THE ECONOMIC EFFICIENCY OF DEVELOPED AND UNDER DEVELOPED GRAMA PANCHAYATS IN RISING OWN SOURCE OF REVENUE IN KARNATAKA: A CASE STUDY OF BANGALORE RURAL AND CHAMARAJANAGAR DISTRICTS

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ABSTRACT

Local government is an effective tool for meeting the local demands based on the aggregate local interest and it can play a major effective role for communication between centre and the people and it is also essential for rural development. In this present study economic efficiency is measured in terms of efficiency in raising funds and in achieving output. Efficiency in raising funds was an alysed in raising Own Source of Revenue (OSR) and it was compared to the administrative cost of raising OSR of Grama Panchayats in Chamarajanagar and Bangalore Rural districts This study is based on both primary and secondary data. Based on the Human Development Report 2015, Eight Grama Panchyats were selected in each district. It was observed that the poorer districts received lower funding. Though this analysis gives broader trends, it needs much more in depth study to understand the reasons for this trend.

KEYWORDS: *Administrative Cost, Development Programmes, Economic Efficiency, Grants-in-Aid, Grama Panchayat, Revenue.*

INTRODUCTION

Local government is the lowest tier in the structure of public administration within a state. It works as an agent, adviser, actor, manager and partner. Generally local governments use their powers and functions, which are sanctioned by the legislation and they also receive instructions from the higher level governments. Local government is an effective tool for meeting the local demands based on the aggregate local interest. The local government can play a major effective role for communication between centre and the people. According to World Bank (2000) central government can control the local bodies through transfer of some

powers like political, administrative and fiscal responsibilities. Through decentralization in administration, the government becomes more accountable and responsible. It has been a key concept in progressive reforms, strategies in developing countries for promoting qualitative governance (Villadsen 1999). But the efficiency of decentralized decision making bodies depends on efficient mobilization and utilization of resources (Maddick, 1963, Leonard and Marshall, 1982).

Tiebout's model is one of the earliest theories giving a non-political solution for the free rider problem in local governance. In the article "A pure theory of local expenditures" Tiebout (1956) argues that the local governments have full understanding of the needs of the local population and due to this the local governments will be able to fix the tax rates on the goods and services that they provide. The local governments with its knowledge about the local needs will be able to solve the problems of preference revelation and preference aggregation more efficiently.

Fiscal decentralization might lead to a smaller or larger public sector depending on how it is funded. When decentralization is provided by grants from general to local governments the Leviathan hypothesis may not hold. The expected outcome should be a larger public sector; instead, when general government decentralizes fiscal revenues the effect on total public sector might be negative. The hypothesis that expenditure decentralization without local tax power can hinder the tax competition predicted by Leviathan model was successfully tested for the first time (Rodden, 2003). In this present study economic efficiency is measured in terms of efficiency in raising funds and in achieving output. Efficiency in raising funds was analyzed in raising Own Source of Revenue (OSR) and it was compared to the administrative cost of raising OSR.

Objectives of the Study

The major objectives of the study are:

1. To analyze the sources of revenue and expenditure of sample Grama Panchayats (GPs) in Karnataka

2. To measure the efficiency of Grama Panchayats in generating Own Source of Revenue (OSR)

3. To identify the factors influencing the efficiency of Grama Panchayats in generating Own Source of Revenue

4. To identify the factors influencing the efficiency of the Grama Panchayats in the implementation of development programmes

Hypotheses

To achieve the objective of this study, the following hypotheses have been set-up:

1. There is a difference between developed and underdeveloped Grama Panchayats (GPs) in share of Own Source of Revenue (OSR) in total revenue

2. There is a difference between developed and underdeveloped Grama Panchayats in the average administrative cost

3. There is a difference between developed and underdeveloped Grama Panchayats in the efficiency of Own Source of Revenue

4. The efficiency in generating Own Source of Revenue is influenced by the education status of Grama Panchayat members

5. Efficiency of the Gram Panchayat in the implementation of programmes is influenced by the size of the GP

Review of Literature

John (1982) found that the Tiebout literature is incomplete, because it has not fully accounted for the capitalization of local fiscal variables into house values. The paper explains why capitalization arises, why it persists in long-run equilibrium and how it affects both residential location and outcome of local voting and why it interferes with the efficiency of a system of local governments. The research analysis, which is based on the main Tiebout assumptions plus a property tax, combines a model of household bids in a housing market with a median-voter model of local public service determination.

