# RELATIONSHIP BETWEEN GDP AND SOCIAL AND ECONOMIC INFRASTRUCTURE IN SRI LANKA - A STATISTICAL APPROACH

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## DECLARATION OF THE CANDIDATE

I hereby declare this project report is the product of my own and is based on a research that I performed independently without the participation of any other person or authority. The references made to other researches here have been acknowledged appropriately with due appreciation. The sources of data and information external to the dissertation and the research have been acknowledged appropriately. Also the substance in this research has never been submitted for any other degree, anywhere else. I hereby give my consent to making this available by photocopy for inter-library loans, and for the title and summary of the dissertation to be made available for use by other institutions of learning.

Signature: Date:

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## DECLARATION OF THE SUPERVISOR

I have supervised and accepted this thesis for the submission of the degree.

Signature: Date:

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**Abstract**

The objective of this study is to evaluate the infrastructure development of Sri Lanka with respect to selected variables over the recent past and try to find the relationship between infrastructure development and Gross Domestic Product (GDP) at current market prices during the period from 1989 to 2014. The study keeps a special focused on selected components of infrastructure development namely; Government expenditure on education, health, petroleum and electricity consumption and also number of vessels arrived by applying multivariate time series techniques to develop a short-term and long-term relationship between GDP and other variables. Vector Error Correction Models (VECM) found that there is a short run equilibrium relationship among all the variables considered; Government expenditure on education, health, petroleum and electricity consumption and number of vessels arrived at 95% confidence level. The model was statistically validated and found that the errors having white noise. Furthermore, it was found that causality is running from GDP to petroleum expenditure and there is a one way causal relationship exists between electricity consumption and number of vessels arrived, electricity consumption, expenditure on health and education. However, the short term impact from the number of vessels arrived is low compared that with other variables. The Johnson's co-integrating test confirmed that there is no long run equilibrium among selected variables. These results can be used by policy makers to understand more clearly the nature of the problem of infrastructure development and to set more focused targets and come up with more strategic planning's to reach the economic goals. Due to short term relationship, it is recommend that to carry out such studies at regular intervals before firm decisions are taken.

**Key words :** Co-integration, Error Correction, Granger causality, Gross Domestic Product, Infrastructure development

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# LIST OF ABBREVIATIONS

| Abbreviation | Description |
|---|---|
| ADF | Augmented Dickey-Fuller |
| AIC | Akaike Information Criterion |
| ECM | Error Correction Model |
| EDU | Government Expenditure on Education |
| EFA | Education For All |
| ELEC | Electricity Consumption |
| EU | European Union |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| HCE | Health Care Expenditure |
| HDR | Human Development Report |
| HEALTH | Government Expenditure on Health Services |
| HQ | Hannan and Quin |
| ILO | International Labour Organization |
| MDGs | Millennium Development Goals |
| OLS | Ordinary Least Squares |
| PETRO | Petroleum Expenditure on Local Consumption |
| PP | Philip Perron |
| SAARCSTAT | South Asian Association for Regional Cooperation Statistics |
| SDI | Social Development Index |
| SIC | Schwarz Information Criterion |
| UNCTAD | United Nations Conference on Trade and Development |
| UNDP | United Nations Development Programme |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| US | United States |
| VA | Number of Vessels Arrived |
| VAR | Vector Auto Regressive |
| VECM | Vector Error Correction Model |