

Infrastructure Financing by HUDCO in Kerala

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Abstract

Infrastructure development is a key requirement for economic development of any nation. Developing countries all over the world are facing inadequate and poor infrastructure facilities to support their developmental requirements. Akin to other developing nations, scarcity of finance is the major problem faced by the infrastructure sector in India. Of course, Kerala is also facing the problem of inadequate of infrastructure development due to insufficiency of financial resources. The present study intends to cover the role of financial institutions specially formed for infrastructure financing like Housing and Urban Development Corporation (HUDCO), in terms of provision of finance, in the development of infrastructure in Kerala. The number of schemes sanctioned, total project cost, loans sanctioned and loans released by HUDCO in Kerala during the period from 2005 to 2014 are examined in detail. HUDCO, since its inception, is providing finance to Kerala for undertaking various infrastructure developmental activities. During 2013-14, it sanctioned 168 schemes in the country and in Kerala the total number of schemes sanctioned figures two with a CAGR of 0.36 per cent (ten year period up to 2013-14) and the total project cost registered a CAGR of 12.88 per cent against All-India growth of 15.37 per cent. The equality of regression coefficients of CAGRs of financing by HUDCO on all-India basis and Kerala is also put on test.

Keywords: HUDCO; Kerala; Infrastructure Financing.

Introduction

Economic growth and human development are strongly determined by the prevailing infrastructure development scenario (Mahajan, Sahai, & Pasrija, 2007). Historically, governments have played a predominant role in owning and operating infrastructure amenities such as schools, hospitals, roads, bridges, railways, ports, telecommunications networks, and water and electricity supply facilities. Developing countries all over the world are facing the dilemma of inadequate and poor infrastructure to support their developmental requirements (Merna & Njiru, 2002). Infrastructure investment in India up to

the earlier decade was financed almost entirely by the public sector from government budgetary allocations and internal resources of public sector infrastructure companies (Lall & Anand, 2009) (ASSOCHAM, 2013). Obviously, infrastructure development has been constrained by meagreness of financial resources. The long term requirement of finance and the risk involved in infrastructure financing hinder the flow of funds from commercial banks and other sources of finance to infrastructure. Kerala possesses high order of social development on a par with that of the developed countries in the world (Thomas, 2005). The slower growth of commercial and industrial infrastructure in the state is primarily on account of paucity of finance. Most of the infrastructure projects in Kerala were also financed out of government budgetary allocations. The inadequacy of government financial sources stands as the major impediment for the infrastructure development. Here is the relevance of a financial institution formed especially for infrastructure financing like Housing and Urban Development Corporation (HUDCO).

The Housing & Urban Development Corporation Ltd. (HUDCO) is a public sector company fully owned

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by Govt. of India for financing of housing and urban infrastructure activities in India. It was incorporated in April 25, 1970 under the Companies Act 1956, as a fully owned enterprise of the Government of India. It was established as a sectoral institution for comprehensively dealing with the problems of growing housing shortages, rising number of slums and for fulfilling the pressing needs of the economically weaker section of the society. Now, HUDCO is a unique institution with the motto of "Profitability with Social Justice" (HUDCO, 2015). The HUDCO has been providing finance to Kerala primarily for meeting the housing and other infrastructure requirements. Cochin International Airport Ltd. (CIAL) is one of the successful ventures financed by HUDCO in Kerala.

Objectives and Methodology

The study is descriptive in nature examining the financing role of HUDCO in the infrastructure development activities in Kerala in terms of the number of schemes sanctioned, magnitude project cost, loans sanctioned and released, and the number of upgraded and new dwelling units operated by HUDCO. The respective share of these variables to the corresponding All India figures of HUDCO is also incorporated into the analysis to elicit a relative review of data for the selected period. The analysis covers a period of ten years from 2004-05 to 2013-14. Annual Reports of HUDCO were the main source of data. The

time series data are primarily examined using Compound Annual Growth Rate (CAGR). The equality of regression coefficients of All-India and Kerala growth is also tested. The following formula is used for testing the equality of regression coefficients.

$$t = \frac{b_1 - b_2}{\sqrt{(SE b_1)^2 + (SE b_2)^2}}$$

Where;

' b_1 ' is regression coefficient of dependent variable 'x' (Kerala),

' b_2 ' is regression coefficient of dependent variable 'y' (India),

'SE b_1 ' is Standard Error of b_1 (Kerala), and

'SE b_2 ' is Standard Error of b_2 (India).

