

**RELATIONSHIP BETWEEN CAPITAL EXPENDITURE  
AND ECONOMIC GROWTH IN NEPAL**

**A Thesis**

**Submitted to**

**Central Department of Economics**

**Faculty of Humanities and Social Sciences**

**Tribhuvan University, Kirtipur, Kathmandu, Nepal**

**in Partial Fulfillment of the Requirement**

**for the Degree of**

**MASTER OF ARTS**

**in**

**ECONOMICS**

**Submitted by**

**Bishwa Thapa**

**Roll No.:41/2071**

**T.U. Regd. No.: 6-2-263-25-2010**

**Central Department of Economics**

**Tribhuvan University, Kirtipur**

**Kathmandu, Nepal**

**May 2018**

**RELATIONSHIP BETWEEN CAPITAL EXPENDITURE  
AND ECONOMIC GROWTH IN NEPAL**

**A Thesis**

**Submitted to**

**Central Department of Economics**

**Faculty of Humanities and Social Sciences**

**Tribhuvan University, Kirtipur, Kathmandu, Nepal**

**in Partial Fulfillment of the Requirement**

**for the Degree of**

**MASTER OF ARTS**

**in**

**ECONOMICS**

**Submitted by**

**Bishwa Thapa**

**Roll No.: 41/2071**

**T.U. Regd. No.: 6-2-263-25-2010**

**Central Department of Economics**

**Tribhuvan University, Kirtipur**

**Kathmandu, Nepal**

**May 2018**

## RECOMMENDATION LETTER

This thesis entitled **Relationship between Capital Expenditure and Economic Growth in Nepal** is submitted by Bishwa Thapa under my supervision for partial fulfillment of the requirements for the degree of Master of Arts in Economics. I forward it with recommendation for approval.

.....

Tara Prasad Bhusal  
Associate Professor  
Thesis Supervisor  
Central Department of Economics

Date: 28/03/2018 A.D.

14/12/2074 B.S.

## **APPROVAL LETTER**

This thesis entitled **Relationship between Capital Expenditure and Economic Growth in Nepal** submitted by Bishwa Thapa has been evaluated and accepted as partial fulfillment of the requirement for the MASTER OF ARTS in ECONOMICS by evaluation committee comprised of:

### **Thesis Committee**

.....  
Prof. Dr. KushumShakya  
Head of Department

.....  
Prof. Dr. Deepak Rijal  
External Examiner

.....  
Tara Prasad Bhusal  
Associate Professor  
Thesis Supervisor

Date: 17/04/2018 AD  
04/01/2075 BS

## ACKNOWLEDGEMENTS

This thesis entitled **Relationship between Capital Expenditure and Economic Growth in Nepal** has been prepared for partial fulfillment of the requirements for the master's degree in Economics.

I would like to pay my sincere thanks and huge admiration to my thesis supervisor Asso. Prof. Tara Prasad Bhusal, Central Department of Economics, University Campus, TU, Kiritipur for his full guidance, motivation, support, constructive comments and feedback throughout my thesis work on his busy schedule. I would also like to express my gratitude to Prof. Dr. Kushum Shakya, Head of Central Department of Economics, University Campus, TU. and external examiner Prof. Dr. Deepak Rijal for his valuable comments.

I would like to express my sincere appreciations to all my respected lecturers at Central Department of Economics for helping me to understand the concept of Economics and Research during my academic year by which I became able to carry out my thesis. I am also thankful to my respected Mama Kishan Singh Basnet, Under Secretary, Economic Policy Analysis Division (EPAD) in Ministry of Finance (MoF) and respected sir Min Raj Poudel, Head of Economics Education, Central Department, Kiritipur for their support and Guidance on conducting my thesis.

I am equally indebted to my grandfather Gyan Bahadur Thapa, father Om Bahadur Thapa, mother Kamala Thapa and sisters Pabitra Thapa and Narayani Thapa for their continuous inspiration, motivation and all level of support throughout my life and during this thesis work. I would also like to express special thanks to Tilak Bahadur Karki and Ram Kumar Karki for their continuous motivation and guidance on this thesis work. I am also thankful to my friends Sudip Ghimire, Yuwaraj Niraula and Narayan Ghimire for their support during my thesis work.

