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THE DYNAMICS OF INFLATIONS IN NIGERIA AS THEY IMPACT ON THE ENVIRONMENTAL QUALITY OF ENUGU, NIGERIA

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ABSTRACT: *The dynamics of inflation in Nigeria have affected various sectors. This paper sets out to examine how core and non-core (food) inflations in Nigeria have affected the environmental quality of Enugu Metropolis. Factor Analysis was used to reduce the various environmental quality variables into single factor score known as the 'Y' variable. The inflation rates of core and Non-core inflations in Nigeria for various years were used as the inflation variables (X_1 and X_2 respectively). The environmental quality variable was the dependent variable while inflation variables served as independent variables. Multiple linear regression was used to establish the relationship between the environmental quality variable and core and Non-core inflation variables. The results showed that in the coefficient of determination, adjusted $r^2 = 0.958$, indicating that 95.8% variation in the dependent variable (environmental quality) can be predicted from the independent variable (Core and Non-Core inflations). The environmental quality of Enugu metropolis was negatively impacted by the changes in core and Non-Core inflations in Nigeria. Encouragement of residential property development in various dimensions among others has been recommended to help ameliorate the situation.*

KEYWORDS: Core, Non-Core, Inflations, Environmental, Quality.

INTRODUCTION

Inflation in Nigeria as a Socio-economic phenomenon received much attention in recent times. The dynamics of inflation in the country is often significantly linked with the discovery and booming era of crude oil in 1970s. Before this time, inflation rates in Nigeria were very negligible. Agriculture was then the mainstay of Nigerian economy and Nigerians were fully involved in agricultural production.

The headline inflation in Nigeria (Core inflation and non-Core inflation) was 13.8% at the end of 1970, and rose to 33.9% in 1975. Of course, the Udoji salary increase award, large flow of petrodollars courtesy of the crude oil boom in the early 1970s, and rapid monetization of the petrodollar were easily identified as possible factors responsible for this increase (Masha 1999, Asogu, 1991 and Ekpo 1992). By 1984, the inflation rate stood at 39.6% and it was obvious that the slow growth in the industrialized economies and the rising prices and interest rates in such economies have been imported into Nigeria courtesy of the high marginal propensity to import. In subsequent years, other indicators like an overvalued domestic currency, low capacity utilization, massive importation, low external reserve and mounting external indebtedness suggested that the economy was under serious strain.

Similarly, after the introduction of the package of reform measures popularly known as Structural Adjustment Programme in 1986, in 1995 the headline inflation stood at 72.8% while the core and non-core inflation rates in the following year (1996) were 24.7% and 24% respectively. However, the inflation rates for both the core and non-core inflations continue in

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upward and downward movements subsequently like the headline inflation rate. For instance, the rates for core and non-core inflations in 2003 were 27.2% and 6% respectively, and in 2013 they were 7.7% 9.7% respectively.

These changes in inflation rates and the trend in the economy of the country have impacted on various sectors in the country. This study, therefore examines how core and non-core (food) inflations in Nigeria have impacted on the environmental quality of Enugu metropolis.

LITERATURE REVIEW

De Brouwer and Ericsson (1995) developed an error correction model for inflation in Australia. The model highlighted the relative important factors determining consumer price inflation over different time periods between 1980s and 1990s. Their results showed that the structure of the inflationary process in Australia did not appear to have changed. Rather changes in factors that determine inflation offered explanation for the fall in inflation then .

Using the conventional Philips curve (unemployment rate) to investigate forecasts of U.S inflation at the 12 month horizon, Stock and Watson (1999) focused on three questions. First, has the U.S Philip's curve been stable?. Second would an alternative Philip's curve provide better forecasts of inflation than the unemployment rate?. Third, how do inflation forecasts from the Philip's curve stack up against time series forecasts made using interest rates, money and other series?. They found that inflation forecasts produced by the Philip's curve generally had been more accurate than forecasts based on other macroeconomic variables. However, combing these forecasts would produce optimal forecasts.

Analyzing price determination within the framework of a multi-sector macroeconomic model during 1970-1995, Lim and Papi (1997) attempted to shed some light on the determinants of inflation in Turkey. The theoretical approach adopted incorporated both long and short-run dynamics. Their main findings were that monetary variables played a central role in the inflationary process, public sector deficits contributed to inflationary pressures and inertia factors were equally important.

