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MEASURING ECONOMIC INSECURITY: IMPLICATION FOR EDUCATION IN NIGERIA

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ABSTRACT

Economic insecurity has attracted less attention in academic research despite its implication on human well-being. The purpose of this paper therefore is to compute the economic insecurity index and examine the relationship between this index and school enrollment. This is the very first attempt to compute the economic insecurity index in Nigeria. Two dimensions were used to compute the economic insecurity index – unemployment and illness risks. After computing the economic insecurity index, descriptive statistics and correlation were used to examine the relationship between economic insecurity and educational attainment in Nigeria. Time series data ranging from 1981 to 2010 were collected from the Central Bank Statistical Bulletin and African Development Indicator (ADI). The variables involved include unemployment rate, labor force participation rate as percentage of total population for ages 15 to 65, out-of-pocket health expenditure as percentage of private expenditure on health, total population, and gross school enrollments for both primary and secondary. The study found that insecurity associated with unemployment risk constitutes a major source of economic insecurity in Nigeria. However, illness or health insecurity has inverse relationship with both primary and secondary enrollment. It is therefore recommended that both unemployment and illness risk should be controlled in order to reduce the risk of economic insecurity and hence improve school enrollments.

Keywords: Economic insecurity, risks, educational attainment, education

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INTRODUCTION

The concept of economic insecurity has received little attention both in the policy arena and academic research. However, economic insecurity has significant impact on the well-being of people and their happiness. Unfortunately all the measures of well-being including per capita income and Human Development Index (HDI), omit economic insecurity in their measures. Meanwhile, the well-being of people is their fundamental human right; hence, the main concern of welfare states is to reduce economic insecurity so as to increase well-being. Barr (2001) argued that the basic objective of the welfare state has been to reduce economic insecurity and economic inequality. The United Nations identified the importance of human well-being as part of their human rights when it stated in Article 25 of the UN Universal Declaration that people have the right to a standard of living adequate for the health and well-being of themselves and their families, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other loss of livelihood in circumstances beyond their control. The study of economic insecurity which affects human well-being is therefore imperative.

What then is economic insecurity? There is no generally acceptable definition of the concept. Bossert and D'Ambrosio (2013) argued that economic insecurity is a multi-faceted issue and a comprehensive formal definition that will subsume all possible aspects of it is difficult to come by. The UN Department of Economic and Social Affairs (2008) writes that "it is not easy to give a precise meaning to the term economic insecurity, partly because it often draws on comparisons with past experiences and practices, which have a tendency to be viewed through rose-tinted lenses, and also because security has a large subjective or psychological component linked to feelings of anxiety and safety, which draw heavily on personal circumstances." However, according to Osberg (1998), economic insecurity is defined as: "the anxiety produced by a lack of economic safety – i.e. by an inability to obtain protection against subjectively significant potential economic losses" (p. 23). According to Stiglitz, Sen, and Fitoussi (2009), economic insecurity may be defined as uncertainty about the material conditions that may prevail in the future. The uncertainty that engulfs the individual who is unsecured may create stress and anxiety on such person such that it becomes difficult to invest in his/her children's education. This anxiety can come from the fear of loss of access to resources needed to lead a long, healthy life and a decent standard of living. This anxiety could be more serious in developing countries, where few people have access to health insurance in period of illness, unemployment allowance during joblessness, social welfare funds during old age or widowhood. When the support system is inadequate then unemployment, illness, widowhood and old age can be source of anxiety.

The objectives of this paper therefore are: (i) to compute the economic insecurity index for Nigeria; (ii) to conduct trend analysis of economic insecurity in Nigeria over time and (iii) to examine the relationship between economic insecurity and education attainment proxy by school enrolment. The rest of the paper is arranged as follows: section two presents methodology and data issues. The trends of economic insecurity in Nigeria are presented in section three, section four is the empirical results and section five concludes the paper.



METHODOLOGY AND DATA ISSUES

There are two broad methodological concerns in this paper; first, how to compute the economic insecurity index, and second examining the relationship between economic insecurity and education. The methods used in view of these two concerns are discussed in this section.

