which is the main stay of the Nigeria economy, this problem was further triggered by swinging away from agriculture that appears to be the corner stone of the economy. This movement was due to the gains derived from the oil sector which led to many workers moving away from their main work of agriculture with the hope of a greener pasture in the oil sector. thereby seeking opportunities in the oil sector which seems more attractive. It was in view of this that many workers became unemployed. (Ofuoku and Chukwuji, 2012; Nuga and Asimiea, 2015). In an attempt to salvage the menace of unemployment hysteresis, the federal government has put up several policies and programmes to reduce this ugly trend such as (trade money, subsidy re investment program and the N-power) purposely to bring about more employment opportunities for the masses. What is more disturbing is the fact that despite the effort put in place, the policies and programmes couldn't achieve its desired goals due largely to poor responses from the government agencies, institutional weakness and lack of mobilization of the targeted group, personalizing the programmes for selfish interest and many empirical studies have lend credence to this see Adelowokan et al., (2019) and Obasanmi and Akinrogunde (2022).

Away from this, more reasons emanating from the literature on high rate of unemployment are failure of institutional environment,

uncontrolled young population increment, poor education setting, diversion of public fund away from where necessary, poor capacity usage, poor skills needed to maintain high jobs, failure of government policies, uncertainty in the economy and enabling environment (Raifu, 2017; Aminu and Raifu, 2018, Raifu, 2019).

Extant literature posited that failure of institutional environment emanating from uncertain policies have created more room for the presence of unemployment hysteresis in the country. The structural change period which could have been a period of high employment rate could not stand the test of time. According to the world bank, second generation indicators in junction with other subsidiaries are believed to be better indicators and measurement of institutions (policy unpredictability). When policies are certain and effective enough it is prone to market failure. The failure of economic outcome such as unemployment hysteresis can be attributed to uncertain policy formulation, this has led to various failures of economic policies as a result of inconsistencies.

It was due to the consequential effect of high rate of unemployment that led several scholars to have conducted series empirical studies on unemployment challenges in both developing and underdeveloped countries. One major issues that has captured the attention of labour economics is unemployment hysteresis. This area of research was first pioneered by blancher and summer (1986). They based their postulations on the premises of two theories on the reason for high rate of unemployment in developed countries such as the Europe. These theories are membership and duration theories. The membership theory depends on an insider and outsider theories. This depends on the idea of insiders and outsider worker's discrepancy and wage arrangement power, while the period is based on the any existing tendency people who are not gainfully employed to remain unemployed for more than necessary. Blanchard and summer (1986) argues that unemployment simply depends on its antecedent paths. Thus, when volatility appears to affects unemployment, unemployment hardly returns to its long run equilibrium. Heuristically, this means that unemployment is attributed by a non-stationarity process (Barro, 1988). Apart from the hysteresis, other measures have been used to explain the persistent level of unemployment. These phenomena are natural level of unemployment (Friedman, 1968, Pelp 1967), Structural hypothesis of unemployment (Pelp, 1994) and continuous hypotheses unemployment (Nelson and Plosser, 1982).

In line with unemployment hysteresis, a lot of empirical study has been carried out to ascertain the level of this phenomenon, in 1987 Blanchard and summer carried a varying analysis utilizing data from more developed countries such as US, France, Denmark and the United Kingdom to examine the level of unemployment hysteresis in those varying countries. The result of their findings shows that out of the few countries examined, only in the US that the level of unemployment hysteresis is low there by rejected, in other varying countries it appears very high. A large number of literatures has also been conducted to establish the tenacity of the unemployment hysteresis but their findings are characterized with mix findings. While there have been several empirical findings both in developed and developing countries but incidentally, these findings are not too popular in Nigeria thereby providing any evidence for jobless growth in the country. Few of the studies conducted in Nigeria include the work of Ayinde, Egbetunde and Bankole, (2014); Ayinde and Egbetunde (2015) and Onwukeme and Opeleyeru (2015). All the above studies tested the hysteresis