Results and Discussion

Number of Schemes Sanctioned

The accumulated number of infrastructure schemes sanctioned by HUDCO to Kerala up to 2004-05 and for the next ten years (2004-05 to 2013-14) shows an absolute hike of 30 projects as against the 1268 projects sanctioned on All India basis during the same period. The CAGR of number of sanctions to Kerala for the above period is 0.36 per cent while the All-India growth in sanctions is 0.90 per cent (Table 1).

Table 1: Cumulative Number of Schemes Sanctioned By HUDCO

Year	Cumulative No. of Schemes Sanctioned Kerala	Changes over 10 year	All-India	Increase/ Decrease	% of Projects In Kerala to All-India
Up to 31 st March 2004	1075	-	15437	-	6.96
2004-05 to 2013-14	1105	30	16705	1268	6.61
CAGR(%)	0.36	-	0.90	-	-

Source: HUDCO's Annual Reports

To statistically test the equality of the "slopes" of the time series data of Kerala and All-India sanctions, the test for equality of regression coefficients is done.

The model summary and regression coefficients of Kerala and All India are given in Tables 2 to 5.

Table 2: Regression Model Summary (Kerala)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.954 ^a	.910	.899	.00359

Source: Computed Data

Table 3: Regression Coefficients (Kerala)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.156	.795		-.197	.849
1 Number of sanctioned	.004	.000	.954	8.992	.000

Source: Computed Data

Table 4: Regression Model Summary (All-India)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.973 ^a	.946	.940	.00687

Source: Computed Data

Table 5: Regression Coefficients (All-India)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-8.353	1.520		-5.497	.001
1 Number of schemes sanctioned	.009	.001	.973	11.871	.000

The "t" value obtained (0.64504) by testing the regression coefficients of Kerala (0.004) and All India (0.009) is lower than critical value (2.100922) at 95 per cent confidence level. Therefore, it is confirmed that there is no significant difference between the growth "slopes" of Kerala and All India sanctions during the period. Therefore, it can be inferred that the number of schemes sanctioned by HUDCO to Kerala keeps the same proportion during the period analysis (i.e., 2004-05 to 2013-14) to the All India sanctions.

Project Cost of Sanctions by HUDCO

The cumulative cost of the projects sanctioned by HUDCO in Kerala marked with an increase of Rs. 11595.08 crores from 2004-2005 to 2013-2014. The total cost of projects undertaken by HUDCO in Kerala for the above mentioned period have registered a CAGR of 12.88 per cent against All India's growth of 15.37 per cent (Table 6). The CAGR denotes that HUDCO is granting funds for carrying out various infrastructure activities in Kerala almost in the same line with the All India figures.

Table 6: Cumulative Project Cost Sanctions by HUDCO

Year	Project Cost (Rs. crores)			Increase/Decrease	% of Projects In Kerala to All-India
	Kerala	Changes over 10 year	All-India		
31 st March 2004	5064.55	-	160601.05	-	3.27
2004-05 to 2013-14	16659.63	11595.08	509185.3	348584.25	3.15
CAGR (%)	12.88	-	15.37	-	-

Source: HUDCO's Annual Reports

The model summary and regression coefficients of Kerala and All India in connection with the

cumulative project cost sanctions are given in Tables 7 to 10.

Table 7: Regression Model Summary (Kerala)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805 ^a	.648	.604	.30480

Source: Computed Data

Table 8: Regression Coefficients (Kerala)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	250.009	67.433		-3.708	.006
1 Project cost	.129	.034	.805	3.838	.005

Source: Computed Data

Table 9: Regression Model Summary (All India)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.945 ^a	.892	.879	.17135

Source: Computed Data

Table 10: Regression Coefficients (All India)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	-296.131	37.909		-7.812	.000
Project cost	.154	.019	.945	8.148	.000

The test of equality of regression coefficients of the cumulative cost of projects sanctioned in Kerala and All-India gives a "t" value of 0.071498. The "t" value computed is lower than the critical value (2.100922) obtained at 95 per cent confidence level. Hence, there is no significant difference exists between the "slopes" of Kerala and All India growth. Thus, it revealed that the cumulative project cost sanctioned by HUDCO to Kerala maintains the same proportion during the period to the All India sanctions.

