Full Length Research Paper

Empirical analysis of agricultural growth and unemployment in Nigeria

O. E. Ayinde

Department of Agric – Economics and Farm Management, University of Ilorin, P. M. B.1515, Ilorin, Kwara State Nigeria.
E- mail: opeayinde@yahoo.com. Tel- +234-8038309935.

Unemployment is a worldwide economic problem. It is a main cause of poverty. Poverty alleviation has been a great concern to developing countries. The economic cost of unemployment on a society necessitates this study. Consequently, this study analyses the Nigerian agricultural growth rate and examines the linkage and dimension of agricultural growth and unemployment rates. Time series data were employed with the aid of some statistical tools such as t – test, Granger Causality test and regression analysis. Results showed that Nigerian agricultural growth rate has an inverse relationship with unemployment and re – establish the Cobb webb theory. In addition, increase in agricultural growth decrease unemployment and thus can alleviate poverty. Consequently, recommending polices to alleviate poverty should focus on increasing agricultural growth.

Key words: Agricultural growth rate, unemployment rate, Granger Causality Test.

INTRODUCTION

Unemployment according to Lipsey (1963) brings about economic waste and causes human suffering. The contribution and attitude of this economic waste were emphasized by the fact that the factor services are the least durable economic commodity.

Unemployment is a result of the inability to develop and utilize the nation's manpower resources effectively especially in the rural sector (Fadayomi, 1992; Osinubi, 2006). The negative consequences include poverty, psychological problems of frustration, depression, hostility, suspiciousness of people, food insecurity, all manner of criminal behaviour and general insecurity of life and property (Adebayo, 1999; Egbuna, 2001; Alanana, 2003; Okonkwo, 2005). Although Nigeria is known to be rich in manpower; however, all these problems are not left out in the country.

Unemployment is measured among people in the labour force. Labour force of a country as defined by Feyisetan (1991) is a set of people or citizens of a country who are willing and are able to make available at any given point in time their efforts for gainful employment. The unemployed are the individuals with no work but are looking for work at the time of survey. In the study of unemployment in Africa, Okonkwo (2005) identified three causes of unemployment as the educational system

the choice of technology which can either be labour intensive or capital intensive and thirdly inadequate attention to agriculture.

Agriculture was until the oil discovery, the highest foreign exchange earner. This emphasizes its pre-eminent position in the Nigerian national economy. In Nigeria today, farming still remains the major source of employment of the majority of the adult population (Olatunji, 2002). Its productivity is the most important single factor influencing the standard of living of both the rural and urban centers (Yusuf, 2002).