level using a linear pre-estimation test, none of the above studies utilizes a nonlinear pre-estimation to ascertain the behavior of DGP, in light of the above, this study uses the nonlinear pre-estimation test, but also extend it further by measuring the regime switch techniques of Markov switching model, more specifically is the use of a nonlinear techniques of analysis such as the Kaptanios shin and Snell unit root test (KSS) and Kruse (2011). It is however, clear that a nonlinear technique has been the bane of most researchers alike in recent times, findings have shown that the appropriate way to model macroeconomic series is the use of nonlinear method (Neftci, 1984). The nonlinear characteristics of the economic series rest on the premise that when the economic downturn happens, economic series decline sharply than when the economic recovery happens owing to the assumption of downward rigidity of wages and prices (Romer, 2012).

For this study, institutional environment is expected to play a vital role in shaping unemployment hysteresis in Nigeria, it is for this reason that this study adopts the second generation indicators. Although, there are interrelated problems associated with the first generation indicators. Significantly is the lack of specificity and intrinsic problems of political acceptability. Unlike the second generation indicators, there are basic criterion they are subjected to that makes them superior over the first generation indicators. The data are : (1) generated through a transparent process in which proposed indicators are replicable through a well-documented process, and that the data come from sources that are politically acceptable; (2) the data are available across many countries, most importantly developing countries; (3) data are of high quality and accurate, while indicators should be measured in consistent manner and values should reflected what the indicator purported to measure (4) specifically, such that indicators measure either a particular set of governance institutions or a defined outcome, and should not be unduly affected by forces exogenous to the aspect of the country's government that they attempt to reflect.

From the foregoing, the study investigates institutions and unemployment Hysteresis in Nigeria to ascertain if there is any evidence for Jobless Growth. Following the introduction, the rest of the paper is presented as follows. Review of literature is covered in section 2. Methodology is covered in section 3. Empirical results are presented and discussed in section 4. While the study is concluded in section 5.

2. Literature Review

Theoretically, evidence has been documented on the persistent rise in unemployment rates both in developed and developing countries. In line with this, different empirical work has been carried out to examine the unemployment hysteresis and to establish if there is any evidence for jobless growth. One peculiar fact from the reviewed empirical literature is that the findings are inconsistent and its hugely depends on country specific or group of countries under investigation and also the techniques of analysis utilized in the course of the study could be a salient reason for the different reported findings. The review of this study begins with developed countries. The work of Gustavsson and Osterholm (2006), using the data of Australia, Austria, Canada, Finland and US. Examine the validity of unemployment hysteresis in 50 states of the US using VAR. it was discovered that out of the 50 state, unemployment hysteresis is only present in 39 varying countries, in similar work by Bahman Oskooee, Chang and Ranjbar (2017) who