The key innovation in developing an approach for forecasting core inflation in Thailand was to anchor the projections derived from the short-term time series properties of core inflation to its longer-run evolution (Sun, 2004). In combining a short-term model and an equilibrium-Correction model, the author proceeded with a series of seasonally adjusted monthly per-cent changes in Thailand's consumer price index, purged of its raw food and energy component. It was eventually concluded that reliance on monthly variables in the model allowed for a prompt update of core inflation forecasts and thus, could help in monetary policy evaluation in the context of IMF surveillance work on Thailand.

Examining price dynamics in the Dominican Republic, Williams and Adedeji (2004), explored the joint effects of distortions in the money and traded-goods markets on inflation holding other potential influences constant. Using a parsimonious and empirical stable error-Correction model, the study found that the major determinants of inflation were changes in monetary aggregates, real out put, foreign inflation and the exchange rate. Hence, the authors established a long-run relationship in the money and traded-goods markets, observing that inflation was influenced only by disequilibrium in the money market.

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In their study on modeling and forecasting inflation in India, Callen and Chang (1999), revealed that the Reserve Bank of India has shifted from broad money target toward a multiple indicator approach in the conduct of monetary policy. The authors adopted a simple monetarist equation for the price level, applied the co-integration technique and derived a dynamic equation for inflation. The findings indicated that exchange rate and import prices were relevant for inflation. Thus, they concluded that while the broad money target has been de-emphasized, developments in the monetary aggregates remain important indicators of future inflation.

Applying existing inflation models that have worked well in industrialized countries to Mexico, Bailliu, et al (2002) compared the performance of these models to a mark-up model that has been used extensively for the analysis of inflation in Mexico. Each model was estimated using quarterly data, over the period 1983-2001. The estimation and forecasting results suggest that the evolution of the exchange rate remained a very important factor for explaining inflation. It was observed that the best performing model, the mark-up model, was the one in which the exchange rate played the most significant role.

Several studies have been conducted on the dynamics of inflation in Africa. Examining multi-step models for inflation and output for South Africa, Aron and Muellbauer (2000) confirmed the importance of the output gap and the exchange rate for forecasting inflation. Durevell and Ndungu (1999) analysed the dynamics of inflation in Kenya, and found that exchange rate, foreign prices and terms of trade have long-run effects on inflation while money supply and interest rate only had short-run effects. In the study by Ubide (1997) for Mozambique, results from the analysis of a decomposition of the components of consumer price index, estimation of a reduced form equation of the determinants of inflation, and the transmission mechanism embedded in a system of multivariate dynamic equations showed that the rate of inflation was determined by a combination of economic factors, seasonal behavior and a collection of irregular events, corresponding mainly to agro-climatic conditions.

In Nigeria, studies have been carried out on inflation, but there has not been a consensus as to which inflation theory is most appropriate for the country (CBN, 2001). Asogu (1991), observed that industrial output, net exports, current money supply, exchange rate changes and domestic food prices were important determinants of inflation. Odusola and Akinlo (2001) emphasized that inflation in Nigeria was largely determined by the absence of fiscal prudence on the part of government, parallel exchange rate shocks and output. Folorunso and Abiola (2000) investigated the long-run determinants of inflation in an error correction framework. Their findings showed a significant effect of exchange rate, money supply, income and fiscal balance on inflation. Fakiyesi (1996), asserted that backward and forward looking expectation, growth in broad money, rate of exchange of the naira, growth of real income and price volatility were some of the variables influencing inflation behaviour in the country.

Cendrero and Fischer (1999), in Florida, worked on the procedures for assessing the environmental quality of coastal areas for planning and management based on the identification of certain characteristics. This, they did using certain indicators including number of storms per year, and thereby proposing numerical indices of the indicators. The indices could be used for monitoring environmental change with time. The method can help to determine whether existing management and policy trends move away or towards sustainability. Again, it can facilitate the integration of scientific assessment into the process of coastal planning and management through the application of indices which give the summary of environmental characteristics in terms that should be significant to planners and managers. However, because of the peculiarities of coastal areas, it could be seen as an irony of circumstance for the

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procedure for assessing environmental quality in a coastal area to be generalized to every other environment.