Loans by HUDCO

The cumulative amount of loans sanctioned by HUDCO for the ten years recorded an increase of Rs. 69119.78 crores on All India basis and Rs. 2076.44 crores in the case of Kerala. The CAGR of number of sanctions to Kerala for the above period is 5.8 per cent against 9.65 per cent in the case of All India sanctions (Table 11).

Table 11: Cumulative Amount of Loans Sanctioned by HUDCO

Year	Loans Sanctioned			Increase/ Decrease	% of Projects In Kerala to All-India
	Kerala	Changes over 10 year	All-India		
Up to 31 st March 2004	3100.08	-	65173.84	-	4.76
2004-05 to 2013-14	5176.52	2076.44	134293.62	69119.78	3.85
CAGR (%)	5.8	-	9.65	-	-

Source: HUDCO's Annual Reports

As did earlier, the test for equality of the "slopes" of Kerala and All India loan sanctions is also done to

confirm the equality of the regression coefficients of the above variables during the period (Table 12 to 15).

Table 12: Regression Model Summary (Kerala)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.824 ^a	.679	.639	.12802

Source: Computed Data

Table 13: Regression Coefficients (Kerala)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	-108.446	28.323		-3.829	.005
Loans sanctioned	.058	.014	.824	4.116	.003

Source: Computed Data

Table 14: Regression Model Summary (All India)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.978 ^a	.957	.951	.06595

Source: Computed Data

Table 15: Regression Coefficients (All-India)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-182.484	14.591		-12.506	.000
	Loans sanctioned	.097	.007	.978	13.291	.000

Source: Computed Data

The test of regression coefficients of growth rates of All India (0.097) and Kerala (0.058) at 95 per cent confidence level computes a "t" value of 0.270817 which is lower than the critical value i.e., 2.100922. So, there is no significant difference between the growth "slopes" of Kerala and All India loan sanctions during the period. Therefore, it can be inferred that the loans sanctioned by HUDCO to Kerala keeps the same proportion to the All India sanctions during the period of analysis.

Loans Released By HUDCO

The cumulative amount of loans released by HUDCO in Kerala from 1st April 2004 to 31st March 2014 depicts an increase of Rs. 378.09 crores. Total loans released to Kerala registered a CAGR of 1.58 per cent against the All India growth of 7.35 per cent. It is quite clear that the share of Kerala in loans released is declining over the years.

Table 16: Cumulative Amount of Loans Released By HUDCO

Year	Loans Released				% of Projects In Kerala to All-India
	Kerala	Changes over 10 year	All-India	Increase/ Decrease	
Up to 31 st March 2004	2796.13	-	45893.87	-	6.09
2004 -05 to 2013 -14	3174.22	378.09	88845.19	42951.32	3.57
CAGR (%)	1.58	-	7.35	-	-

Source: HUDCO's Annual Reports

The regression model summary and the regression coefficients of Kerala and All India figures of loans

released are given in tables 17 to 20.

Table 17: Regression Model Summary (Kerala)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.980 ^a	.961	.956	.01021

Source: Computed Data

Table 18: Regression Coefficients (Kerala)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-23.660	2.259		-10.474	.000
	Loans released	.016	.001	.980	14.014	.000

Source: Computed Data

Table 19: Regression Model Summary (All India)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.990 ^a	.981	.978	.03308

Source: Computed Data

Table 20: Regression Coefficients (All India)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-136.734	7.318		-18.684	.000
	Loans released	.074	.004	.990	20.192	.000

Source: Computed Data

The regression coefficients of the growth “slopes” of Kerala (0.016) and All India (0.074) figures of loan released give a “t” value of 1.675342 at 95 per cent confidence level and it is lower than the critical value (2.100922). Therefore, there is no significant difference between the growth “slopes” of Kerala and All India loans released during the period. Therefore, it can be inferred, though the CAGR is lower in the case of Kerala, the loans released by HUDCO in Kerala

statistically maintains same proportion to the All-India release of loans.

