

Volatility in Fuel Price and Exchange Rate on Food Prices in Nigeria

Bethel Ibukunolu LAMINA

LCU/PG/002191

**Being a MSc Thesis presented to the Department of Economics and Development Studies,
Faculty of Management & Social Sciences, Lead City University, Ibadan, Oyo State,
Nigeria**

**In Partial Fulfillment of the Requirement for the Award of Master of Science (MSc) Degree
in Economics**

2023

Certification

This is to certify that Bethel Ibukunolu Lamina with Matriculation number LCU/PG/002191 carried out this research work titled “Volatility in Fuel Price and Exchange rate on Food prices in Nigeria” in the Department of Economics, Faculty of Management and Social Sciences, Lead City University Ibadan, Oyo State, Nigeria for the award of Master of Science Degree (MSc) under my supervision and that this has not been previously submitted.

Dr Oluwatosin Adesina
(Supervisor)

Date

Dr. Olushola O. Ogunjimi
(Head of Department)

Date

Dedication

This research work is dedicated to God Almighty, the wisdom of men and all knowing God, my strong pillar and my source of inspiration who has given me the strength to get it done. I also want to dedicate it to my Wife and Children, for their support and encouragement.

Do Not Copy, Lead City University, Nigeria

Acknowledgement

I want to appreciate the Management of Lead City University for the opportunity accorded me to pursue my Postgraduate Studies with the laudable university. My profound appreciation goes to the school Library and the school of Post-graduate Studies for the necessary corrections and guidance.

I also want to express my thanks to my Supervisor, Dr. Oluwatosin Adesina for his support, thorough supervision, guidance and encouragement on this work. I duly appreciate the Dean of the faculty, Professor Campbell for her valuable contributions, the head of department Dr. Olushola Ogunjimi, for your fatherly advice and support, my warm appreciation goes to all the lecturers of the department of Economics; Dr. Alimi Olorunfemi, Dr. Aderinto E.R, Dr, Ogunro T.T, Dr. Emiola T, Mrs Oduyoye-Ejumedia A and Miss. Funmi Oniyide, for all your support and individual contributions to ensure the work comes out unique.

My warm regards goes to my loving Mother Mrs. Francisca Lamina and my Sister Miss Deborah Lamina for your motivation financially and emotionally toward me in the course of doing this work. God bless you all.

Even though the above-mentioned Institution and persons have assisted in the process of this research work, I alone stand responsible for my errors, if any, found in this work.

Abstract

This thesis investigates the relationships influencing food prices in Nigeria from 2000 to 2022, considering the interplay of fuel prices, exchange rates, Prices of other goods, Government legislation, Weather conditions, and Consumer income. The analysis reveals crucial insights into both long-term and short-term dynamics affecting food prices. The study establishes a positive long-term impact of exchange rates on food prices, aligning with Nigeria's import-dependent nature. Higher exchange rates contribute to increased food prices due to elevated import costs. A positive and significant relationship is identified between the prices of other goods and food prices. Contrary to assumptions, the study uncovers a negative long-term impact of fuel prices on food prices, challenging conventional beliefs. The relationship between fuel prices and food prices is influenced by various factors, demonstrating the complexity of this association. Increased government spending on agriculture is found to have a negative long-term impact on food prices, emphasizing the need for a nuanced understanding of the relationship between government expenditures and food prices. Adverse weather conditions are shown to negatively impact food prices in the long term, underscoring the complexity of the relationship between weather and food prices. The study identifies both positive and negative short-term effects on food prices, indicating responsiveness to various factors. The presence of a highly significant Error Correction Mechanism (ECM) suggests strong short-term corrections to maintain long-term equilibrium. The multifaceted nature of the relationships among exchange rates, prices of

other goods, fuel prices, government legislation, weather conditions, and consumer income underscores the need for a comprehensive understanding when analyzing food price dynamics in Nigeria.

Keynotes: Fuel price, exchange rate, food price, volatility.

Table of Contents

Contents	Page
Title Page	i
Certification	ii
Dedication	iii
Acknowledgment	iv
Abstracts	v
List of Figures	xi
List of Tables	xii

Chapter One: Introduction

1.1 Background of the Study	1
-----------------------------	---

1.2	Statement of problem	5
1.3	Research Questions	9
1.4	Objectives of the Study	9
1.5	Hypothesis	9
1.6	Scope of the study	10
1.7	Significance of the study	11
1.8	Operational Definition of terms	12

Endnotes

Chapter Two: Literature Review

2.1	Conceptual Review	19
2.1.1	Food price	19
2.1.2	Fuel Price	19
2.1.3	Exchange Rate	20
2.1.4	Volatility	21
2.1.5	Price Volatility	22
2.2	Theoretical Review	22
2.2.1	Theory of Price Discrimination	22
2.2.2	Cost Theory	25
2.2.3	Price Elasticity of Demand Theory	26