Computation of Economic Insecurity Index

To compute the economic insecurity index, the paper follows the Osberg (1998), and Osberg and Sharpe (2002, 2003) method of computing the insecurity index. They computed the economic insecurity index using four dimensions: insecurity associated with unemployment; illness, widowhood/single parent, and old age. The risk of unemployment index provides answer to three questions: a) what percentage of the working age population experience unemployment? b) What percentage of the unemployed are not receiving unemployment benefits? and c) how much of their pre-unemployment income is not replaced when they are on benefit?

The product of labor force participation rate and the unemployment rate gives the index for working age people experiencing unemployment. Since there are zero unemployment benefits in Nigeria, the percentage of unemployed not receiving unemployment benefits will be equal to 100%. The third component is equal to total wage earned when employed because there is zero replacement. In estimating illness economic insecurity they assumed that risk associated with illness is proportional to the share of uninsured private medical care expenses in disposable income. Introduction of health insurance would lead to a considerable drop in cost of treatment, thus reducing the risk associated with illness. Meanwhile, a large proportion of people working in the informal sector and self-employed are not captured in the national health insurance scheme. In this paper, the out-of-pocket health expenditure as percentage of private expenditure on health is used to proxy this risk. Osberg and Sharpe (2002) argued that the main source of single parenthood is divorce and separation, thus computed insecurity associated with single parenthood as the product of: (the probability of divorce) x (the poverty rate among single female parent families) x (the average poverty gap ratio among single female parent families). However, it is assumed in this paper that both divorce and death of husband are the origin of single parenthood; therefore, the product of percentage of female headed household and national poverty gap is considered. Old age economic insecurity has to do with income risk at old age. Income at old age is the result of a series of events including earnings, savings, expenditure style and other decisions during the youthful age. Following Osberg and Sharpe (2000), insecurity in old age is viewed in this paper as the chance that an elderly person will be poor, and the average depth of that poverty. Thus, the poverty rate and the poverty gap ratio for the population 65 and over are used to proxy old age economic insecurity. However, because of lack of data, only two indexes of economic insecurity – unemployment and illness insecurity – are computed in this article. The proportion of population affected is used as weight, for example, the population between the ages of 15 to 65 is most affected by unemployment, but everybody in the economy can be affected by ill health.



The Statistical Methods of Analysis

After computing the economic insecurity index, descriptive statistics and correlation analysis are used to examine the trend, pattern and relationship between economic insecurity and educational attainment in Nigeria. Descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way such that, for example, patterns might emerge from the data which allows simpler interpretation of the data. It is a useful tool for inspecting data that reveals the pattern, trend, and other information about the data in one view. Several statistics are used for this purpose but in this article range, mean, variance and standard deviation are considered. Range is the difference between the biggest and smallest number in the observation, mean indicates the values around which all the values taken by the variable are distributed equally, standard deviation is a measure of dispersion and variance is the square of standard deviation. Correlation is used to determine the existence or otherwise of linear relationship between two variables as well as to measure the strength of such linear relationship. The value of correlation coefficient ranges from -1 to 1; when it takes a value of 0 that means complete absence of linear relationship, while a value of -1 means perfect negative (or inverse) relationship and a value of 1 means perfect positive relationship. In other words, positive correlation coefficient means direct relationship and a negative value means inverse relationship. The closer the value of the correlation coefficient is to zero, the weaker the linear relationship and the closer it is to either -1 or 1, the stronger the linear relationship. Although many different types of correlation coefficients exist, the most commonly used are: Spearman (rank) and Pearson (simple) correlation coefficients. Pearson is more appropriate if the data are measured in interval or ratio scale while Spearman is preferred in case of ordinal data (see Erinoshio et al., 2002; Mertler & Vannatta, 2005). Therefore, in this article the Pearson correlation is considered.

Sources of Data

The data used in this paper are time series data covering the period of 1981 to 2010 which make 30 data points and they are obtained from secondary sources. Precisely, the data are collected from Central Bank Statistical Bulletin and African Development Indicator (ADI). Data collected include aggregate data on unemployment rate, labor force participation rate as percentage of total population in the ages of 15 to 65, out-of-pocket health expenditure as percentage of private expenditure on health, total population and gross enrollments for both primary and secondary schools.