Chitlangi, et.al.(1998) studied the financial administration of Panchayati Raj Institutions. The study stated that the 73rd Constitutional Amendment Act has cast heavy responsibilities for rural administration and financial administration on the political leaders, economic planners and the administrative bureaucracy. The delegation of financial powers, roles and responsibilities further down to the level of blocks and villages in Rajasthan has necessitated a proper system of financial administration. The study critically analyzed that the existing financial administration of PRIs in state and propose further augmentation and strengthening of the financial administration on several key aspects. It suggested that the pattern of financial administration of PRIs in Rajasthan has to emerge under a new dispensation. There is a need to give more grants-in-aid and fiscal autonomy to PRIs than allowing them to depend on grants from the state or the center.

The importance of public judgments on governmental performance can help in develop, review, produce and report performance measures were analyzed by Berman (2006) in the power to tax. It's found that failing to involve the public in performance measurement, monitoring and reporting can lead to conflict between the government and its constituents and result in misalignment of government programmes.

In performance measurement building theory Julnes (2008) focused on methods and techniques for developing effective performance measurement systems, building performance-based management systems and sustaining performance based budgeting. It is considered as a classic article in the fields that have endured the test of time and are considered must reads on performance measurement.

1. Methodology

The study has adopted multi stage of sampling technique. In the first stage two districts were selected purposively based on the Gross District Domestic Product (GDDP) during the year 2008-2009, which indicates the financial status of each district. Based on this, two districts i.e., Bangalore Rural and Chamarajanagar were selected for the study. The Bangalore Rural district represents higher income district (Rs. 6, 41,057 lakh) and Chamarajanagar low income district (Rs. 2, 99,763 lakh) among the districts in Karnataka. Two taluks from each district were selected randomly by following lottery method. Accordingly Hoskote and Nelamangala taluks in Bangalore Rural district and Chamarajanagar and Yelandur taluks in Chamarajanagar district were selected for the study. In the third stage 16 GPs were selected for in-depth study based on the development studies of the GPs published by Abdul Nazeer Sab State Institute for Rural Development (ANSSIRD). Based on the report top two GPs and lowest two GPs were selected. The data has been analysed with the help of various statistical, mathematical and econometric tools using Statistical Package for Social Science (SPSS). The statistical tools are Meaning, Correlation, Regression and t-test.

Development Status of Sample Gps

Human Development Index (HDI) is identified to indicate the development status in the present study. Therefore, the relative human development status of sample GPs is presented in table 1. The data shows considerable variation across the GPs in Bangalore Rural and Chamarajanagar districts. It is observed that the HDI value of developed GP in a developed

district (Bangalore Rural) is higher than the value of developed GPs in under developed district (Chamarajanagar). In most of the developed GP, the HDI value is around 0.54 except in Alur GP which is in Chamarajanagar taluk of Chamarajanagar district. It is ranking least among all the developed GPs of the sample. Surprisingly all the GPs are performing well in Health Index and relatively better in Education Index but not well in standard of living. There is not much variation among the GPs in both the districts in case of Standard of Living Index. In the case of under developed category of GPs there is greater variation between Bangalore Rural and Chamarajanagar districts. While GPs in Bangalore Rural district is relatively better compared to the GPs in Chamarajanagar district. While the average index is around 0.45 in GPs of Bangalore Rural district, it is 0.38 in GPs of Chamarajanagar district. In terms of standard of living there is no significant variation among the GPs. The under developed GPs also are performing well in health index and relatively better in education index compared to the Standard of Living Index (Table 1).