studied unemployment also in the 52 states of the US using pooled OLS. It was discovered that unemployment hysteresis is present in all 52 states. The divergent in their findings could be attributed to the different techniques deployed for their analysis. For example, Romero-Ávila and Usabiaga (2007) employed monthly data that covered a wide range of 1976- 2003 and adopted lagrange analysis with unit root test as a technique of analysis while in a similar study by Bahmani-Oskooee, Chang and Ranjbar (2017) also employed monthly data spanning from 1976- 2018 and deployed quantile unit root test method. Unemployment hysteresis was also evidence in all the 26 region considered (Gozgor, 2013). Similarly, in Czech Republic, only 5 regions of the 17 regions was evidence of unemployment hysteresis not found (Farouka, 2014b). Considering OECD countries, Chang (2011) investigated the unemployment hysteresis occurred in almost all the countries examined except for Australia, Canada, Finland, Sweden and the US. Khraief, et al. (2015), however, noted that accounting for a structural break in the data could alter the results. By considering 29 OECD countries while accounting for a structural break, they found that UHH is rejected in all the 29 OECD countries (see also Lin, Kuo and Yuan, 2008). Kula and Aslan (2010) considered the testing of unemployment hysteresis along with human capital development. Their result revealed that unemployment hysteresis is present at all level of human capacity. The empirical evidence established in the Asian African countries is also with mixed findings, Caporale and Gil-Alana, 2018; Pikoko and Phiri, 2019; Yaya, Ogbonna and Mudida 2019). Chang et al. (2007) reported absence of any evidence of unemployment hysteresis in all the 17 regions of Taiwan. The results recorded by Lee, Wu and Lin (2010) envisage that there exists unemployment hysteresis in all the East-Asian countries investigated alongside Taiwan. Capooral and Gil-Alana (2018) examined the extend of unemployment hysteresis in 11 African countries using a mixture of integration method. Their findings support that unemployment in all 11 countries exhibits hysteresis. However, moving the number of countries to 52 and using Fourier unit root method, Yaya et al. (2019) discovered that unemployment only holds in 7 countries out of the 57 developing countries. Pikoko and Phiri (2019) argued on the variability of unemployment hysteresis putting into consideration of 8 categories of unemployment in South Africa. They reaffirm that unemployment hysteresis for all categories of unemployment except persons aged above 50.

In Nigeria, few of the studies has also focused on Nigeria (Folawewo, 2012; Ayinde, Egbetunde and Bankole, 2014; Ayinde and Egbetunde, 2015 and Onwukeme and Opeleyeru, 2015). Interestingly, from their findings it was observed that some of the studies employed the linear pre-estimation test, be it with breaks or not while others provide more insight on the establishment of unemployment hysteresis except for the findings of Olanipekun, et al. (2017) who reported that unemployment hysteresis is not so glaring in Nigeria. However, considering the linear approach to ascertain the strength of unemployment hysteresis could possibly lead to biased findings because most of the macroeconomic series including unemployment follows an asymmetric pattern over time. In light of this, this study considers nonlinear approach and Markov switching dynamic regression to examine unemployment hysteresis cum the role of institutional environment and to ascertain if there is any evidence for jobless growth.

What is clear from the literature reviewed is that most of the studies on unemployment hysteresis were carried out without considering the institutional environment, a neglect which might have significant consequence on the empirical result. Again, the empirical studies reviewed considers only the linear approach while this study adopts the nonlinear techniques of analysis by using the nonlinear pre estimation test and by extension, regime switching pattern.

3. Data Source and Description of Variables

This paper employs a time series technique for the period 1986-2021 using secondary data to investigate unemployment hysteresis and institutions in Nigeria and to ascertain if there is any evidence on jobless growth. This study uses data from the National Bureau of Statistics (NBS). publications of the World Bank - World Development Indicators, International Labour Organization and Central Bank of Nigeria (CBN Statistical Bulletin). The technique of analysis is centered on the Markov switching regime model. Variables used in the study are defined within the context of the literature such as the unemployment rate proxied as the number of the unemployment rate in the country which is sourced from the National Bureau of Statistics (NBS, 2023). Macroeconomic fundamental such as the inflation rate and poverty level in the country were sourced from the Central Bank of Nigeria (CBN, 2023), labour force was sourced from the international labour organization and the central bank of Nigeria (ILO, 2023) and Changes in exchange rate policy is obtained from the annual statement of the CBN and policy extant of the monetary policy committee (CBN, 2023). The choice of these variables is to examine the role of institutional environment in unemployment hysteresis in Nigeria and to ascertain if there is any evidence for jobless growth in the country.