Also in United States of America Brasington (2005), estimated the relationship between housing prince and environmental disamenities using spatial statistics to uphold the view that nearby point source pollutants depress house price. Appling the statistics, six spatial Hedonic regressions for Akron, Cincinnati, Cleveland, Columbus, Dayton and Toledo were determined. The highlight of the results showed that the implicit prices of environmental quality and related characteristics from the house price hedonics the estimate of a demand curve for environmental quality. It was also found that there was significant evidence in spatial effects in both the hedonic and demand estimations, and that environmental quality and house sizes are substitutes.

Perz (2011), studying the environmental quality of Brazilian Amazon, emphasized that deforestation is not the only issue of importance concurring changes in environmental quality of the Amazon. Three dimensions of urban environmental quality were considered. Census data and health services statistics were used. The study compared enchanters of environmental quality in urban population of Amazon in 1980 and 1991 quantitatively. Thirty three environmental quality indicators were used. The results indicated that environmental quality in the region deteriorated during the 1980s as the production of and exposure to environmental hazards rose while resources to ward off hazards eroded, and that environmental quality was particularly poor in more rapidly growth urban centres. Consequently, this stands as a challenge for sustainable development in the Amazon.

Using Europe and America as case studies, Cendrero, Lopez et al (2003) worked on the procedure for sustainability assessment in Coastal areas, based on a series of indicators and indices that reflect environmental quality. Three dimensions of environmental quality (functions, interaction and components) were taken into consideration. The procedure was developed within the ELANEM Euro-Latin American project. The procedure offered the possibility of expressing environmental quality of the coastal areas in numerical form through the use of indices based on clear and replicable method, using indicators that can be measured or objectively determined. This method could provide a useful tool for monitoring environmental quality, thus helping to assess sustainability of existing policies and practices.

Bernaver and Konbi (2004), in their study on the effect of various political variables on environmental quality, took into account the effects of economic variables. Air pollution (concentration of sulfur dioxide) was used as the dependent variable. Annual observations for the year 1971-1996 from 291 observation sites located in 107 major cities in 42 countries (2,555 observations) constituted the data for sulfur dioxide concentration. Combining the environmental, economic, political and site specific components a statistical model was obtained. Through regression of sulfur dioxide concentrations on the explanatory variables, they obtained their results. Emerging from the result, there was indication that higher income, higher intensity of economic activity and greater trade openness contribute to lower pollution levels. The study could be useful for environmental quality monitoring. However, being an issue specific in nature, it cannot be generalized to other forms of environmental quality.

Assessing the inequality in the spatial distribution of accessibility and environmental quality in Paris metropolitan region, Palma et al (2007), asserted that local amenities are generally capitalized into housing market. Data from LALURGP GIS data base and metropolitan computations were used. The empirical analysis of the study showed that considerable

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inequality existed in the spatial distribution of the local amenities and social indicators. Spatial representation and Lorenz curves were used to examine the degree of inequality in these amenities. These provided evidence that some amenities were much more inequitably distributed than others. The researchers therefore obtained new insight into how households in the Paris region trade off amenities against each other and against housing cost by estimating models at both a commune and at a grid cell level. Hence, they found that residential location choice model filled the data moderately better at the smaller scale of the grids cell compared to the commune. Thus G.I.S/EMIS could be seen to be invaluable for modem environmental studies in most counties of the world.

Majunder, Hossain and Islam, (2007), in an interesting environmental quality mapping study of Chittagong metropolis in Bangladesh, endeavoured to analyse both factual statues and perceptual pattern of the environmental quality of Chittagong Metropolitan City. The factual data were collected from various sources while the perceptual data were based on questionnaire survey of opinions of 492 respondents at the household level by City ward. The City's 40 wards were surveyed in this study using ranks of the wards by environmental groups. Thus, the study's numerous variables were classified into three: physical environment, neighbourhood environment and social environment. To determine the limit of satisfaction and dissatisfaction of the various environmental variables by respondents, satisfaction index developed by Hall, Yen and Tan was applied. It was tested against three levels of household income - high, medium and low income groups-using Chi-Square. The study presented the crying need to address urban environmental quality resulting from high rate of urbanization and urban population in Chittagong Metropolitan City. They concluded that community people should be mobilized in such effort because people's participation is very much fruitful in improving their environmental situation.