2.2.4	Behavioural Economics Theory	28
2.2.5	Price Determination Theory	29
2.3	Review of Empirical Studies	33
2.3.1	Implications of volatility in fuel price and Exchange rate	33
2.3.2	Implications of fuel price volatility on food price	46
2.3.3	Divergent views of fuel price and exchange rate on food price	50
2.4	Methodological Review	53
2.5	Theoretical Framework	54
2.6	Summary of Gaps in Literature	56
	Endnotes	
	Chapter Three: Methodology	68
3.1	Model Specification	68
3.1.1	Effect of fuel price and Exchange on food price	68
3.1.2	Analyse the Level of volatility in fuel prices and exchange rate	70
3.1.3	Examine effect of volatility in fuel price and exchange on food price	71
3.1.4	Asymmetric effects of volatility in fuel price and exchange	71
3.2	Measurement of variables	73

3.3	Sources of Data	74
3.4	Technique of Analysis	75
3.4.1	Investigate the effect of fuel price and exchange rate on food price	75
3.4.2	Analyse the level of volatility in fuel price and exchange rate	75
3.4.3	Effect of volatility in fuel price and exchange rate on food price	77
3.4.4	Asymmetric effect of volatility in fuel price and exchange rate	79

Endnotes

Chapter Four: Results and Discussion of Findings

4.1	Preliminary Analysis	82
4.1.1	Graphical Analysis	82
4.2	Descriptive Analysis	97
4.3	Correlation Analysis	100
4.4	Covariance Analysis	103
4.5	Preliminary Test	105
4.5.1	Unit root test results	105
4.6	Co-integration Test for Variables	108

4.6.1	Effect of Fuel Price and Exchange rate on Food Price	110
4.6.2	Results of Post estimation Tests for Objective One	114
4.7	Analyse the level of volatility in Fuel price and Exchange rate	118
4.7.1	Result of Best Fitted Volatility Models for LEXCHR	118
4.7.2	Result of Best Fitted Volatility Models for LFUP	121
4.7.3	Results of Post Estimation Tests for Objective Two	125
4.8	Examine the effect of the volatility in Fuel price and Exchange rate	127
4.8.1	Results of post estimation test for objective 3	131
4.9	Asymmetric effect of volatility in Fuel price and Exchange rate	136
4.9.1	Long run and Short run Analysis	148
4.10	Discussion of Findings	157
4.10.1	Effect of volatility in fuel price and exchange rate to food price	157
4.10.2	Level of volatility in Fuel price and Exchange rate in Nigeria	158
4.10.3	Examine the effect of volatility in Fuel price and Exchange rate	159
4.10.4	Asymmetric effect of volatility in Fuel price and Exchange rate	160

Chapter Five: Conclusion

5.1	Summary of Findings	164
5.2	Conclusion	165

5.3	Recommendation	168
5.4	Contribution to Knowledge	170
5.5	Suggested Areas for Further Studies	170
	Bibliography	171
	Appendix	189
	Biodata	199
	The University Compliance Certification	

List of Tables

Table	Title	Page
3.2	Description of data and its Measurements	73
4.1	Descriptive Statistics	99
4.2	Correlation Analysis	102

4.3	Co-variance Analysis	104
4.4	Unit root Test result	107
4.5	Co-Integration Test	109
4.6	Long run and Short run result for objective One	112
4.7	Result of Post Estimation Test for Objective One	115
4.8	Best Fitted Volatility Model for Exchange rate	120
4.9	Best Fitted Volatility Model for Fuel Price	123
4.10	Result of Post Estimation Test for Objective Two	126
4.11	Result of Volatility effect of Fuel price and Exchange rate	129
4.12	Result of Post Estimation Test for Objective Three	133
4.13	Result of Long run and Short run Asymmetric effect (+)	138
4.14	Result of long run and Short run Asymmetric effect (-)	141
4.15	Result of Post Estimation Test (+)	145
4.16	Result of Post Estimation Test (-)	150

List of Figures

Figure	Title	Page
4.1	Price of Food	84

4.2	Fuel Price	86
4.3	Exchange Rate	87
4.4	Government Legislation	90
4.5	Weather Condition	92
4.6	Price of other Goods	94
4.7	Consumer Income	96
4.8	Cusum for Objective One	116
4.9	Cusum of Square for Objective One	117
4.10	Exchange Rate Volatility Curve	121
4.11	Fuel Price Volatility Curve	124
4.12	Cusum for Objective Three	134
4.13	Cusum of Square for Objective Three	135
4.14	Cusum for Objective Four (+)	146
4.15	Cusum of Square for Objective Four (+)	147
4.16	Cusum for Objective Four (-)	155
4.17	Cusum of Square for Objective Four (-)	156