TABLE 1 HUMAN DEVELOPMENT INDEX (HDI) RANK OF GRAMA PANCHAYATS AS PER HUMAN DEVELOPMENT REPORT 2015

District	Taluk	GPs	HDI Value	HDI Rank	Standard of Living	Health Index	Education Index
Higher Level of HDI Rank – Developed GPs							
Bangalore Rural	Hoskote	Sulibele	0.5439	**525**	0.2175	1.0000	0.7400
		Kalkunte Agrahara	0.5418	**553**	0.2310	0.9510	0.7239
	Nelamangala	Shivagnage	0.5473	**474**	0.2431	0.9758	0.6913
		Manne	0.5457	**496**	0.2303	0.9758	0.7230
Chamarajanagar	Chamarajanagar	Madapura	0.5003	**1226**	0.1876	1.0000	0.6678
		Alur	0.4809	**1636**	0.1633	0.9758	0.6983
	Yelandur	Mamballi	0.5253	**765**	0.2201	0.9758	0.6750
		Agara	0.5084	**1067**	0.2026	0.9758	0.6648
Lower Level of HDI Rank – Underdeveloped GPs							
Bangalore Rural	Hoskote	Muthsandra	0.4332	**3178**	0.1429	0.8578	0.6631
		Jadigenahalli	0.4185	**3648**	0.1494	0.7023	0.6985
	Nelamangala	Arebommanahalli	0.4812	**1630**	0.1545	1.0000	0.7212
		Yentaganahalli	0.4520	**2516**	0.1608	1.0000	0.5745
Chamarajanagar	Chamarajanagar	Doddamole	0.3522	**5142**	0.0867	0.9510	0.5297
		Maliyur	0.3387	**5336**	0.1021	1.0000	0.3803
	Yelandur	Yariyuru	0.3825	**4577**	0.1301	0.9255	0.4647
		Ambale	0.3777	**4675**	0.1059	0.9758	0.5216

Source: Performance of Grama Panchayats in Karnataka, Human Development – 2015, ANSSIRD, GOK.

3. Economics Efficiency of Sample Grama Panchayats

Economic efficiency of sample Grama Panchayats in terms of raising funds and achieving output is presented in the following section.

2.1. Trends in Revenue of Developed and Underdeveloped Grama Panchayats

Grants-in-Aid and Own Source of Revenue (OSR) are the two sources of revenue for GPs. The data shows that among the developed

Ps, Sulibele GP of Bangalore Rural district has generated average revenue of more than one crore during 2010-11 and 2016-17. It is interesting to observe that the average revenue of some of the less developed GPs higher than that of developed GP. Among the developed GPs

Sulibele GP generated highest revenue (Rs. 1.23 crore) and Kalkunte Agrahara GP generated least (Rs. 46.86 lakh). Among the underdeveloped GPs Yentaganahalli GP generated highest (Rs. 2.09 crore) and Dodd amole GP generated least (Rs. 37.74 lakh).

TABLE 2 AVERAGE REVENUE OF SELECT DEVELOPED AND UNDERDEVELOPED GRAMA PANCHAYATS DURING 2010-11 AND 2016-17

GPs	Average Share of Grants-in-Aid (In %)	Average Share of OSR (in %)	Average Revenue (In Rs.)	Average Revenue per HH (In Rs.)
Developed GPs				
Sulibele	72.3	27.7	12271300	5829.6
Kalkunte Agrahara	72.1	27.9	4685731	4387.4
Shivagange	69.3	30.7	6430225	3969.3
Manne	65.3	34.7	5767431	3955.7
Madapura	76.2	23.8	4821964	2742.9
Alur	79.3	20.7	5840010	2837.7
Mamballi	81.7	18.3	6122218	4917.4
Agara	83.5	16.5	5082625	4767.9
Average	**75.0**	**25.0**	**6377688**	**4176**
Underdeveloped GPs				
Muthsandra	57.0	43.0	6651971	3123.0
Jadigenahalli	56.8	43.2	6043593	4232.2
Arebommanahalli	78.0	22.0	5155530	3137.9
Yentaganahalli	27.6	72.4	20884011	8001.5
Doddamole	80.2	19.8	3774485	2926.0
Maliyur	80.3	19.7	4439059	3013.6
Yeriyur	84.1	15.9	7387014	4192.4
Ambale	83.8	16.2	6187799	4200.8
Average	**68.5**	**31.5**	**7565433**	**4103**

Source: Data collected through field work.