In Turkey, Alkay (2009), carried out a study on the relationship between environmental quality level and housing sale prices in Istanbul metropolitan area. The study was carried out in two stages. In the first stage the environmental quality index was measured, using principal component analysis, after standardizing the different units of measurements with similar indicators. Relationship between the environmental quality index and housing sale prices were explored in the second stage. Correlation coefficient and square goodness of fit were used. The result indicated that the weights of dwelling indicators and satisfaction from housing environmental indicators were positive while the economic, social and accessibility indicators were negative for the casual factor that explained the environmental quality at district level in the metropolitan area. The study therefore concluded that the increasing environmental quality levels depend on the increasing quality of dwelling characteristics and satisfaction from the housing environment. The result is useful in that it can show the overview of the environmental quality index at the district level, used by both public and private decision makers in improving the city. However, the study lacked time series data.

Besides, some studies have also been carried out in Africa as they concern the environmental quality of the area.

Alem and Martinson (2011), investigated the importance of environmental quality to the poor and what the policy makers know about it in Addis Ababa, Ethiopia. The citizens and policy makers were asked to rank the areas that they think government should focus on. The ranking areas were;

a) Better health services, education and housing

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b) Creating environmental opportunity
c) Controlling price rise
d) Improved solid waste disposal
e) Improved liquid waste disposal

In their finding, although standard determinants of subjective well being in western countries seemed to explain happiness in Addis Ababa, yet environmental quality equally played a very prominent role. Averagely, the policy makers had more long-term perspective by focusing on health, education and housing. The citizen on their part focused more on short-term issues such as controlling price rise. Hence, the government of the country went as far as introducing a strict control over prices of basic commodities, adopting the views of the citizens in this regard.

In Nigeria, different people have equally worked on environmental quality as it affects different cities or towns.

Olorunfemi (2009), studied the willingness to pay for improved environmental quality among the residents living in close proximity to two landfills in Olushoshun and Abule Egba, all in Lagos metropolis. The main instrument used in the collection of primary data was structured questionnaire. In the survey, a contingent valuation method was used, which solicited the residents preferences through survey technique to state their willingness to pay for the benefits gained from an improvement in environmental quality (an improvement in the quality of Landfill practices). From the results, there was an indication that the presence of the landfills and the associated environmental impact was an important factor contributing to respondent's willingness to pay for environmental improvement in their neighbourhood.

Examining the housing improvement of core residential environmental quality of Ogbomosho town, Afon (1998), made use of twenty variables and identified ten environmental quality indicators. Correlation matrix was compared to determine the relationship existing between pairs of the variables. Correlation of the ten proved positive. Expressing the importance of the study, Afon advocated that it was no use for planners to impose their ideas on the public because people are better planned for when they have input into policy and programmes that will affect their present and / or future.

Ekurekong and Jacobs (1998), attempted to shed some light on compliance that ensure high attachment of environmental quality in housing estate in Uyo, AkwaIbom State. The study revealed that the housing estate by all indicators was deficient in facilities and service provision. The study also showed that more than 70% of the total area of the estate had been used for residential development, leaving less than 10% for the provision of facilities and services. These services were completely lacking in the estate. The analysis showed that the existing facilities were undoubtedly inadequate to support the huge population in the estate. An environmental quality unit was recommended to be established, to monitor and control quality of the environment in the estate.

Others include, Olanrewaju and Fadairo (2003), who emphasized poor state of streets as a problem which does not give room for efficient evacuation of solid wastes. Okeke (2002), noted that the extensive use of temporary structures in the high density neigbhourhoods of Nigerian urban centres has constituted the fore runner of squatter settlement development in these areas.

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Umeakuka and Mba (1999), observed that blockage of storm water drainage paths in Onitsha with solid wastes which in turn induced flooding can not enhance the quality of the area. In 2005 Nwafor carried out a study on the recycling and re-use of urban solid waste in Enugu (Nwafor 2008).

Although various authors have discussed or carried out researches on environmental quality, the review indicates some research gaps in this area of study. Environmental quality studies have so far primarily concentrated on the effects of economic and social demographic variables on environmental quality as observed by Bemauer and Loubi (2004). Besides, the available studies on measuring environmental quality focused mainly on peculiar areas as in the case of Cendrero and Fischer (1999). Again, a good number of the studies were on an aspect of environmental quality especially pollution such as in Olorunfemi (2009). Furthermore, public perception based studies were very common as exemplified in Afon (1998). It is therefore essential that a study of detailed environmental quality indicators is timely in Nigeria. This will aid in the measuring and ascertaining the environmental quality of an area, especially now that Nigeria and the rest of the world are gearing towards sustainable environment, which invariably will take centre stage in addressing the issue of sustainable development.