Number of Upgraded Dwelling Units by HUDCO

The cumulative number of upgraded dwelling units sanctioned over the ten years shows an increasing trend in the case of Kerala compared to the declining situation on All India basis (Table 21).

Table 21: Cumulative Number of Upgraded Dwelling Units by HUDCO

Year	UPGD Dwelling Units				% of Projects In Kerala to All-India
	Kerala	Changes over 10 year	All -India	Increase/ Decrease	
Up to 31 st March 2004	98666	-	4394229	-	2.25
2004-05 to 2013-14	99286	620	4166009	-228220	2.38
CAGR (%)	0.09	-	-0.22	-	-

Source: HUDCO's Annual Reports

Table 22: Regression Model Summary (Kerala)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.853 ^a	.727	.693	.00179

Source: Computed Data

Table 23: Regression Coefficients (Kerala)

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	9.672	.397		24.391	.000
	Upgraded dwelling units	.001	.000	.853	4.616	.002

Source: Computed Data

Table 24: Regression Model Summary (All India)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.344 ^a	.118	.008	.01906

Source: Computed Data

Table 25: Regression Coefficients (All India)

Model		Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.
		B	Std. Error			
1	(Constant)	19.606	4.217		4.649	.002
	Upgraded dwelling units	-.002	.002	-.344	-1.035	.331

Source: Computed Data

The “t” value computed for the “slopes” of Kerala and All India figures of cumulative number of upgraded units is 0.052236 which is lower than the critical value (2.100922) at 95 per cent confidence level (Table 23-25). Therefore, it is confirmed that there is no significant difference

between the growth “slopes” of Kerala and All India figures during the period. So, it can be inferred that, though the rates differ, the number of upgraded units sanctioned by HUDCO in Kerala goes on a similar proportion during the period to the All India sanctions.

Number of New Dwelling Units Sanctioned by HUDCO
While the All India figures of new dwelling units provided by HUDCO were growing, it was declining

in the case of Kerala during 2004-05 to 2013-14. The total number of dwelling units operated by HUDCO in Kerala revealed a negative growth rate (Table 26).

Table 26: Cumulative Number of New Dwelling Units by HUDCO

Year	New Dwelling Units				% of Projects In Kerala to All-India
	Kerala	Changes over 10 year	All-India	Increase/Decrease	
Up to 31 st March 2004	1178266	-	10404524	-	11.32
2004-05 to 2013-14	1166542	-11724	12058675	165442 1	9.67
CAGR (%)	-0.22	-	1.67	-	-

Source: HUDCO's Annual Reports

The model summary and regression coefficients of Kerala and All India cumulative number of new units

operated by HUDCO are given in Tables 27 to 30.

Table 27: Regression Model Summary (Kerala)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555 ^a	.308	.221	.01062

Source: Computed Data

Table 28: Regression Coefficients^a (Kerala)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
New dwelling units	-.002	.001	-.555	-1.887	.096

Source: Computed Data

Table 29: Regression Model Summary (All India)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.691 ^a	.478	.413	.05611

Source: Computed Data

Table 30: Regression Coefficients (All-India)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
New dwelling units	.017	.006	.691	2.706	.027

Source: Computed Data

The regression coefficients of the "slopes" of Kerala and All India figures give a "t" value of 0.262669. The computed "t" value is lower than the critical value of 2.100922 at 95 per cent confidence level. So, it is confirmed that there is no significant difference between the growth "slopes" of Kerala and All India figures on the number of new units sanctioned during the period. Thus, it can be inferred that the number new units sanctioned by HUDCO in Kerala keeps the same proportion to the All India sanctions during the period.

Conclusion

Infrastructure development in Kerala, no doubt, is constrained by finance. The Housing and Urban

Development Corporation (HUDCO) was established as a sectoral institution for comprehensively dealing with the improvement of infrastructural activities in India. It has been providing finance for housing and other infrastructure projects in Kerala since its origin. The above analysis in terms of the cumulative number of schemes sanctioned, the project cost, and the loans sanctioned and released by HUDCO reveals that the share of Kerala in all these parameters keeps the same line of growth with the All India growth in these variables. Thus, it is a warning to the State that it should look for other agencies for more finance as HUDCO is financing the State more or less in an equitable basis. So, the State should find alternative sources of finance along with finance from HUDCO for developing its ever increasing infrastructural needs.

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