



INFRASTRUCTURAL DEVELOPMENT AND ECONOMIC GROWTH IN HARYANA

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Abstract:

Infrastructure is basic essential service of any country to attract the investors. The impact and significance of infrastructure development to the economic growth of an economy cannot be exaggerated. This is because it is required to increase domestic production productivity and investment. This research work investigates the infrastructural development and economic growth in Haryana through the use of econometric techniques of Ordinary Least Squares and Granger Causality test. State Gross Domestic Product (SGDP) regressed on the Gross Fixed Capital Formation (GFCF) in Haryana. The period of review is from 1993-94 to 2014-15 and secondary data used for this study and data obtained from the Reserve Bank of India and Department of Economic and Statistical Analysis, Haryana. The empirical results from this study, it is clear that infrastructural development has a positive and statistically significant impact on Haryana's economic growth.

Key Words: Economic Growth, Haryana, Gross Fixed Capital Formation, Infrastructural Development & SGDP

Introduction:

Every economy has an important objective of sustainable economic growth. An important primary source required for achieving this objective is through increased domestic productivity. However, for this to occur, such economy must be able to create sufficient domestic physical capital to stimulate such economic growth. In other, words, Gross or Net Fixed Capital Formation is a major contributor and determinant of a country's economic growth.

According to the World Bank (2014) Gross Fixed Capital Formation refers to fixed assets accumulation such as equipment, building of schools, land improvements, machinery, construction of roads and railways, required for augmenting a country's economic productivity. This definition captures the predictions of Lucas (1987) and Romer (1986) Growth Models which state clearly that sustainable growth rate can be achieved through the increasing capital accumulation. Also, the building of schools leads to improved educational enrolment rate which will be helpful to enhance the quality of human capital. Likewise, investment in equipment, machinery, roads and railways will also increase the economic growth. Furthermore, Bakare (2011) explained capital formation as the "proportion of present income saved and invested in order to augment future output and income". This definition supports the importance of saving for creating Gross Fixed Capital Formation and enhancing economic growth. Based on the discussion so far, an instinctive conclusion that sustainable economic growth is enhancing through the increased fixed capital formation. This study is investigating the contribution of infrastructure development (using GFCF) towards economic growth in Haryana. It also determined that there is a relationship between GFCF and economic growth in Haryana.

Research Problem:

In recent years, Haryana economy has experienced increased infrastructural development. However, there are a few studies found to have investigated the impact of infrastructural development on Haryana's economic growth in term of Gross State Domestic Product. Thus, the aim of the study is investigating the contribution and impact of infrastructural development on Haryana's economic growth.

Research Objectives:

- ✓ To examine the impact that infrastructural development has on Haryana's economic growth.
- ✓ To investigate whether there is causal relationship existing between infrastructural development and economic growth in Haryana.

Hypotheses:

The hypotheses of this study include:

H1: Infrastructural development has a positive impact on Haryana's economic growth.

H2: A mutual correlation exists between infrastructural development and economic growth in Haryana.

Literature Review:

There have been several studies that have investigated the relationship between infrastructure development and economic growth. Some studies examined that infrastructure development impacts positively on economic growth while others noted that a negative relationship between both variables. Nurkse (1962), Edward (1966), Meir and Baldwin (1973) and Lewis and Arthur (2005) have stressed that capital formation can accelerate the economic growth through the usage of full capacity of available resources. De Long and Summers

(1991) investigated the relationship between equipment investment and GDP per capita of 61 countries between 1960-85. They find that increasing investment on equipment geared up the economic growth. Likewise, Bose and Haque (2005) suggested a unidirectional causation between economic growth and capital formation. Dash and Sahoo (2010) find that both physical and social infrastructure have a positive effect on economic growth of China during the period from 1970-2006. Moreover, Sethi, A. S. and Kaur, S. (2013) examined the causal relationship between physical capital formation and Gross State Domestic Product (GSDP) in Haryana. They find that aggregated capital formation has acceleration in economic growth in Haryana state. However, the absence of causality between physical capital formation and GSDP at aggregated level in Haryana and suggested that something else, like human capital formation, productivity, economic environment etc., might be explaining economic growth in Haryana. From the discussion so far, it can be noted that most of studies are of the view that infrastructure development in the form of Gross Fixed Capital Formation (GFCF) is an important determinant of economic growth.