Bishwa Thapa

May 2018

# TABLE OF CONTENTS

	<b>Page No.</b>
<b>LETTER OF RECOMMENDATION</b>	<b>i</b>
<b>APPROVAL LETTER</b>	<b>ii</b>
<b>ACKNOWLEDGEMENTS</b>	<b>iii</b>
<b>TABLE OF CONTENTS</b>	<b>iv</b>
<b>LISTS OF TABLE</b>	<b>vii</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>ABBREVIATIONS</b>	<b>ix</b>
<b>CHAPTER-I :INTRODUCTION</b>	<b>1-5</b>
1.1. Background of the Study	1
1.2. Statement of Problem	3
1.3. Objective of the Study	4
1.4. Hypothesis of the Study	4
1.5. Significance of the Study	4
1.6. Limitations of the Study	5
1.7. Organization of the Study	5
<b>CHAPTER-II :REVIEW OF LITERATURE</b>	<b>6-21</b>
2.1. Theoretical Concept	6
2.1.1. Classical View on Public Expenditure	6
2.1.2. Keynesian View on Public Expenditure	7
2.1.3. Wanger's Law of Increasing Public Expenditure	8
2.1.4. The Endogenous Growth Theory	9
2.1.5. Peacock and Wiseman Hypothesis of Public Expenditure	9
2.1.6. Musgrave and Rostow Theory of Public Expenditure	10
2.1.7. Colin Clark's Critical-Limit Hypothesis	11
2.1.8. Ernest Engel's Theory of Public Expenditure	11
2.1.9. Pure Theory of Public Expenditure	11
2.2. International Context	12
2.3. Nepalese Context	19
2.4. Research Gap	21

<b>CHAPTER–III :RESEARCH METHODOLOGY</b>	<b>22-34</b>
3.1. Research Framework	22
3.2. Research Design	23
3.3. Sources of Data	23
3.4. Explanation of Variables	23
3.5. Tools of Data Analysis	25
3.5.1. Unit Root Test	25
3.5.1.1. Augmented Dickey Fuller (ADF) Test	26
3.5.2. Cointegration Test	27
3.5.2.1. The Johansen Test of Cointegration	27
3.5.3. Maximum Eigen Value Test	28
3.5.4. Trace Test	29
3.5.5. Vector Error Correction Model	29
3.5.6. Recursive Residuals, CUSUM and CUSUMSQ Test	30
3.5.6.1. CUSUM Test	30
3.5.6.2. CUSUMSQ Test	31
3.5.7. Granger Causality Test	31
3.5.8. Serial Correlation LM Test	32
3.5.9. Heteroskedasticity Test	32
3.5.10. Normality Test	32
3.6. Specification of Model	33
3.6.1. Model Selection Criteria	33
3.6.2. Relationship between Capital Expenditure and Economic Growth	33
3.6.3. Causal Relationship between Capital Expenditure and Economic Growth	34
<b>CHAPTER–IV :PRESENTATION AND ANALYSIS OF DATA</b>	<b>35-58</b>
4.1. Nature and Trend of Capital Expenditure and GDP	35
4.1.1. Trend and Nature of Capital Expenditure	35
4.1.2. Trend and Nature of Real GDP	36
4.1.3. Trend of Capital Expenditure to GDP Ratio	37
4.1.4. Trend and Nature of Capital Expenditure to Government Revenue Ratio	38
4.1.5. Trend and Nature of Capital Expenditure in Differed Political Regime	39
4.1.6. Distribution of Capital Expenditure on Six Years Average	41
4.2. Relationship between Capital Expenditure and Economic Growth	42