MATERIALS AND METHOD

The study Area

Enugu metropolis, the study area is located between latitudes $6^0$27'N and $7^0$28N and longitudes $7^0$30E and $8^0$19E. The urban land area is roughly 72.8 square Kilometers with the rural environs covering an additional area of about 200 square metres. It comprises three local government areas namely, Enugu North, Enugu East and Enugu South. Enugu metropolis is in Enugu State, located in the eastern part of Nigeria and embedded in the Guinea savanna belt, which is the broadest vegetation belt in Nigeria.

The metropolis which lies on an altitude of 232.6 metres above sea level exists natural domes in the South and undulating plains forming the foothills of

Udi escarpment in the North. The population has been on the increase within the metropolis in the last few decades as a result of rapid urbanization and subsequent influx of people. In 1953 the population was 63,000. This rose to 482, 977 in 1991 and by 2006, the population was put at 722,664 (NPC, 2006).

Enugu started as a photo-urban settlement near the mines, following the discovery of coal in the Udi hills around 1909. Iva valley and Ogbete areas which were the first areas to develop functioned primarily as coal miners residences. With the discovery of deep sea harbor in port-Harcourt, construction of Enugu-Port Harcourt rail line commenced in Enugu in 1914. The first freight of coal was transported from Enugu to port-Harcourt in 1916. In 1917, Enugu, attained, township status and was then referred to as Enugu Ngwo. As a result of its rapid expansion towards areas owned by mixed indigenous communities rather than towards Ngwo highlands, it was renamed Enugu in 1928. By 1939 Enugu has become the headquarters of the then Southern province. It became a regional capital and the important administrative centre in the then Eastern Region with the creation of the three regions in Nigeria in 1961. Presently, it is the capital of Enugu state of Nigeria.

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The annual rainfall in the metropolis is 1247.8mm and the rainfall is mostly during the months of April through October, having July as the peak period. The annual temperature of Enugu is about 30.8^0C and the variation within the season is normally less than 10°C. The relative humidity fluctuates between 40 and 80 percent. The prevailing winds are the local monsoons; the North East Trade wind and the South West Trade wind. The North East Trade wind blows from across Sahara desert, with dry and dusty air over the area, hence resulting in dry season characterized by dusty harmattan weather. This season usually lasts from November to March. The South West Trade wind blows from across the Atlantic Ocean, bringing about the raining season.

METHODOLOGY

Survey design was adopted in carrying out this work. The metropolis was classified into neighbouthoods, stratified into high, medium and low density areas. From these areas samples were selected randomly.

Primary data were mainly collected using questionnaires. Direct contact method of reaching the respondent was used. Closed form was mainly used, in which choices of possible answers to open questions were provided. One thousand, four hundred and forty copies of the questionnaires were used in the analysis. Besides, field tests were carried out to determine the air quality as well as the noise level of the area. The air quality was determined using the air quality index as specified by the federal Ministry of Environment while the noise level measurements were carried out at various locations of the study area using extech 407750 digital sound level metre, with an accuracy of ± 2 dB (A) at 114dB (A) sound level and a standard reference of 0.0dB at 0.00 2 NN/M^2. Secondary data like the rates of core and non-core inflations in Nigeria were collected from the statistical bulletin of the central Bank of Nigeria.

Environmental quality variables constituted the dependent variables, while core and non-core inflations made up the independent variables. 21 environmental quality variables were used in the study, made up of 11 dwelling unit quality variables, 5 parcel quality variables and 5 basic residential quality variables.

Factor analysis (Principal Component Analysis) was first used in the analysis of the data to reduce the various environmental quality factors. Varimax rotation was introduced to rotate constantly so as to further reduce the factor scores. Then the eigen value of each factor was used to multiply the individual factor score. They were eventually combined to get aggregate factor score as the "Y" variable. Environmental quality variables formed the "Y" variable while, core and non-core inflations constituted the "X_1" and "X_2 variables. The multiple linear regression was used to establish the relationship between the dependent and independent variables. Hypothesis was used to test the relationship, at 0.05 level of significance.