The menace of unemployment has increasingly been recognized as one of the socio-economic problems currently facing many developing countries like Nigeria and Africa as a whole (Curtain, 2000). Hence, this study answered the following research question; is there linkage between the Nigerian agricultural growth and unemployment? Is there any significant impact of the growth rate of the agricultural sector in alleviating unemployment among urban and rural dwellers? The specific objectives of the research are to: examine the trend of national unemployment rates in the urban and rural areas of the economy; analyse Nigerian agricultural growth rate and examine the dimension and linkage between agriculture and unemployment.
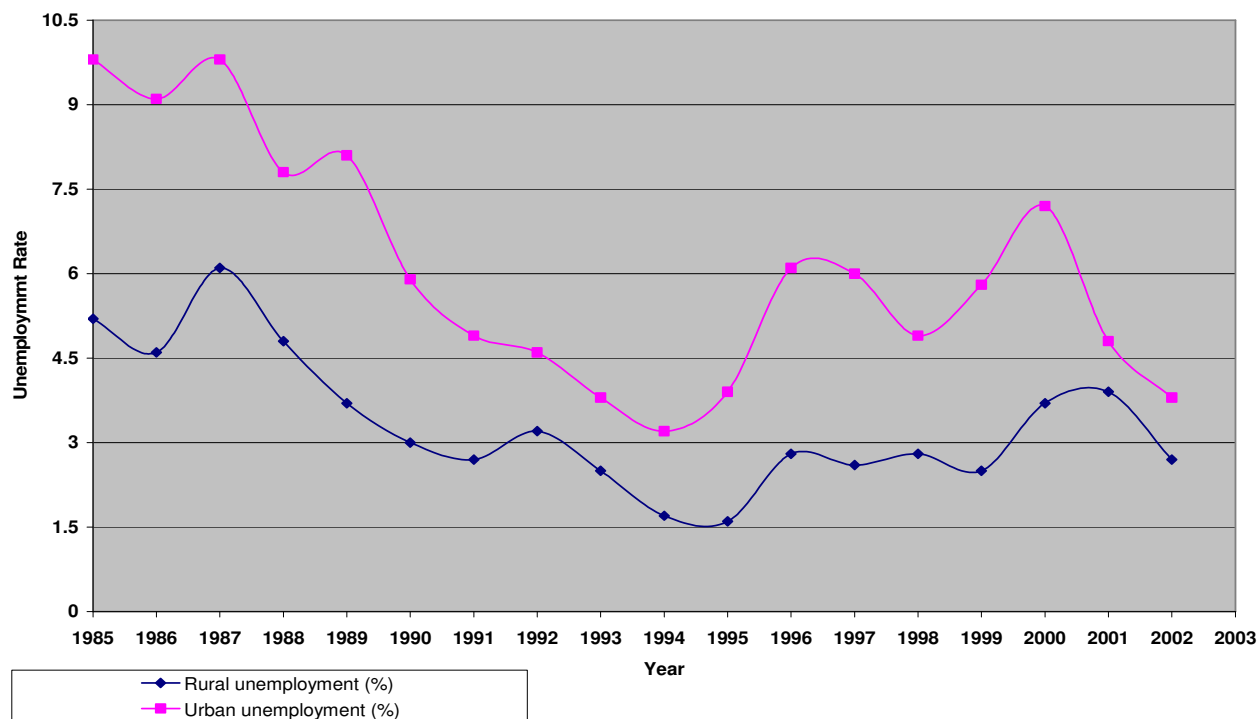
Figure 1. Rural and urban unemployment rate

METHODOLOGY

The study area is Nigeria. The sets of data used in this research were the time series data obtained from annual abstracts of statistics of the Nigerian Federal Office of Statistics and the Central Bank of Nigeria. The collected data are on agricultural growth rates, national unemployment, rural unemployment and urban unemployment in Nigeria (1983 – 2003). The analytical tools employed in this research include t-test, Duncan Multiple Range test, Granger Causality test and regression analysis. The t – test was used to establish whether there exist significant difference in the unemployment rates of rural and urban areas. The Granger causality test was used to examine the dimension and the linkage between agriculture and unemployment. The Granger causality model is expressed as

$$ y_t = \sum_{i=1}^{k} \alpha_i \, y_{t-1} + \sum_{i=1}^{k} \beta_i \, x_{t-1} + u_t $$

Where y_t and x_t are the time series data which can take values of agricultural growth rates, national unemployment, rural unemployment and urban unemployment. By this model, variable that causes the other is identified. This leads to a regression model with lag variable which in its explicit form is given as:

$$ y_t = \beta_0 + \beta_1 x_t + \beta_2 x_{t-1} + \beta_3 y_{t-1} + u_t $$

Where y_t = dependent variable identified by the causality model

x_t = independent variable identified by the causality model

y_{t-1}, x_{t-1} = lag dependent and independent variables; and

u_t = disequilibrium term

Thus, this regression model was used after the granger causality test of directions of causation has been determined (Granger 2001; Seth, 2007).