TRENDS OF ECONOMIC INSECURITY

The trends of unemployment, unemployment insecurity, and proportion of health expenditure not covered by insurance; ill health insecurity and overall insecurity index in Nigeria are presented in this section. The insecurity index ranges from 0 to 1; the closer to 1, the more people are insecure and the closer to 0, the lower the insecurity. Table 1 presents the economic insecurity index computed and the two components of the index. The insecurity associated with unemployment over time arises from the risks individuals face if they are unemployed and have not enough savings for themselves during unemployment. The unemployment figures in Nigeria over the period 1981 to 2010 are presented in column 1 of Table 1 while risk or insecurity associated with unemployment is presented in column 2.



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It is clear from the table that the unemployment rate though fluctuating was generally rising in the 1980s, declining significantly in the 1990s and rising again in the 2000s which stood at 21.1 as at 2010. Similarly, economic insecurity associated with unemployment has a trend aligned with the unemployment rate, rising in the 1980s, falling in the 1990s and rising in the 2000s. The proportion of health expenditure paid by the individual presented in column 3 of Table 1 is high in the country as the out-of-pocket health expenditure is 90% of the private health expenditure throughout the period for which data is available. However, economic insecurity associated with illness is decreasing over time. The overall economic insecurity index ranges from zero to one, the closer to one the more the insecurity and the closer to zero the lower the insecurity. The index is generally low, that is, closer to zero; this could be because only two dimensions of economic insecurity are used in the computation. Meanwhile, economic insecurity was increasing in the 1980s, decreasing in the 1990s and increasing in the 2000s. It is also important to note that unemployment risk contributes more to the overall economic insecurity than risk of illness. It is not therefore surprising that the overall economic insecurity fluctuate along with unemployment risk.

Table 1

Unemployment, Health and Overall Economic Insecurity in Nigeria

| Year | Unemployment Rate | Economic Insecurity Unemployment | of Out-of-Pocket Health expenditure | Economic Insecurity of Illness | Overall Economic Insecurity index |
|------|-------------------|----------------------------------|-------------------------------------|--------------------------------|-----------------------------------|
| 1981 | 12.4 | 0.13 | | | 0.13 |
| 1982 | 11.5 | 0.13 | | | 0.13 |
| 1983 | 11.6 | 0.13 | | | 0.13 |
| 1984 | 18.9 | 0.21 | | | 0.21 |
| 1985 | 21.2 | 0.23 | | | 0.23 |
| 1986 | 14.1 | 0.15 | | | 0.15 |
| 1987 | 15.4 | 0.17 | | | 0.17 |
| 1988 | 16.8 | 0.18 | | | 0.18 |
| 1989 | 13.8 | 0.15 | | | 0.15 |
| 1990 | 15.8 | 0.17 | | | 0.17 |
| 1991 | 18 | 0.19 | | | 0.19 |
| 1992 | 17.3 | 0.18 | | | 0.18 |
| 1993 | 2.7 | 0.03 | | | 0.03 |
| 1994 | 2 | 0.02 | | | 0.02 |
| 1995 | 1.8 | 0.02 | 94.43 | 8.58E-05 | 0.02 |
| 1996 | 3.4 | 0.04 | 94.63 | 8.4E-05 | 0.04 |
| 1997 | 3.2 | 0.03 | 94.60 | 8.21E-05 | 0.03 |
| 1998 | 3.2 | 0.03 | 95.00 | 8.05E-05 | 0.03 |



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| | | | | | |
|------|------|------|-------|----------|------|
| 1999 | 3.1 | 0.03 | 94.76 | 7.85E-05 | 0.03 |
| 2000 | 4.7 | 0.05 | 92.65 | 7.49E-05 | 0.05 |
| 2001 | 4.2 | 0.04 | 91.39 | 7.21E-05 | 0.04 |
| 2002 | 3 | 0.03 | 90.43 | 6.97E-05 | 0.03 |
| 2003 | 14.8 | 0.15 | 96.22 | 7.23E-05 | 0.15 |
| 2004 | 13.4 | 0.14 | 95.34 | 6.99E-05 | 0.14 |
| 2005 | 11.9 | 0.12 | 95.80 | 6.85E-05 | 0.13 |
| 2006 | 13.7 | 0.14 | 95.57 | 6.67E-05 | 0.14 |
| 2007 | 14.6 | 0.15 | 95.53 | 6.5E-05 | 0.15 |
| 2008 | 19.7 | 0.21 | 95.40 | 6.33E-05 | 0.21 |
| 2009 | 19.7 | 0.21 | 95.55 | 6.19E-05 | 0.21 |
| 2010 | 21.1 | 0.21 | 95.47 | 6.03E-05 | 0.21 |

Figure 1 displays the trend of aggregate unemployment rate in Nigeria over the period 1981 to 2010. The figure shows that unemployment was high in the 1980s, it showed a downward trend in the 1990s but the trend moved upward in the early 2000s and has continued upward since then.