4.2.1. Descriptive Statistics	44
4.2.2.1. Augmented Dickey Fuller Test of Integration	44
4.2.2.2. Differenced Data Graph	45
4.2.2. Graphical Representation of Capital Expenditure and Economic Growth	47
4.2.3. Lag Selection Test	49
4.3. Cointegration Analysis	50
4.3.1. Vector Error Correction Model	51
4.3.2. Target Equation	54
4.3.3. VEC Granger Causality Test	54
4.3.4. Serial Correlation	56
4.3.5. Heteroskedasticity	56
4.3.6. Normality Test	57
4.3.7. Test of Parameters Stability	57
4.3.7.1. CUSUM Test	57
4.3.7.2. CUSUMSQ Test	58
<b>CHAPTER-V :SUMMARY CONCLUSION AND RECOMMENDATIONS</b>	<b>59-62</b>
5.1. Summary	59
5.2. Conclusions	60
5.3. Recommendations	61
<b>REFERENCES</b>	<b>63-67</b>
<b>APPENDICES</b>	<b>68-75</b>



## LIST OF TABLES

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
4.1	Trend of RGCE, RGDP and RGR (Average in Panchayat, Democracy and Republican Political Regime	40
4.2	Distribution of Government Capital Expenditure on six year average	41
4.3	Descriptive Statistics of all variables	44
4.4	Augmented Dickey Fuller (ADF) test to test Integration Order	45
4.5	The Ordinary Least Square Model	47
4.6	Lag Selection Criterion	50
4.7	Values of t-Statistic and Max-Eigen Statistics of Cointegrating	51
4.8	Vector Error Correction Model (VECM)	53
4.9	VCEM Granger Causality/Block Exogeneity Wald Test	55
4.10	Breusch-Godfrey Serial Correlation LM Test	56
4.11	Breusch-Pagan Godfrey: Heteroskedasticity Test	56

## **LIST OF FIGURES**

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
3.1	A Framework for Government Capital Expenditure and Economic Growth	22
4.1	Trend and Nature of Government Capital Expenditure	36
4.2	Trend and Nature of Real GDP	37
4.3	Trend of Government Capital Expenditure to GDP ratio	38
4.4	Trend of Government Capital Expenditure to Government Revenue Ratio	39
4.5	Multiple Graph of log of all concerned ariables	43
4.6	Differenced Graph of Variables	46
4.7	Graphical Representation of Relationship between Real Government Capital Expenditure and Real GDP	48
4.8	Graphical Representation of Relationship between Log of Real Government Capital Expenditure and Log of Real GDP	49
4.9	Cumulative Sum of Recursive Residuals (CUSUM) Test	57
4.10	Cumulative Sum of Square of Recursive Residuals (CUSUMSQ) Test	58

## **ABBREVIATIONS/ACRONYMS**

ADF	Augmented Dickey Duller
AIC	Akaike Information Criterion
ARDL	Autoregressive Distributed Lag
ARIMA	Autoregressive Integrated Moving Average
CEGDPR	Capital Expenditure to GDP Ratio
CEGRR	Capital Expenditure to Government Revenue Ratio
CUSUM	Cumulative Sum
CUSUMSQ	Cumulative Sum of Square
ECM	Error Correction Model
ECT	Error Correction Term
EU	European Union
FF	Fiscal Framework
FPE	Final Prediction Error
FY	Fiscal Year
GCE	Government Capital Expenditure
GDP	Gross Domestic Product
GE	Government Expenditure
GFCF	Gross Fixed Capital Formation
GNS	Gross National Saving
GR	Government Revenue
HDI	Human Development Index
HQ	Hannan-Quinn
JB	Jarque-Berra
MoF	Ministry of Finance
NCPI	National Consumer Price Index
OLS	Ordinary Least Square
RCE	Real Capital Expenditure
RGDP	Real Gross Domestic Product
RGFCF	Real Gross Fixed Capital Formation
RGNS	Real Gross National Saving
RSS	Residual sum of square
SC	Schwarz Information
TOT	Terms of Trade
TPE	Total Public Expenditure
TSS	Total Sum of Square
VAR	Vector Auto Regression
VECM	Vector Error Correction Model