RESULT AND DISSCUSSION

It was revealed that unemployment rate is generally higher in the urban areas than in rural areas (Figure 1). This may be as a result of rural – urban migration and various organizations laying off their members of staff for them to become more computerized and mechanized. In the rural area, the rate of unemployment was found to decrease from 1985 to 1986 and then increased in 1987. From 1987, it started to decrease till 1995. This indicates that people in the rural areas were increasingly employed in the time range of 1987-1995. From 1996 till date unemployment rates have not been steady as it fluctuates year in year out. In the urban area, unemployment rate has no definite pattern (Appendix 1). Infact, the t-test of urban and rural unemployment rate is significantly different at 5% level of significance (Table 1).This implies that urban unemployment is different to that of rural unemployment.

The real sectors of the economy of Nigeria include agriculture, industry and the oil sector. These sectors recorded modest growth in 2003 with the Gross Domestic Product (GDP) at 1990 constant basic prices of N392.76 billion to 10.24 percent growth rate which is higher than that of the previous years (Appendix 1). The Granger causality test carried out shows that there is an undirec-

Table 1. Pairwise T-test result

Source	Degree of freedom	Sum of squares	Mean square	f-value	Sig
Model	2	114.001	57.001	0.731	0.486
Error	60	4677.161	77.953		
Total	62	4791.162			

Table 2. Granger causality tests

Real sectors and unemployment	F- Statistics	Probability	Remarks
National unemployment (YAT) → Agricultural growth (XAT)	2.097	0.215	Reject
Agricultural growth (XAT) → National unemployment (YAT)	3.603	0.068	Accept
Rural unemployment (YR) → agricultural growth (XAT)	3.675	0.112	Reject
Agricultural growth (XAT) → rural unemployment (YR)	2.209	0.199	Reject
Urban unemployment (YU) → agricultural growth (XAT)	15.510	0.04	Accept
Agricultural growth (XAT) → urban unemployment (YU)	2.190	0.178	Reject

Note: The relationships are established at 10% significance level.

Table 3. Regression results.

Variables	National unemployment (YAT)	Agricultural growth (XAT)
Constant	1.059**	-1.608
	(1.827)	(-0.663)
Agriculture growth (XAT)	-0.152**	
	(-2.116)	
XAT_{t-1}	0.06517	
	(1.413)	
YAT_{t-1}	0.759*	
	(4.715)	
Urban unemployment (YU)		1.476*
		(3.575)
YU_{t-1}		-0.226
		(-0.518)
XAT_{t-1}		-0346
		(-1.535)
Adjusted R^2	0.640	0.396
F- Statistic	10.495	4.927
Durbin-watson	1.602	

Note: * 5% significant level,
** 10% significant level, value of the t-statistic are shown in the parenthesis.

unidirectional causation between agricultural growth and national unemployment and between urban unemployment and agricultural growth (Table 2). The direction of causation of agricultural growth causing nat- national unemployment can be seen in the sense that increase in production of agricultural production in excess of demand creates a glut. Thereby in the subsequent production year it results into laying off of workers. This explains and re-establishes the cobb-web theory. The explanation of urban unemployment causing agricultural growth shows that when people are laid off from their industrial work or jobs, they tend to go back to agricultural production to earn a living and for survival.

However, the Granger Causality test reveals only the linkage and direction of the linkage and no relationship between the pairs is established. This is however remedied with the regression result in Table 3. This result shows that an increase in national unemployment (YAT) by a unit results from a decrease in agriculture growth by 0.152%. This relationship reveals that when agricultural

growth decreases, it brings about increase in national unemployment.

Furthermore from Table 3, the effect of urban unemployment (YU) is seen to have a positive value of 1.476. This implies that urban unemployment is positively correlated to agricultural growth. Thus, an increase in urban unemployment will boost agricultural growth.

Conclusion

Based on this research, unemployment in Nigeria can be alleviated. It can also be argued that continuous improvement in the agricultural sector of the economy is a way to break the vicious cycle of the unemployment menace, thus in turn alleviates poverty. Agricultural growth, though found to be inversely related to national unemployment, can also be improved such that the cobb-web theory will not be realized.