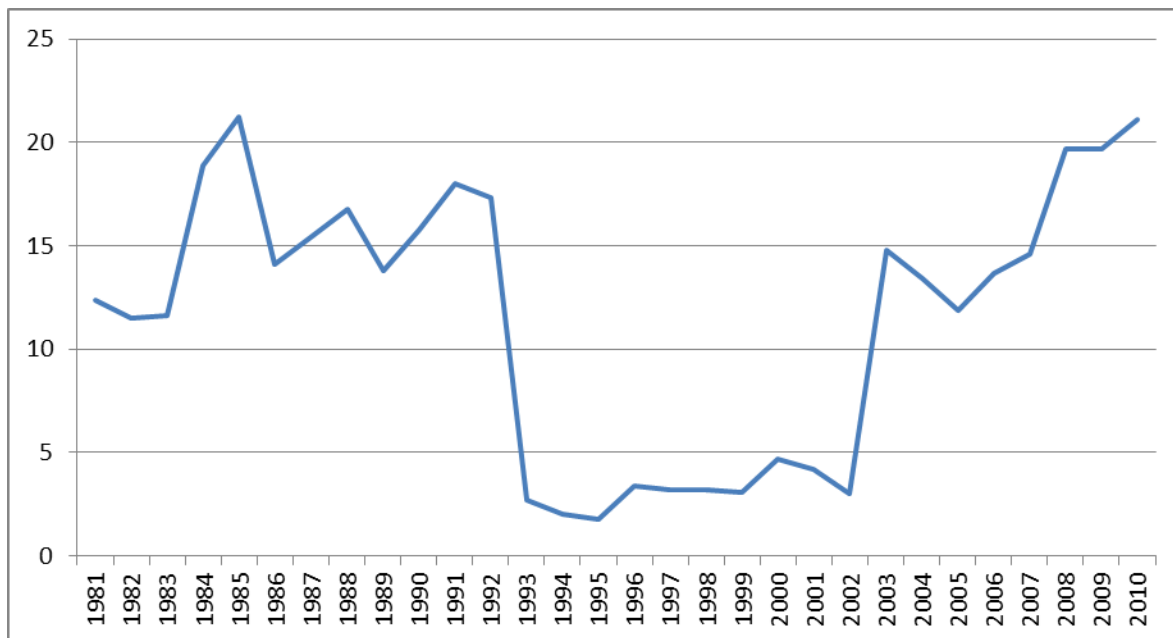


Figure 1. Unemployment rate in Nigeria (1981 – 2010)



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The insecurity associated with unemployment is presented in Figure 2; the trend depicted in this figure is similar to the trend of unemployment rate presented in Figure 1. An individual who is unemployed is exposed to a risk arising from the lack of income earnable from employment, and this risk is more severe if the individual has no access to unemployment allowance. If unemployment allowance is available, the risk will be less and unemployment insecurity will not trend with the unemployment rate. However, what is observed in Figures 1 and 2 depicts that unemployment insecurity is equivalent to unemployment rate because the unemployed have no access to any insurance such as unemployment benefits. This implies that in Nigeria unemployment insecurity tends with unemployment rate; the higher the unemployment rate in the country, the higher is the insecurity.