As per the Panchayat Act, GPs have the power to generate Own Source of Revenue (OSR). The share of OSR and Grants-in-Aid in the total revenue generated gives an indication about the efficiency of GP in generating OSR. The data shows that Grants-in-Aid is the major source of revenue for the GPs. The share of Grants-in-Aid varies from 28.0 per cent to 84.0 per cent in developed and underdeveloped GPs. There is equal dependence on Grants-in-Aid both in developed and underdeveloped GPs. It is also observed that the share of OSR is high among some of the underdeveloped GP. The majority of the underdeveloped GPs which are located in Chamarajanagar district have generated least amount of OSR (Table 2).

2.1.1. Testing Of Hypotheses for Differences in Average Revenue

The difference in the average revenue per HH between the developed and underdeveloped GPs was tested with t-test with the following hypotheses.

H_0 – There is no difference between developed and underdeveloped GPs in the average revenue

H_1 – There is a difference between developed and underdeveloped GPs in the average revenue

Result: t-test

Group Statistics					
Groups - developed and Underdeveloped GPs		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Average Revenue Per HH (in Rs.)	Developed GPs	8	4175.988	1043.016	368.762
	Underdeveloped GPs	8	4103.425	1677.434	593.062

Independent Samples Test – t-test								
		Levene's Test for Equality of Variances		**t-test for Equality of Means**				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Average Revenue per HH (In Rs.)	Equal variances assumed	0.271	0.611	0.104	14	0.919	72.563	698.361
	Equal variances not assumed			0.104	11.709	0.919	72.563	698.361

Note: (H_0 = Null Hypothesis, H_1 = Alternative Hypothesis).

The result shows that F- value is not significant. Therefore equal variance is assumed. As the p-value (0.919) is not significant at 5% level we are unable to reject the null hypothesis (H_0) and conclude that there is no statistically significant difference between the developed and underdeveloped GPs in the generation of resources per HH. Though there is a marginal difference in the average revenue, the difference is not statistically significant (Table 2).

2.1.1. Testing Of Hypotheses for Difference in Share of Our in Total Revenue

In order to understand the difference between developed and underdeveloped GPs in the share of OSR in total revenue, mean differences were tested with independent sample test with the following hypotheses.

H_0 – There is no difference between developed and underdeveloped GPs in share of OSR in total revenue

H_1 – There is a difference between developed and underdeveloped GPs in share of OSR in total revenue

Result: t-test

Group Statistics					
Groups - developed and Underdeveloped GPs		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Share of OSR in Total Revenue (in %)	Developed GPs	8	25.04	6.32	2.23
	Underdeveloped GPs	8	31.53	19.95	7.05

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Share of OSR in Total Revenue (in %)	Equal variances assumed	8.174	0.013	-0.877	14	0.395	-6.488	7.398
	Equal variances not assumed			-0.877	8.390	0.405	-6.488	7.398

The results show a significant F- value. Therefore equal variance is not assumed. Since the p-value (0.405) is not significant we are unable to reject the null hypothesis (H_0) that there is no significant difference between the developed and underdeveloped GPs in the share of OSR in total revenue. Though there is a difference in the mean value of share of OSR in total revenue between the developed and underdeveloped GPs, the difference is not statistically significant (Table 2).

2.1. Efficiency of Grama Panchayats in Administration

Efficiency of GPs in administration is measured with the cost of administration of GP. In order to standardize the GP in terms of size, cost of administration of GP was deflated with the number of HH in the GP (as on 2011 census).

TABLE 3 ADMINISTRATIVE EFFICIENCY OF DEVELOPED AND UNDERDEVELOPED GPS DURING 2010-11 AND 2016-17

GPs	Average Administrative Cost (in Rs.)	HHs as on 2011 census	Average Administrative Cost per HH (in Rs.)
Developed GPs			
Sulibele	1140257	2105	542
Kalkunte Agrahara	434950	1068	407
Shivagange	805984	1620	498
Manne	669520	1458	459
Madapura	540175	1758	307
Alur	513390	2058	249
Mamballi	511356	1245	411
Agara	392139	1066	368
Average	**625971**	**1547**	**405**
Underdeveloped GPs			
Muthsandra	675230	2130	317
Jadigenahalli	681788	1428	477
Arebommanahalli	575213	1643	350
Yentaganahalli	2474347	2610	948
Doddamole	333642	1290	259
Maliyur	422846	1473	287
Yeriyur	495395	1762	281

Ambale	316951	1473	215
Average	**746927**	**1726**	**392**

Source: Data collected through field work.