It is instructive to note that the Nigerian economy has witnessed many exchange rate policies swings owing to the various system of exchange rate adopted and the different foreign exchange rate market structure implemented (Ayinde, 2020). It is not out of place that whenever the monetary authority adopts a different exchange rate policy, the foreign exchange rate market reacts, especially in the short-run and often lead to volatility in the exchange rate of the domestic currency (Ayinde, 2020). For example, the Bureau de Change (BDC) was officially recognized in 1995 as authorized buyers and sellers of exchange rate to end-users. By 2021, the recognition granted was withdrawn by the same monetary authority that earlier granted it. In both cases, the domestic currency exchanged for international reference currency of the United States dollar increased and further depreciates the domestic currency. The insight to this is that, policy instability has been one of the suspected factors determining exchange rate volatility in Nigeria, hence, justifying its inclusion in exchange rate policy model in this study. This is captured with the use of a dummy variable, which has one (1) whenever there is a change in exchange rate policy and zero (0) every other time or period without changes in exchange rate policy.

The specification of the economic model was stated based on the theoretical linkages and the availability of empirical data in relation to unemployment hysteresis, macroeconomic fundamental and institutional environment going forward, to examine the unemployment hysteresis in Nigeria we follow a nonlinear unit root test such as Kapetanios, Shin and Snell (KSS) and Kruse

(2011). The Kapetanios, Shin and Snell, (2003) is a nonlinear unit root test, this purposefully discover the availability of the nonstationary against nonlinear exponential smooth transition process, this test was basically introduced due largely to the weakness of the traditional unit root test in determining the stationarity properties of most macroeconomic series. Following Yilanci (2008), the main KSS unit root test framework is presented as follows:

$$\Delta u_t = \beta u_t (1 - \exp(-\alpha u_{t-1}^2)) + \varepsilon_t \text{-----(1)}$$

Where $(1 - \exp(-\alpha u_{t-1}^2))$

represent the exponential transition. The main concern is the α parameter which is assumed to be zero in the null hypothesis or greater otherwise. Emphasis needs to be established that testing the null hypothesis is not really an easy task. This is because β is not observable from the stated equation. In dealing with this, the Taylor series approximation is deployed to address this lacuna. This is stated as:

$$\Delta u_t = (1 - \exp(\gamma u_{t-1}^3)) + v_t \text{-----(2)}$$

From equation 2, it is feasible to obtain the t- statistics from the stated null hypothesis

$\gamma = 0$ against the alternative hypothesis $\gamma < 0$ as:

$$t_{n/t} = \hat{\gamma} / s.e.(\hat{\gamma}) \text{-----(3)}$$

Where $\hat{\gamma}$ is the OLS estimate of γ and $s.e.(\hat{\gamma})$ is the standard error of $\hat{\gamma}$.

In line with the shortfalls characterized by KSS, specifically the assumption of zero restriction, Kruss (2011) enhanced the KSS unit root test by flexing the presumption restrictions.. this test is premised on the assumption against the globally stationary ESTAR procedure. The model is stated as:

$$\Delta \gamma_t = \phi \Delta \gamma_{t-1}^3 + \phi \Delta \gamma_{t-1}^2 + \sum_{t=1}^k P Y_{T-1} + \mu_t \text{-----(4)}$$

Hamilton (1989) Markov-Switching (MS) autoregressive time series models have spring up as different means to describe salient characteristics of the business cycle. Thus, several studies have adopted the regime switching approach purposely to incorporate nonlinearities and asymmetries which are present in many macroeconomic variables (Goodwin, 1993; Boldin, 1996; Krolzig, 1996, Garcia and Perron 1996, Krolzig and Toro, 2000, Kim, Nelson, and Startz 1998).

The basic specification of the Markov Switching model assumes that the movement of a dependent variable from its mean follow a p-th order autoregressive process:

$$\Delta y_t - \mu(s_t) = \alpha_1 (\Delta y_{t-1} - \mu(s_{t-1})) + \dots + \alpha_p (\Delta y_{t-p} - \mu(s_{t-p})) + \varepsilon_t \text{-----(5)}$$

The autoregressive parameters of model (i.) can be function of the state s_t in the markov chain:

$$\Delta y_t - c(s_t) = \alpha_1(s_t) \Delta y_{t-1} + \dots + \alpha_p(s_t) + \varepsilon_t \text{-----(6)}$$

If s_t assumes one of the M different values represented by the integers 1, 2, ..., M, equation 2 represents a mixture of M autoregressive models. In the case of two regimes, model 1 describes "falling" state for example, if s_{t-1} as well as rising state when s_{t-2} in the y_t variable.