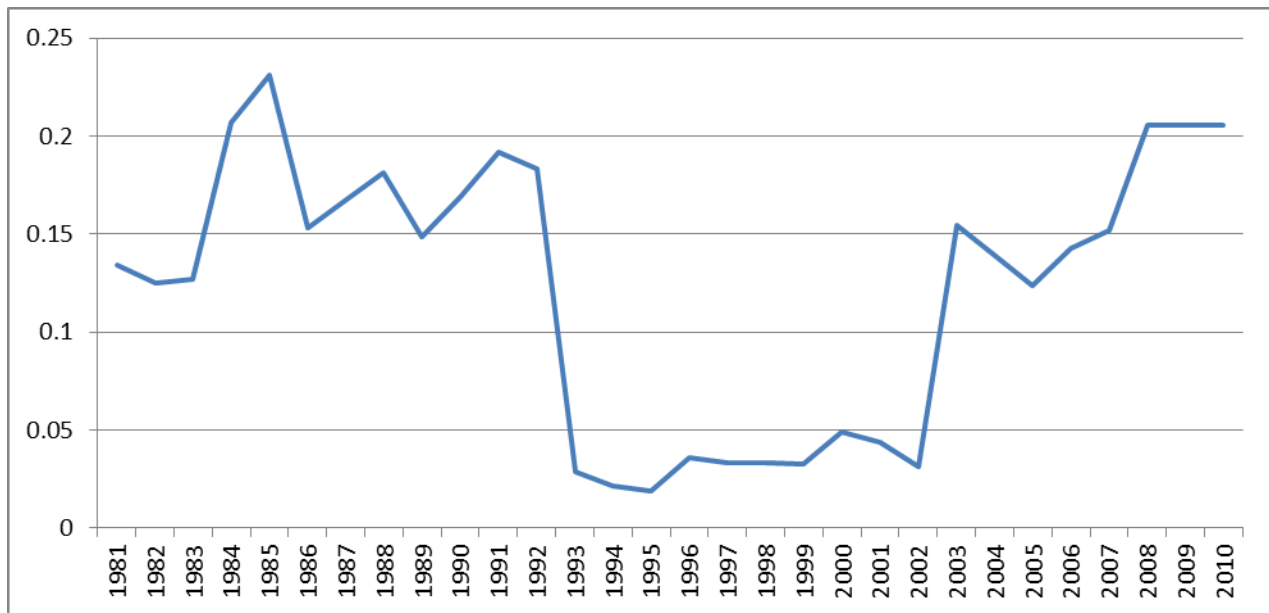


Figure 2. Economic insecurity of unemployment in Nigeria (1981 – 2010)

The out-of-pocket health expenditure as percentage of total health expenditure in Nigeria over the period 1995 to 2010 is displayed in Figure 3. The out-of-pocket health expenditure constitutes more than 90 percent of the total health expenditure in Nigeria through the entire period depicted; this means that people in the country have less access to health insurance.