Accordingly the total cost and cost of administration per HH was calculated and presented in Table 3. The GP varies considerably in developed and underdeveloped GPs. Among the developed GPs highest administrative cost of Rs. 11.40 lakh was reported in Sulibele GP and leas was observed in Agara GP (Rs. 3.92 lakh). The average cost of administration among the underdeveloped GPs is observed to be higher than developed GPs. Among this category Yentaganahalli GP reported highest administrative cost of Rs. 24.74 lakh during 2010-11 and 2016-17. Ambale GP spent least administrative cost of Rs. 3.17 lakh. When standardize with the number of HHs in each GP, there is a considerable reduction in the underdeveloped GPs. While the average per HH expenditure among the developed GPs was Rs. 405, it is Rs. 392 among the underdeveloped GPs. Among the underdeveloped GPs only Yentaganahalli GP has shown highest administrative expenditure of any GP in both developed and underdeveloped GPs (Table 3).

2.1.1. Testing Of Hypotheses for Differences in Administrative Cost per Hh

The difference between the developed and underdeveloped GPs in the average administrative cost per HH was tested with t-test with the following hypotheses.

H_0 – There is no difference between developed and underdeveloped GPs in the average administrative cost

H_1 – There is a difference between developed and underdeveloped GPs in the average administrative cost

The result shows that F- value is not significant. Therefore equal variance is assumed. As the p-value (0.885) is not significant at 5% level we are unable to reject the null hypothesis (H_0) and conclude that there is no statistically significant difference between the developed and underdeveloped GPs in the average administrative cost per HH. Though there is a marginal difference in the average administrative cost per household, the difference is not statistically significant

TABLE 3

Result: t-test

Group Statistics					
Groups - Developed and Underdeveloped GPs		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Average Administrative Cost per Household (In Rs.)	Developed GPs	8	405.13	96.867	34.248
	Underdeveloped GPs	8	391.75	237.882	84.104

Independent Samples Test							
Average Administrative Cost per Household (in Rs.)	**Levene's Test for Equality of Variances**		**t-test for Equality of Means**				
	F	**Sig.**	**t**	**df**	**Sig. (2-**	**Mean**	**Std. Error Difference**

					tailed)	Differenc e	
Equal variances assumed	2.009	0.17 8	0.14 7	14	0.885	13.375	90.809
Equal variances not assumed			0.14 7	9.25 9	0.886	13.375	90.809

2.1. Economic Efficiency Of Gps In Raising Osr

Efficiency in generating OSR is measured by taking in to consideration the average amount of OSR generated and the average administrative cost of GP during the period from 2010-11 to 2016-17. The ratio of OSR generated to the actual administrative cost is presented in table 4.46. The data shows that in many GPs in sample the average cost of Rs. 1 has generated more than Rs.1 of OSR. The average ratio of underdeveloped GPs is relatively higher (Rs. 3.1) compared to the developed GPs (Rs. 2.3). Though the average ratio is higher in the category of underdeveloped GPs, there is a greater variation among the GPs. Muthsandra and Yentaganahalli GPs, which are located in a developed district of Bangalore Rural are generally higher own resources per unit of administrative expenditure. But the other GPs are in the range of Rs. 2 to 4. But, among the developed GP, the range is between Rs. 2 and Rs. 3 (Table 4).

TABLE 4 EFFICIENCY IN GENERATING OSR PER ADMINISTRATIVE COST OF DEVELOPED AND UNDERDEVELOPED GPS DURING THE YEAR 2010-11 AND 2016-17