Regime 1 is classified as an economy in recession and can be represented as:

$$\Delta y_t - c_1(s_t) = \alpha_{11} \Delta y_{t-1} + \dots + \alpha_{p1} \Delta y_{t-p} + \varepsilon_t \text{-----(7)}$$

Regime 2 is classified as an economy in expansion and can be represented as:

$$\Delta y_t - c_2(s_t) = \alpha_{12} \Delta y_{t-1} + \dots + \alpha_{p2} \Delta y_{t-p} + \varepsilon_t \text{-----(8)}$$

The Markov chain with a finite number of states and is defined by the transition probabilities.

$$\rho_{ij} = \rho_i(s_t=j / s_{t-1}=i), \sum_{i=j}^M \rho_{ij} = 1 \text{-----(9)}$$

For $\forall ij = 1, \dots, M$. More precisely, it is assumed that s_t follows an ergodic M - state Markov process with an irreducible transition matrix

In line with the ungluing state of regimes which usually exhibit a Markov chain procedure, (Quandt, 1972; Goldfeld and Quandt, 1973; Mills and Wang, 2006; Guidolin, 2011a, 2011b), the beginning of unemployment hysteresis can be modeled as a state-dependent intercept term for states;

$$\phi_t = \theta_{\delta 1} + \theta 1_{t-1} + \varepsilon_{\delta t} \text{-----(10)}$$

$$\gamma_t = \eta_{\delta t} + \beta \sum_{i=1}^M X_t + Z_t \lambda_t + \varepsilon_t \text{-----(11)}$$

Equation (10) is a Markov Switching autoregression Model while equation (11) The former has a fixed transition probability while the latter has a time-varying transition probability that is amenable to the changing form of the transition probability from one state to another. Equation (11) has state-invariant coefficients while other variables that drive unemployment hysteresis are considered as control variables coupled with independently identically distributed random variable.

4. Result and Findings

Descriptive Statistics

In order to established the statistical features of the variables employed in the model, the descriptive statistics was found appropriate and the correlation was found among the variables of interest. As indicated in the table 1. The max value of unemployment rate is 41.53 this suggest that unemployment rate is very high during the period of investigation. More so, the skewness value of 1.07 indicates that unemployment rate deviated from its expected value for the period of investigation. The implication is that, the level of unemployment rate in Nigeria became more pronounced in the new dispensation, this is supported with the value of the standard deviation with 23.56. which indicated that unemployment rate largely deviated from its value. Although the kurtosis which appear to be atheoretical measure of normal distribution with 23.71 suggest that the distribution of unemployment rate in Nigeria is leptokurtic. That it was highly peaked with thin trail. Theoretical test of Jarque-bera statistics suggests only the exchange rate policy has skewness and kurtosis values that tend towards normal distribution. The simple reason is that the null hypothesis of non-normal distribution is rejected for exchange rate policy as the probability of Jarque-bera statistics is less than the 0.05 level of significance.