Data Presentation and Analysis

Environmental quality variables used in the study include; the eleven dwelling unit variables (Condition of floor, condition of wall, condition of window, condition of ceiling, condition of roof, condition of lighting, structural condition, landscaping nuisance, poor condition, neighbourhood problem). The five parcel quality variables; (Condition of drives, fair condition of housing units, sanitary condition, drainage, noise level) and five basic residential quality

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variables (Crowdedness, good condition of units, air quality, waste disposal and source of domestic waster supply). Factor analysis (Principal Component Analysis) was used to reduce the various environmental quality variables to components as in table 1.

Table 1: Component Matrix of Environmental Quality Variables

Variables	Components		
	1	**2**	**3**
Floor	.934	.077	.018
Wall	.891	-.103	-.254
Window	.948	.004	-.117
Ceiling	.922	.158	-.151
Roof	.875	.188	-.152
Lighting	.897	.130	-.298
Structural Condition	.844	.012	-.326
Landscape	.784	.107	-.191
Nuisance	.811	-.134	-.135
Condition of Drives	.827	-.322	-.013
Crowdedness	.435	.638	.310
Poor Condition	-.924	-.034	-.022
Fair Condition	.609	-.448	.254
Good Condition	.820	.365	.064
Sanitary Condition	.675	-.501	.227
Drainage	.795	-.333	.068
Neighbourhood Problem	-.886	-.050	.132
Air Quality	.612	-.183	.189
Noise level	.840	-.080	.298
Waste Disposal	.753	.133	.457
Domestic Water Supply	.791	.018	.305

Extraction: Factor Analysis (Principal Component Analysis)

In table 1, principal component analysis has reduced the 21 environmental quality variables to 3 underlying components. Component 1 has significant loading on 20 variables, component 2 on only 1 variable while component 3 has no significant loading on any variable.

The components were rotated maximally using varimax rotation to arrive at factors as shown below in table 2.

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Table 2: Varimax Rotated Component Matrix of Environmental Quality Variables

Variables	Factor		
	1	2	3
Floor Condition	.673	.435	.486
Wall Condition	.808	-.427	-.185
Window Condition	.768	.437	-.364
Ceiling Condition	.789	.295	--.435
Roof Condition	.758	.249	-.435
Lighting	.867	.240	-.317
Structural condition	.835	.286	-.198
Landscaping	.709	.249	-.310
Nuisance	.655	-.460	-.199
Condition of drive	.574	..660	-.452
Crowdedness	.176	.108	.808
Poor Condition	.659	.463	-.455
Fair Condition	.216	.786	.100
Good Condition	.591	-.184	.653
Sanitary Condition	-.281	-.817	.106
Drainage	.494	.687	.178
Neighbor Problem	.727	-.438	-.291
Air Quality	.336	.265	.512
Noise Level	.339	-.623	.304
Waste Disposal	.250	.491	.700
Domestic water supple	.375	.483	.593

Extraction: Principal component Analysis

Rotation Method: Varimax with Kaiser Normalization

Table 2 shows the rotated component of the environmental quality variables. After constant and maximal rotation, the result eventually turned out 3 factors. Factor 1 has an eigen value of 13.889, factor 2 has 1.434, and 3 has 1.040.

Factor 1 is significantly loaded on11variables which are condition of the floor, wall condition, window condition, structural condition, landscaping, nuisance, poor condition and neighbourhood problem. These variables of the environment hinge squarely on the dwelling unit component. Hence, the underlying factor identified could be regarded as the dwelling unit impact on the environmental quality of the study area.

Factor 2 is loaded significantly on 5 variables. They include; condition of drives, fair condition, sanitary condition, drainage and noise level. They constitute the most pronounced and conscious imprints on the adjacent structures and the parcel. This entails the extent to which quality of the units and surroundings within the same vicinity are affected. The common focus within these variables is that they hinge on the parcels of the area. Consequently, the underlying factor could be indentified as the parcel environmental quality.

Factor 3 has significant loading on 5 variables also. They are; crowdedness of the housing units, good condition of the housing units, air quality of the areas, waste disposal in the area and domestic water supply in the area. In other words, the index appears to measure the overall

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quality of the exterior physical environment. For this reason, it is referred to as "Basic Residential Quality". The eigen value of each factor was used to multiply the individual factor score. They were eventually combined to get the aggregate factor score as 'Y' variable. This served as the dependent variable.

Core and Non-core inflation rates constitute the 'X_1' and 'X_2' variables.

Table 3 shows the core and non-core inflation rates in Nigeria for various years (1996-2013).