GPs	Average OSR Generated (in Rs.)	Average Administrat ive Cost (in Rs.)	Average OSR Generated per Average Administrative Cost (in Rs.)	Correlation Between OSR and Administrative Cost (Overall)
Developed GPs				
Sulibele	3085746	1140257	2.71	**r=0.972**
Kalkunte Agrahara	1226032	434950	2.82	
Shivagange	1940354	805984	2.41	
Manne	1885817	669520	2.82	
Madapura	955461	540175	1.77	
Alur	889852	513390	1.73	
Mamballi	1042008	511356	2.04	
Agara	751029	392139	1.92	
Average	**1472037**	**625971**	**2.3**	
Underdeveloped GPs				
Muthsandra	2798654	675230	4.14	
Jadigenahalli	2573089	681788	3.77	
Arebommanahalli	1136807	575213	1.98	
Yentaganahalli	15359450	2474347	6.21	
Doddamole	648021	333642	1.94	
Maliyur	756087	422846	1.79	
Yeriyur	979575	495395	1.98	
Ambale	865401	316951	2.73	
Average	**3139636**	**746927**	**3.1**	

Source: Data collected through field work.

2.1.1. Testing of Hypotheses for difference in the efficiency of OSR

In order to understand the difference between developed and underdeveloped GPs in the efficiency of OSR per administrative cost, mean differences were tested with independent sample test with the following hypotheses.

H_0 – There is no difference between developed and underdeveloped GPs in the efficiency of OSR

H_1 – There is a difference between developed and underdeveloped GPs in the efficiency of OSR

Result: t-test

Group Statistics					
Groups - Developed and Underdeveloped GPs		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Average OSR Generated per Average Administrative Cost (in Rs.)	Developed GPs	8	2.278	0.468	0.166
	Underdeveloped GPs	8	3.068	1.554	0.549

Independent Samples Test								
Average OSR Generated per Average Administrative Cost (in Rs.)		**Levene's Test for Equality of Variances**		**t-test for Equality of Means**				
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
	Equal variances assumed	7.497	0.016	-1.377	14	0.190	-0.790	0.574
	Equal variances not assumed			-1.377	8.261	0.205	-0.790	0.574

The results show a significant F- value. Therefore equal variance is not assumed. Since the p-value (0.205) is not significant we are unable to reject the null hypothesis that there is no significant difference between the developed and underdeveloped GPs in the efficiency of OSR per administrative cost. Though there is a difference in the mean value of efficiency of OSR per administrative cost between the developed and underdeveloped GPs, the difference is not statistically significant (Table 4).

2.1. Factors Influencing Economic Efficiency of OSR

Several factors influence the taxable capacity and the collection of tax revenue and non-tax revenue at the GP level.

TABLE 5 FACTORS INFLUENCING THE EFFICIENCY OF OSR OF DEVELOPED AND UNDERDEVELOPED GPS DURING 2010-11 AND 2016-17

GPs	OSR per Administrative Cost (in Rs.)	Size (No. of Villages)	Education of GP Members (% of Literates)	Poverty (% of BPL & AAY HHs)
Developed GPs				
Sulibele	2.71	3	100.0	76.0
Kalkunte Agrahara	2.82	5	100.0	85.0
Shivagange	2.41	12	100.0	90.0
Manne	2.82	12	100.0	85.0
Madapura	1.77	6	83.3	85.0
Alur	1.73	8	85.7	90.0
Mamballi	2.04	1	100.0	90.0
Agara	1.92	2	100.0	95.0
Average	**2.28**	**6.13**	**96.13**	**87.00**
Underdeveloped GPs				
Muthsandra	4.14	8	95.7	80.0
Jadigenahalli	3.77	12	100.0	94.0
Are bommana halli	1.98	14	100.0	90.0
Yentaganahalli	6.21	26	100.0	90.0
Dod damole	1.94	3	87.5	95.0
Maliyuru	1.79	2	78.6	80.0
Yeriyur	1.98	3	100.0	93.0
Am bale	2.73	4	87.5	88.0
Average	**3.07**	**9.00**	**93.65**	**88.75**

Source: Data collected through field work.

Based on the observation of GP finances and earlier studies (CBPS, 2013) the socio-economic conditions prevailing in the sample GPs and the composition of GP members in terms of number of literates, age group of GP members and also the location of GP are considered factors influencing OSR of sample GPs. The variables considered for the regression analysis are presented in the table 5. An attempt is made to identify the factors influencing the efficiency of OSR with the following regression model.