Table 1: Descriptive Statistics

Variables	Unmp	Infl	Δ exchp	Pov	ilo
Max	41.53	73.71	1	19.52	11.9
Mini	4.32	42.82	0	12.39	5.18
Mean	2.45	31.31	0.475	7.21	0.45
St. D	23.56	7.32	0.562	16.22	4.27
Skewness	1.07	0.71	1.100	-3.22	0.16
kurtosis	23.71	13.21	1.010	5.24	3.81
Jacbera	16.39	3.81	6.667	1.19	8.38

Sources : Authors Computation, 2024

Again, inflation variable show that inflation is relatively high in Nigeria as the mean value shows a double digit of 31.3. this is too high for an economy as purchasing power will always be low. The skewness value of 0.71 shows that inflation is positively skewed indicating that it was more escalated above its expected value. The standard deviation of 7.32 for inflation is an indication that inflation has deviated from its expected value. Both the kurtosis value of 13.21 and Jacque-bera statistics of 3.81 is an indication of normal distribution of inflation in Nigeria. Also, the poverty rate with mean of 7.21 and skewness of -3.22 value. This is an indication poverty rate in Nigeria has consistently been on downswing and has skewed negatively from the expected value by -3.22. this is an indication that poverty rate in the country has been very high for the period under investigation. Interestingly, labour force is normally distributed with kurtosis value of 3.81. this is supported by the Jacbera Statistics of 8.38 values. This is considered significant even at the 10 percent level. However, labour force deviated from its expected value as shown by the standard deviation of 4.27. this suggest a marginal skewness of 0.16. Before explaining the nonlinear unit root test, it is important to test for the nonlinearity of the variables employed in the model for estimation. The BDS test is employed for this purpose. The null hypothesis of the BDS is that economic series are linear, this is tested against the nonlinearity of the series, the result of the BDS as shown in the table 2. Indicates that the null hypothesis of the linearity of the variables employed is in favour of the alternative hypothesis of the nonlinearity of the series. This clearly shows that the variables employed in the model follows a nonlinear trend.

Table 2: Non-Linearity Test (BDS Test Results)

Variable	BDS statistic	Standard Error	Z-statistics	Probability
Unmp	0.318172	0.000500	292.7421	0.0000
Inf	0.281523	0.006209	31.64192	0.0000
Δ exchp	0.031725	0.042121	2.481422	0.0621
pov	0.211234	0.006218	10.33181	0.0000
ilo	0.761232	0.014721	4.381722	0.0000

Source: Author's Computation using E-Views 10

Table 3: The Result of the Nonl-linear Unit Root Test

KSS			KRUSIE		
Variable	coefficient	probability	variable	coefficient t	probability
Unempl (-1) ^3	-3.7132	0.0000	Unempl(-1)^2	0.0004	0.0001
Inf (-3)	2.1812	0.0003	Inf (-2)	0.0312	0.0003
Δ exchp (-1)	-1.5182	0.0000	Δ exchp (-1)	0.0002	0.0021
Pov (-2)	4.1272	0.0001	Pov (-1)	0.3712	0.2158
ilo (-3)	-2.0112	0.0007	ilo (-2)	0.0079	0.0311

The result of the KSS and KRUISE is presented above, what can be inferred from the result is that unemployment hysteresis is present in Nigeria even with the use of nonlinear unit root test. Implying that the present state of unemployment in the country is like to be sustained for a longer period of time except if pragmatic policies are injected that can curb the menace of unemployment in the country.

Model Estimation and Discussions of Findings

The result estimated shows that only one state can be achieved at convergence level of unemployment rate regime switching in Nigeria. The result further opined that their evidence of unemployment rate smoothing in the country, irrespective of the regimes of unemployment in the country. This finding is in conformity with the studies of Bahmani-Oskooee, Chang and Ranjbar (2017).

Table 4: Estimates of the Standard Unemployment Hysteresis

Regime 1 (regime of high unemployment rate)				Regime 2 (regime of low unemployment rate)			
Variable	Estimation	Std. Error	p/z/	Variable	Estimation	Std. Error	P/z/
UN_L1	-0.619	0.210	0.000	UN_LI	0.692	0.034	0.000
INF	-0.411	0.211	0.047	INF	0.007	0.033	0.311
Δ XCHP	-0.005	0.048	0.616	Δ XCHP	0.006	0.451	0.005
POV	2.017	0.163	0.000	POV	-0.052	0.061	0.027
ILO	2.104	1.342	0.031	ILO	0.203	0.412	0.371