Methodology:

This study uses annual secondary data from the Reserve Bank of India and Department of Economic and Statistical Analysis, Haryana. The period of observation in this study is from 1993-94 to 2014-15. The Ordinary Least Square technique is used to estimate the impact of infrastructural development on Haryana's economic growth. Likewise, the casual relationship between these variables will be investigated through the use of the Granger Causality Test. Infrastructural development which is the explanatory variable proxied by Gross Fixed Capital Formation (GFCF) and economic growth which is the explained variable proxied by Gross State Domestic Product. E-View 9.0 Statistical Package is used for computing the results for this study.

Table 1: Data for Gross State Domestic Product (GSDP) and Gross Fixed Capital Formation (GFCF)

Year	GSDP (Current Price) Rs. Lakhs	GFCF (Rs. Lakhs)
1993-1994	2452048	-1586742
1994-1995	2907802	126898
1995-1996	3300479	217121
1996-1997	3949015	230165
1997-1998	4282142	161814
1998-1999	4835779	303318
1999-2000	5419000	312095
2000-2001	6137152	239306
2001-2002	6909460	215850
2002-2003	7650209	259422
2003-2004	8740219	202738
2004-2005	9868818	366041
2005-2006	11217294	431504
2006-2007	13262012	525174
2007-2008	15617417	733673
2008-2009	18803441	866919
2009-2010	23035309	817828
2010-2011	26849218	1031608
2011-2012	30770887	1033740
2012-2013	35166014	2521418
2013-2014	40066212	1121834
2014-2015	43746206	1392938

Source: Reserve Bank of India (2018).

Model Specification:

The Simple Linear Regression Model is used to determine whether an increase in GFCF in Haryana will result to an increase in economic growth is summarized by equation (1):

$$\ln\text{GSDP} = \alpha + \beta\ln\text{GFCF} + \mu$$

Note: All the variables are in their natural logarithm form.

Summary of OLS Results:

Variable	Coefficient	Std. Error	T-Value	P- Value
GFCF	0.991952	0.082438	12.03268	0.0000
Constant	3.296073	1.074770	3.066738	0.0063
R-Square	=	0.883995		
Adj. R- Square	=	0.877889		
D-W stat	=	1.602698		

Source: Computed by the author using Eview 9.0

The summary of OLS results show that over 88 per cent of the variation in the GSDP is explained by the GFCF. Also, the Durbin-Watson stat. 1.6 shows that there is no presence of autocorrelation in the model. Furthermore, the coefficient of GFCF which is 0.99 means that one per cent increasing in GFCF will lead to increase 0.99 per cent in GSDP. Also, P-Value is zero represent that the contribution of GFCF to Haryana's economy is statistically significant. This result agrees with the findings of Dash, et al. (2010) that a significant positive relationship between both variables.

Granger Causality Test:

The Granger Causality Test is conducted in order to evaluate the mutual correlation between GFCF and GSDP.

Granger Causality Test Results

Null Hypothesis	F-Statistic	Prob.	Decision
GFCF does not Granger Cause GSDP	1.37253	0.2856	Accept Null Hypo.
GSDP does not Granger Cause GFCF	2.64717	0.1059	Accept Null Hypo.

Source: Computed by the author using Eview 9.0

The F-Statistic and the Prob. Value accept the null hypothesis, GFCF does not Granger cause GSDP and, GSDP does not Granger cause GFCF in Haryana in the period under review. In other words, there is an absence of causality and null hypothesis can accept at the five per cent level of significance.

Conclusions and Recommendation:

This study evaluated infrastructural development and economic growth in Haryana through the use of OLS technique. This study also investigated whether there is any causal relationship between GSDP and GFCF. The data used for this study was obtained from the Reserve Bank of India. Finally, the period under review was between from 1993-94 to 2014-15.

The OLS results show that a positive and significant relationship exists between infrastructural development and economic growth of Haryana's economy. Thus it will be important for the Haryana's government and policymakers to increase the development of infrastructure to geared economic growth. However, the Granger Causality Test reveals that is no mutual correlation between both variables in Haryana in the period under review.

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