Table 3: Core and Non-Core (Food Inflation Rates in Nigeria

Year	Inflation rates (Core and Non-Core) %	
	Core inflation (X_1)	Non core (food inflation) (X_2)
1996	25.7	24
1997	7	7.5
1998	14.4	4.3
1999	15.7	5.2
2000	133	14.1
2001	6.0	28
2002	12.5	13.1
2003	27.2	6.0
2004	15.5	14.5
2005	8.8	23.1
2006	12.8	5.6
2007	9.2	1.9
2008	5.1	16.1
2009	9.2	14.8
2010	12.4	14.7
2011	11.7	10.4
2012	13.9	11.3
2013	7.9	9.7

Source: Central Bank of Nigeria statistical Bulletin, vol. 24, 2013.

Inflation computed on 12 month average change

The various inflation rates in tables 3 for core and non core inflation in Nigeria as represented by X_1 and X_2 respectively were used as independent variables.

To establish a relationship between the environmental quality variable (Y), and core and non core inflations variables (X_1 and X_2), SPSS version 13 was used to analyse the data.

The SPSS out put: regression outputs are,

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Model summary

Model	R	R. Square	Adjusted R square	Std. error of the estimate
1	.986	.958	.924	8.01214

a. **Predictors**: (Constant), Core Inflation, Non-Core inflation

ANOVA b

Model	Sum of square	df	Mean Square	F	Sig
1. Regression	5.321.214	2	1224.213	24.328	.000a
Residual	320.226	21	48.224		
Total	5641.640	23			

a. **Predictors:** (Constant), Core Inflation Non-Core inflation

b. **Dependent variable:** aggregate score

Coefficients a

Model	Unstandardised Coefficient		Standardized Coefficient	t	Sig
	B	Std error	beta		
1. Constant	28.132	11.214		3.201	.032
Core Inflation	-4684	2.648	-120	3.624	.012
Non-core Inflation	-201	1.632	-214	4.216	.022

a. **Dependent Variable:** Aggregate score

RESULTS AND DISCUSSION

The results show that there is a strong significant relationship between residential environmental quality of Enugu metropolis and core and non-core inflations in Nigeria; r^2 = 0.958, which is the coefficient of determination. This means that 95.8% variation in the dependent variable (environmental quality) can be predicted from the independent variables (Core and Non-Core inflation).

The adjusted r^2 was employed to generalize the finding to the population beyond the sample. r^2 = 0.924. This means that the best coefficient of determination is 92.4. Hence, 924 (the explained variance) of the variables is capable of predicting the value of environmental quality in the area leaving 7.6% of the variation unexplained, suggesting that the explanatory variable is high.

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Also P Significance = 0.00 and P < 0.05 significance level. Core inflation has P significance value of 0.012 and non-core inflation has 0.022 as its significant level. The standard error of the estimation = 8.01214, which is the standard deviation of the error term.

To reflect the extent to which any of the independent variables is associated with the dependent variable, coefficients of the independent variables were employed which measure the significant interactions in the model. Hence, the coefficient 'a' table indicates the relative impact of each variable on the dependent variable. It reveals the ability of each individual independent variable to predict the dependent variable. It is therefore pertinent, however, to note here that core inflation variable impacts more on the environmental quality of the area than non-core inflation variable.

The changes in the rates of inflation in Nigeria, particularly core inflation have impacted the environmental quality of Enugu, just like many other sectors have been affected. It has been observed that as many industries are located within the residential areas of the metropolis, negative impacts from such industries tend to impair the quality of the surrounding residential environment. It is envisaged that some industrialists in a bid to cut costs as a result of inflation, tend to resort to unhealthy ways of disposing their industrial wastes which in turn pollute the immediate residential neighbourhoods in the area. Okonkwo (2014) noted that some industries at Emene channel their waste materials into the receiving Ekulu river. The effects according to her are enormous and include; presence of high rate of total dissolved solids, bringing about corrosion and the likes, among others. Unfortunately Ekulu river is a major source of water for domestic purpose for some of the people within Emene neighbourhood.