Panel B Extended: Extended Unemployment Hysteresis in Nigeria Without Institutions

Regime 1 (Regime of high Unemployment Rate)				Regime 2 (Regime of low Unemployment Rate)			
Variables	Estimation	Std. error	p/z/	Variable	Estimation	Std..Error	p/z/
UN_L1	-0.013	0.020	0.520	UN_LI	0.521	0.021	0.000
INF	0.011	0.054	0.247	INF	0.017	0.013	0.219
POV	2.523	0.412	0.001	POV	-0.031	0.031	0.041
ILO	1.052	1.512	0.020	ILO	0.401	0.402	0.328
Δ XCHP	-0.062	0.031	0.319	Δ XCHP	0.066	0.004	0.001

STATA Output

The result obtained shows that the previous level of UN_L1 negatively impacted on its current level except for the high level of unemployment rate under the changes in exchange rate policy regime. The lagged unemployment rate for the high unemployment rate regime has a value of -0.619 with highly statistically significant probability value of 0.000. in the case where changes in exchange rate policy is not considered, this implied that a high unemployment rate in the previous period excluding changes in exchange rate policy will enhance a low unemployment rate in the current period and vice versa. This can also be said for changes in exchange rate policy can be considered except if it highly insignificant. Overall, changes in exchange rate policy is negatively related to both period of high and low unemployment regimes of unemployment hysteresis but only significantly related to the former. It has a positive coefficient of 0.066 and a corresponding probability value of 0.0001 low regime while it has a negative coefficient of -0.062 with probability value of 0.319 for the high unemployment regime. This result rightly suggests that a higher value of changes in exchange rate policy will lower the rate of unemployment in the country. This finding is seriously circumspect, as it tends to suggest that policy makers are not doing enough towards ensuring that appropriate policy in managing unemployment rate towards a reasonably stability. Heuristically, it is a further indication that there are needs for more intentional and proactive policies of unemployment hatcheries in the country.

With or without frequent change in exchange rate policy in the country, inflation appears significant in a high regime of unemployment rate in the country and albeit insignificant in low regime unemployment regime. This is intuitive in that when unemployment rate exceeds the actual level for the economy, inflationary pressure will drastically be reduced and purchasing power will reduce in the same direction. This further confirm the fishers effect and further suggest that inflation targeting is one of the policy strategies of the monetary institutions. By contrast, poverty rate; with or without changes in exchange rate policy, is positive to high unemployment rate and negative to low unemployment regime in the country. Albeit significantly, the implication is that lower poverty rate should provide a counter-cyclical impulse to the unemployment hysteresis in the country, when there is a low unemployment rate in the country is expected that poverty level should also reduce accordingly considering te dynamic of unemployment rate in the country. Previous studies supporting this empirical argument include the work of Pikoko and Phiri (2019) but was contradicted by the work of Capooral and Gil-Alana (2018).

Table 5: Transitional Probabilities of Unemployment Hysteresis in Nigeria

Panel A: transitional probabilities of unemployment hysteresis regime in Nigeria			
Transitional Probabilities without Δ XCHP		Transitional Probabilities with Δ XCHP	
Expected Probabilities	Estimates	Expected probabilities	Estimates
P_{11}	0.318	P_{11}	0.652
P_{12}	0.682	P_{12}	0.348
P_{21}	0.021	P_{21}	0.026
P_{22}	0.716	P_{22}	0.862

PANEL B: Duration of persistent unemployment hysteresis regimes in Nigeria			
Duration of Persistence without ΔXCHP		Duration of Persistence with ΔXCHP	
Expected Duration	Estimates	Expected Duration	Estimates
S ₁	1.92	S ₁	3.18
S ₂	38.21	S ₂	33.21