For unemployment rate in Nigeria to be curbed, there must be a huge intervention in agricultural production and its sustainability in order not to let this macroeconomic problem persist. Consequently, recommending polices to alleviate poverty should focus on increasing agricultural growth.

REFERENCES

Adebayo A (1999). "Youth Unemployment and National Directorate of Employment self Employment Programmes". Nigerian Journal of Economics and Social Studies, 41 (1): 81-102.

Alanana OO (2003). "Youth Unemployment in Nigeria: Some implications for the third millennium." Global J. of Social Sci. 2(1): 21-26
http://www.ajol.info/rst/rst.php?jid=132&op=context_search&contextid=128&id=4653& terms=unemployment.

Curtain R (2000). "Towards a Youth Employment Strategy. A Report to the United Nations on Youth Employment.

Egbuna EN (2001). Food Production: An Africa Challenge. Central Bank of Nigeria Economic and Finan. Rev. 39(1):13.

Fadayomi TO (1992): Migration Development sand Urbanization policies in sub-Saharah Africa, CODESRIA Books series Ibadan. pp. 27-30.

Feyisetan BJ (1991). "Population growth and the labour force, a study of relationships." Paper presented at a seminar on population and development, Obafemi Awolowo University, Ile-Ife. Nigeria June 25-28.

Lipsey RG (1963): An introduction to positive economics fifth edition. English language book society pp. 456-521.

Okonkwo I (2005). "Poverty and unemployment alleviation strategies in Nigeria" Nigeria Matter Nigerians in America publisher

Olatunji MD (2002). The state of the Nigerian Economy: Unemployment

Appendix 1. Nigeria: Major economic, financial and banking indicators, 1983-2003 real sector statistics and unmeployment rate.

Year	GPD at 1990 constant basis prices (N Billion)	Aggregate GDP	Agriculture (%)	Manufacturing (%)	Crude oil (%)	Rural unemployment (%)	Urban unemployment (%)	National unemployment (%)
1983	185.60	-7.10	-0.70	-30.90	-9.00	-	-	-
1984	183.56	-1.10	-5.20	-11.70	12.50	-	-	-
1985	201.00	9.50	17.60	26.20	7.90	5.20	9.80	6.10
1986	206.00	2.50	9.70	-3.70	-1.90	4.60	9.10	5.30
1987	204.80	-0.60	-3.50	4.00	-2.50	6.10	9.80	7.00
1988	219.90	7.40	10.30	13.90	2.60	4.80	7.80	5.30
1989	236.80	7.70	5.40	2.20	12.00	3.70	8.10	4.50
1990	267.60	13.00	4.30	4.90	26.40	3.00	5.90	3.50
1991	265.40	-0.80	3.70	9.40	-8.90	2.70	4.90	3.10
1992	271.40	2.30	2.10	-4.50	2.50	3.20	4.60	3.40
1993	274.80	1.30	1.40	-3.70	0.20	2.50	3.80	2.70
1994	275.50	0.20	2.50	-1.30	-2.60	1.70	3.20	2.00
1995	281.40	2.20	3.60	-5.20	2.40	1.60	3.90	1.80
1996	293.70	4.40	4.20	0.80	7.20	2.80	6.10	3.40
1997	302.00	2.80	4.30	0.40	1.50	2.60	6.00	3.20
1998	310.90	2.90	4.10	-6.90	2.20	2.80	4.90	3.20
1999	312.18	0.41	5.30	3.40	-7.50	2.50	5.80	3.10
2000	329.17	5.44	2.90	3.40	11.10	3.70	7.20	4.70
2001	344.31	4.60	3.90	7.00	5.200	3.90	4.80	4.20
2002	356.28	3.48	4.30	10.10	-5.70	2.70	3.80	3.00
2003	392.76	10.24	6.50	5.70	23.90	-	-	-

Source: Central Bank of Nigeria, 2004