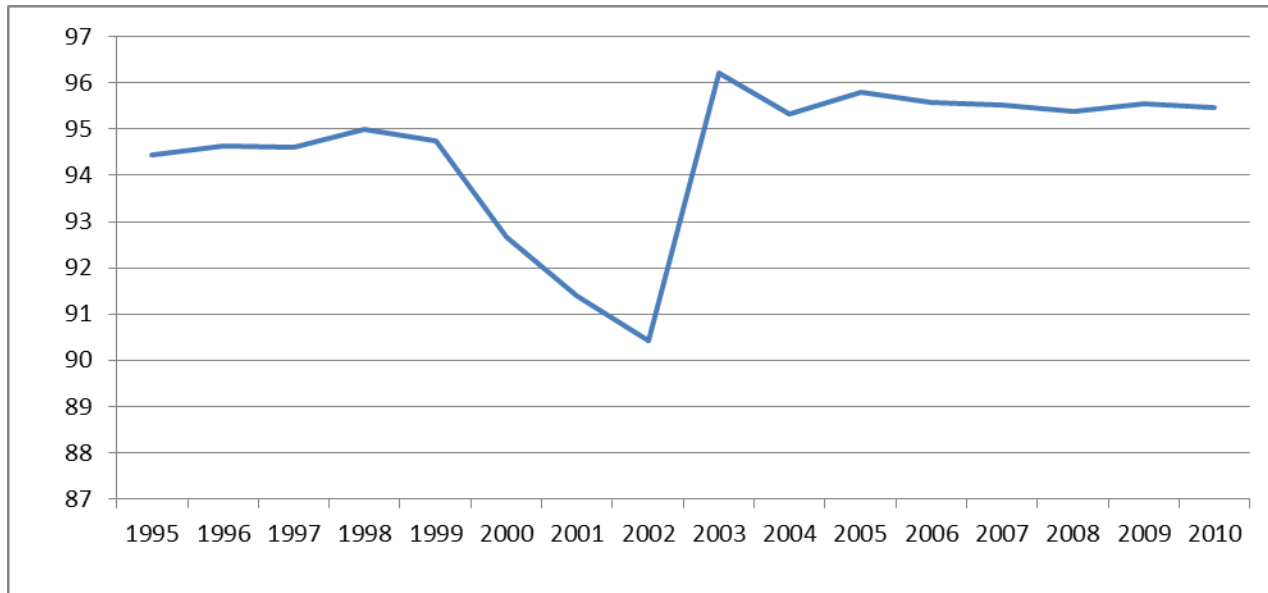


Figure 3. Out-of-Pocket Health Expenditure as % of Private Health Expenditure in Nigeria (1995 – 2010)

Risk associated with ill health or health insecurity is displayed in Figure 4. The trend of health insecurity does not co-move with health expenditure particularly out-of-pocket health expenditure presented in Figure 3. Figure 4 shows a declining trend of health insecurity which may be due to the impact of the National Health Insurance (NHI) and Community Health Insurance Schemes introduced in some states.

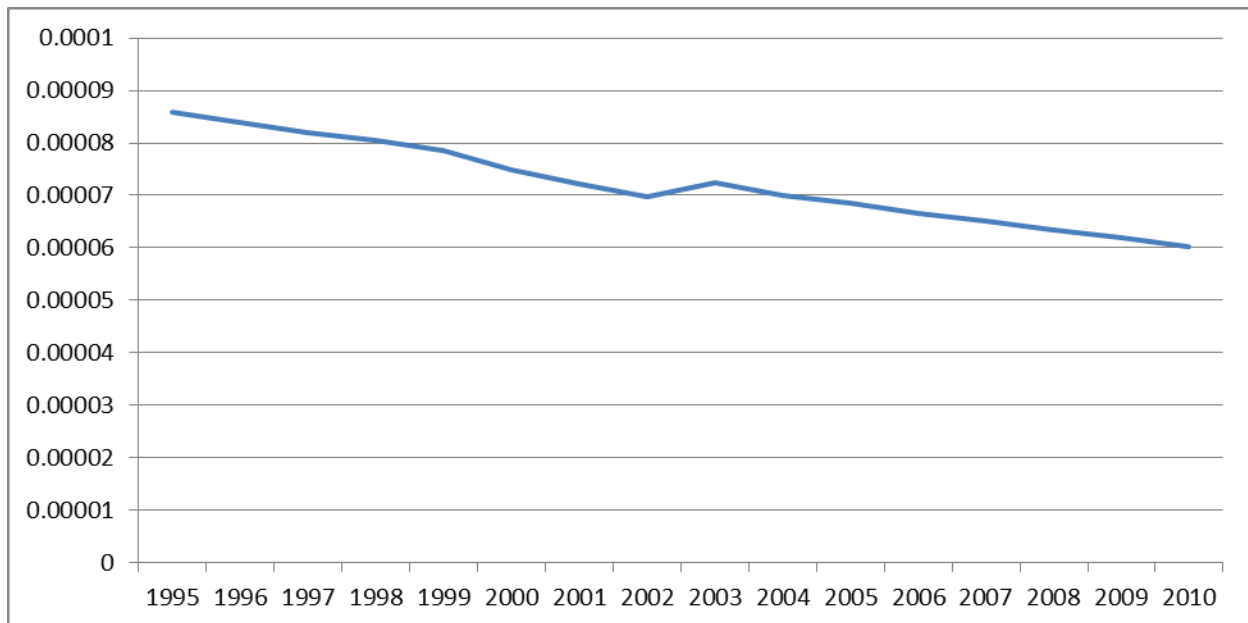


Figure 4. Economic insecurity of illness in Nigeria (1995 – 2010)



The trend of overall economic insecurity which constitutes unemployment and health insecurities is depicted in Figure 5. The trend displayed in this figure is similar to the trend of unemployment insecurity displayed in Figure 2. This implies that unemployment risk constitutes the major source of economic insecurity in Nigeria. The overall insecurity was high in the 1980s till the early 1990s when it declined drastically. It remained low through the rest of the 1990s but begins to rise in the early 2000s and the trend has been upward since. The rising trend of insecurity in recent time as shown in Figure 5 calls for concern.