Besides, as a result of increases in prices of building materials, Emodi (2013) noted that residential property development was on the downward trend in the metropolis. This invariably has attracted increases in both rental and capital values of existing residential properties. Consequently, many low income earners now find it difficult to afford the cost of the housing units they occupy. Many are resorting to building shanties at places like Ugbo Odogwu, Nkpologwu, Ugbo Aaron, Ugbo Fred. Most of these shanties emerge on undulating hilly locations where these developers find virtually no opposition as to title of land or ownership. As the cover of these hilly locations are being removed, the areas are being exposed to easy run off of rain water down to the base of the areas to constitute the problem of flooding. Such is the situation presently at Ugwu Fred and the surrounding neighbourhood at the base of this area. Again, these areas where shanties are being built, in most cases develop into slums with the attendant environmental degradation associated with them.

Furthermore, closer observation reveals that in some areas of the metropolis like Achara-Layout, and Idaw River, two more households tend to occupy a flat. This is in a bid to be able to defray the cost of renting the flat as a result of inflation. These flats were originally built to accommodate a household in each case, and the facilities provided within and around meant to serve as such. As pressures are mounted on these facilities, they over-stretch their carrying capacities, break down and constitute problem in the environment. This has been the case with the dumpsters provided for waste collection by Enugu State Waste Management Authority. Consequently, there is a rising volume of household wastes seen littering most of the streets within the metropolis.

Meanwhile, as a result of increase in prices of food items due to inflation, many households in the metropolis are now engaged in one agricultural activity or the other, clearing the vegetation in the area for that purpose. Under undisturbed vegetation, plants within the metropolis

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generate a lot of oxygen needed by the residents and at the same time absorb excess carbon dioxide given out thereby bringing a balance in temperature. Brezina and Schmidt (1937) observed that plants are the lungs of the metropolis, contributing to the purification of the air. According to them, the green surfaces mitigate the less desirable aspects to the urban area, reduce the stress produced by the heat island, decrease the noise levels and filter out certain pollutants. Thus, absence of vegetation means an environment devoid of these qualities, and such is the situation in Enugu Metropolis.

CONCLUSION AND RECOMMENDATION

Inflation in Nigeria has impacted on different sectors in Nigeria, and housing environment is not an exception. Core inflation and non core (food) inflation have indirectly related with the environmental quality of Enugu metropolis. This has manifested in various ways in the area.

The quality of Enugu river has been impaired as a result of waste deposits from some industrialists who try to cut cost so as to still remain in business and at the same time make some profits. This they do to avert adding to already huge cost incured as a result of high prices of raw materials etc due to inflation Besides, pressures on facilities as a results of compelled adjustments being made by some dwellers of the area as a result of high cost have resulted in difficulty in effectively managing the wastes generated in the area. Again, the green environment has been interfered with, which invariable tend to constitute the heat Island problem in the area.

It is therefore necessary that adequate steps be taken to address the vagaries of both core and non-core inflation particularly this time of global clamoring for sustainable environment.

There are industrial outfits found in residential areas of the metropolis like in Thinkers corner and Emene. As the industries tend to cut costs in disposing their wastes as a result of pressures of inflation, the surrounding residential environment is negatively affected. It is therefore petinent that industrial outfits should not be allowed to be sited within the residential neighbourhoods so as to preserve the good natural qualities in the area. Again, the federal government should take concrete measures to address the issue of inflation in the country. When this is done appropriate laws as they concern industrial waste generation and disposal be re-enacted or revised. Then serious enforcement measures should be taken to bring offenders to book.

As many private property developers shy away from residential property development because of high cost involvements occasioned by inflation, Enugu State government should step in. The government should make concerted effort towards the development of hosing units for low and medium income earners rather than embarking on flamboyant detached houses that are rarely occupied or purchased by anybody. This will be of benefit to majority of the residents in the metropolis, ease the accommodation problem and enhance the environmental quality of the area.

Furthermore, since the food inflation bite has pushed many residents in the metropolis to engage themselves in one agricultural operation or the other, thereby tampering with the vegetation which contributes to the purification of the air in the area, the state government should arise with programmes to encourage agriculture in rural areas. If rural dwellers are encouraged and they produce food in great quantity, Enugu urban dwellers may not have to

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engage themselves in agricultural activities as they can easily access these rural areas and purchase their agricultural products. This will go a long way to preserve the green vegetation of the area. Besides, the state government should encourage each property owner within the metropolis to plant at least a tree in his/her premises. This measure will help in absorbing the excess carbon dioxide in the area and releasing the needed oxygen, which certainly, will reduce the stress produced by the heat island and decrease the noise level.

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