Source : Stata Output

The estimate on the transitional probabilities and duration of persistent unemployment hysteresis regimes provides more valuable insight. The 0.318 is the probability that a high employment hysteresis regime in the current quarter will remain high in the net quarter but a 68 percent chance that it will transit to a low unemployment hysteresis regime in the next quarter. On the other hand, there is 2.1 percent chance that a low unemployment hysteresis in the current quarter will transit to a high unemployment hysteresis in the next quarter. However, there is 0.716 percent chance that a low unemployment hysteresis regime in the current quarter will remain low in the next quarter. The implication is that, the duration for a persistent high unemployment rate regime in Nigeria is approximately two (2) quarters while that of a low unemployment hysteresis regime is approximately 38 quarters which is about 10 years equivalently. All these transitions and persistence are without the consideration of change in the exchange rate policy. But with the consideration of the change in exchange rate policy, there is persistence of high unemployment hysteresis regime to 65.2 percent chance and the transition from high unemployment hysteresis to a low unemployment hysteresis regime diminishes 34.8 percent chance. (see table 5). This suggest that changes in exchange rate policy stimulate the persistent unemployment hysteresis in Nigeria and reduces the chance of a low unemployment hysteresis persistency in the country. The implication of this finding is that perhaps, the frequent change in exchange rate policy has to a large extent distort good policy that can reduce unemployment hysteresis sin the country.

Table 6: Summary Statistics of Smoothed Regimes Probabilities

	P(S(t)=1)	P(S(t)=2)
Mean	0.313	0.658
Median	0.004	0.873
Standard deviation	0.513	0.513
Skewness	0.412	-0.412
Kurtosis	1.217	1.217
Jarque-Bera. Stat.	19.417	19.417
Prob. (Jarque- Bera Stat)	0.000	0.000

Source: E-view Output

In fact, the duration of persistence has marginally increased for high unemployment hysteresis regime by a spate of about of three quarters. While the duration for persistence of low unemployment hysteresis regime by marginally from 38.21 quarters to 33.21 quarters (see table 5). The smoothed probabilities are a further indication that both probabilities of state 1 (S(t)=1)

and state 2 (S(t)=2) are true mirror image of each other. This is evident in that state 1 skewed positively by 0.412 while state 2 skewed negatively -0.412 value. The mean value also suggests that after being smoothed, state 1 (high unemployment hysteresis regime has a probability transition to remain at the same state at 31.3 percent while state 2 with (low unemployment hysteresis regime) has a probability transition tom remain in the same state at 65.8 percent.

5. Conclusion and Policy Implication

This study examines institutional environment and unemployment hysteresis to ascertain if there is any evidence for jobless growth in Nigeria using a Markov switching dynamic model. The study covers a span from 1980 to 2023. The data were sourced from various acknowledged published sources. Since most macroeconomic series is characterized with shocks and volatile trend, the study adopt the nonlinearity test of BDS and nonlinear unit root test such the kruse and kss to ascertain the nonlinear characteristics of the variables employed in the model. What the

result of the nonlinear unit root test indicates is that the volatile trend of variables that causes unemployment hysteresis will have a consequential long run effect on unemployment. While the kss and kruse result shows that unemployment rate in Nigeria follows the hysteresis. The nonlinear approach lends credence to the adoption of the Markov switching modelling approach for this study. The empirical evidence obtained from this study suggest that institutional environment matter for unemployment hysteresis in Nigeria. The result shows changes in exchange rate policy is responsible for unemployment hysteresis and that the primitive level of unemployment does not matters. It was found out that a

high level of changes in exchange rate policy triggers unemployment hysteresis in the country. In fact, the fishers effect was suggested for the Nigeria economy only when institutional environment was considered. Thus, the study suggests that policy stability and sustainability that would reduce the unemployment rate should be one of the major cardinal point of the macroeconomic goals in the country, this can be achieved through stable structural change that will reduce any evidence for jobless growth. The required proportions of macroeconomic policies and stable institutions to reduce unemployment, and the lag period to become effective, are further suggested. Defense.

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