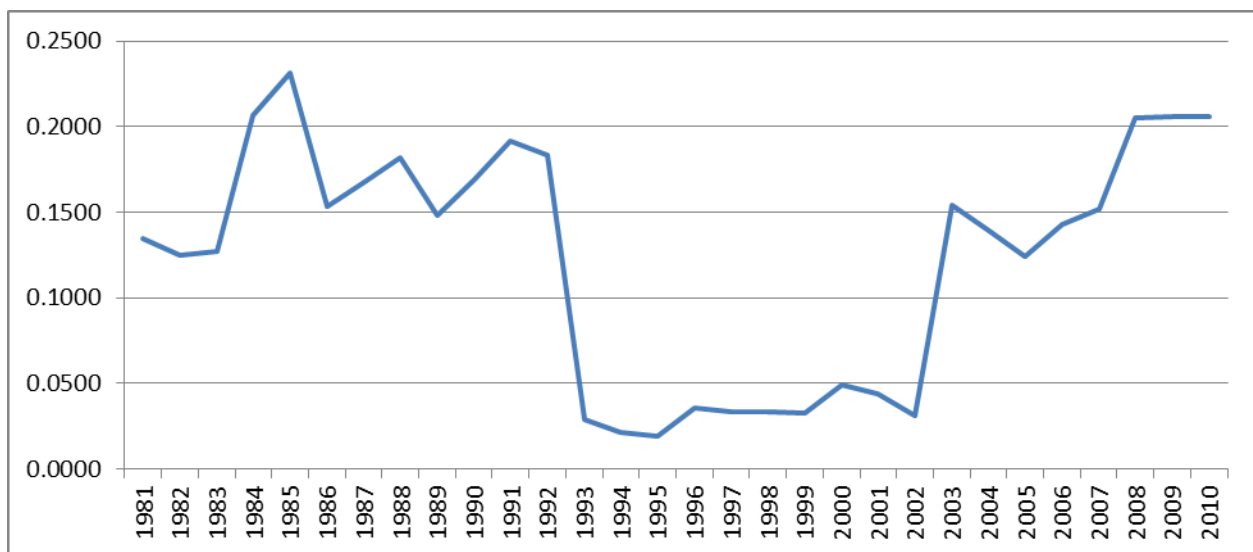


Figure 5. Overall Economic Insecurity Index in Nigeria (1981 – 2010)

EMPIRICAL RESULTS

Descriptive statistics and correlation analysis are used to examine the relationship between economic insecurity and education attainment in Nigeria. The results are presented in Tables 2 and 3 respectively. The mean unemployment rate is 11.57 with standard deviation of 6.60, while unemployment risk has mean 0.1225 and standard deviation of 0.0698. The mean unemployment rate of 11.57 is high particularly for a country that is aiming to be among the twenty biggest economies of the world by 2020. The unemployment risk is moderate since the mean level of risk is far from one. The mean out-of-pocket health expenditure as a percentage of private health expenditure is 94.55 with Standard deviation of 1.64; this is on the high side and may be a result of the narrow coverage of Health Insurance system in the country. However, economic insecurity of illness is very minimal with a mean value very close to zero.



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The overall economic insecurity index has mean of 0.1225 and standard deviation of 0.0698. Mean secondary school enrollment is 26.93 while mean primary school enrollment is 92.36. This indicated great achievement in terms of primary school education but most of the pupils do not proceed to secondary school.

Table 2
Descriptive Statistics

| | N | Range | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---------------------------|----|-------|---------|---------|-------|----------------|----------|
| Unemployment Rate | 30 | 19.40 | 1.80 | 21.20 | 11.57 | 6.60 | 43.54 |
| Unemployment Risk | 30 | 0.21 | 0.02 | 0.23 | 0.12 | 0.07 | 0.01 |
| Out-of-Pocket Health Exp. | 16 | 5.79 | 90.43 | 96.22 | 94.55 | 1.64 | 2.69 |
| Illness Risk | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Economic Insecurity | 30 | 0.21 | 0.02 | 0.23 | 0.12 | 0.07 | 0.01 |
| Secondary School Enroll. | 30 | 18.29 | 16.83 | 35.12 | 26.93 | 4.33 | 18.79 |
| Primary School Enroll. | 30 | 35.73 | 75.92 | 111.65 | 92.36 | 9.35 | 87.51 |

Table 3 displays pair wise correlation results among the variables. The main interest in the result is the correlation between measures of economic insecurity and school enrollments. The correlation between economic insecurity associated with unemployment and primary school enrollment is not significant, while economic insecurity is positively and significantly correlated with secondary school enrollment. The sign of the correlation is contrary to expectation because it was expected that the high unemployment insecurity will be associated with less educational attainment, meaning a negative correlation. The result may be depicting a situation where more people enroll their children in school in order to mitigate future unemployment. The correlation between overall economic insecurity index and school enrollments is similar to the relationship observed between unemployment risk and school enrollment. However, the correlations between economic insecurity associated to ill health and secondary enrollment as well as primary enrollment are significant, negative and strong. This suggests that the higher the illness insecurity, the lower educational attainment will be.



Table 3
Correlation Matrix

| | | UNRisk | illhealth | econinsec | SSEnrolm | PrySEnrol |
|-----------|---------------------|---------|-----------|-----------|----------|-----------|
| UNRisk | Pearson Correlation | 1 | -.866** | 1.000** | .337 | .231 |
| | Sig. (2-tailed) | | .000 | .000 | .069 | .219 |
| | N | 30 | 16 | 30 | 30 | 30 |
| illhealth | Pearson Correlation | -.866** | 1 | -.866** | -.798** | -.562* |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .023 |
| | N | 16 | 16 | 16 | 16 | 16 |
| econinsec | Pearson Correlation | 1.000** | -.866** | 1 | .337 | .231 |
| | Sig. (2-tailed) | .000 | .000 | | .068 | .219 |
| | N | 30 | 16 | 30 | 30 | 30 |
| SSEnrolm | Pearson Correlation | .337 | -.798** | .337 | 1 | .158 |
| | Sig. (2-tailed) | .069 | .000 | .068 | | .404 |
| | N | 30 | 16 | 30 | 30 | 30 |
| PrySEnrol | Pearson Correlation | .231 | -.562* | .231 | .158 | 1 |
| | Sig. (2-tailed) | .219 | .023 | .219 | .404 | |
| | N | 30 | 16 | 30 | 30 | 30 |

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

Note:

UNRisk means unemployment risk,
illhealth means ill health risk,
econinsec means economic risk,
SSEnrolm means Secondary School Enrollment
PrySEnrol means Primary School Enrollment

CONCLUSION

The preceding analysis shows that unemployment constitutes the major source of economic insecurity in Nigeria. This is partly because the unemployed have no access to unemployment insurance such as unemployment benefits. Though unemployment insecurity constitutes a large proportion of economic insecurity in Nigeria there is no evidence that it has inverse association with school enrollment. However, health insecurity is inversely associated with school enrollment, meaning that high health insecurity is associated with low school enrollments.



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The policy implication of all these is that, first, efforts should be doubled to curb the menace of unemployment in Nigeria to minimize the incidence of economic insecurity. In addition unemployment benefits could be introduced to reduce unemployment insecurity. Second, coverage of health insurance schemes should be broadened to cover more people around the country to cushion the effect of health insecurity particularly on school enrollment in country.

This article is the first attempt to compute the economic insecurity index in Nigeria. Though four dimensions of economic insecurity are identified in the literature, only two dimensions are used in this article. This is due to non-availability of data on other dimensions. It was shown in the paper that unemployment risk contributes more to economic insecurity in Nigeria than health risk. Unemployment insecurity is on the increase in recent times while illness insecurity is moderately decreasing. The paper also examines the relationship between economic insecurity and school enrollments. Ill health insecurity has negative correlation with both secondary and primary school enrollments.

The policy implications from this paper include: (i) there is need to fight unemployment more seriously, so as to reduce economic insecurity significantly; (ii) to attain more enrollment in schools particularly secondary schools, illness insecurity should be reduced by taking a large portion of health expenditure burden off the individual.

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