2.1.1   Hypotheses

H_0 = the efficiency in generating OSR is not influenced by the education status of GP members

H_1 = the efficiency in generating OSR is influenced by the education status of GP members

$$InY = \beta_0 + \beta_1 InX_1 + \beta_2 InX_2 + \beta_3 InX_3 + u_i$$

Here

LN =   Natural logarithm

Y =   Efficiency of OSR (EOSR) (Ratio of the OSR generated to the

Actual administrative cost)

X_1 =   *Size (number of villages in GPs)

X_2 =   **Education of GP members (% of Literates)

X_3 =   % of BPL and AAY HHs

The log linear regression results are presented below

$$InY = -0.674 + 0.209 InX_1 + 1.607 InX_2 - 1.358 InX_3$$

$\bar{R}^2 = 0.368$ F (3, 12) = 3.911   p = 0.037*

Note: ** indicates significant at 0.01 (1%) and * indicates significant at 0.05 (5%).

The result shows that the regression model is a good fit with a significant F value. The entire variable has got the expected signs. Size of the GP appears to be having a significant influence on the efficiency of GP. This shows the economies of large scale in the generation of OSR. On the other hand the education status of the members also appears to be influencing the efficiency in OSR. The higher the share of educated members, greater is the efficiency in generating OSR. With the significant estimated β_2, the null hypothesis that the education status of GP members has no influence in the efficiency of generating OSR is rejected indicating that the education status of GP members influences the efficiency of GPs in generating OSR (Table 5).

2.2 Factors Influencing the Efficiency of GPs in the Implementation of Programmes

Several factors influence the TFPCH at the GP level. Based on the observation of GP finances and earlier studies (CBPS, 2013) the socio-economic conditions prevailing in the sample GPs and the composition of GP members in terms of number of literates, age group of GP members, size or number of villages in GPs and also the location of GP are considered factors influencing OSR of sample GPs. The variables considered for the regression analysis are presented in the table 6.

TABLE 6 FACTORS INFLUENCING THE EFFICIENCY OF GPS IN THE IMPLEMENTATION OF PROGRAMMES

GPs	Efficiency (Total Factor Productivity Change)	Size (No. of Villages)	Education of GP Members (% of Literates)	Age of GP Members (% of < 35 Years)	Location (Distance from ZP office, in Kms.)
Madapura	1.436	6	83.3	22.2	6.0
Alur	1.416	8	85.7	28.6	10.0
Doddamole	1.372	3	87.5	18.8	6.0
Maliyuru	1.446	2	78.6	50.0	21.0
Mamballi	1.449	1	100.0	20.0	40.0
Agara	1.376	2	100.0	41.7	30.0
Yeriyur	1.345	3	100.0	21.1	18.0
Ambale	1.340	4	87.5	25.0	24.0
Sulibele	1.298	3	100.0	40.0	35.0
Kalkunte Agrahara	1.310	5	100.0	53.8	40.0
Muthsandra	1.268	8	95.7	43.5	30.0
Jadigenahalli	1.215	12	100.0	33.3	30.0
Shivagange	1.185	12	100.0	64.7	45.0
Manne	1.118	12	100.0	46.7	49.0
Arebommanahalli	1.090	14	100.0	26.7	45.0
Yentaganahalli	1.084	26	100.0	12.0	36.0

Source: Data collected through field work.

2.1.1. Double Log-Linear Regression Model

The double log model for the said data is constructed by taking natural log of the all regress and repressor. The natural log of the variable is nothing but the value which is raised to the power of e where e = 2.71828. Since both regress and repressor are in natural log form, the model is parameters are interpreted in the percentage form.

Hypotheses

H_0 = Efficiency of the Gram Panchayat in the implementation of programmes is not influenced by the size of the GP

H_1 = Efficiency of the Gram Panchayat in the implementation of programmes is influenced by the size of the GP

The model is specified as follows

$$InY = \beta_0 + \beta_1 InX_1 + \beta_2 InX_2 + \beta_3 InX_3 + \beta_4 InX_4 + u_i$$

Here

LN = Natural logarithm

Y = Total factor productivity of sample GPs

X_1 = **Size (number of villages in GPs)

X_2 = Education of GP members (% of Literates)

X_3 = Age group of the GP members (< 35Years Age)

X_4 =*Distance of GP from ZP office (in Kms.)

$\bar{R}^2$ = Adjusted R-Square

The stated model is estimated by using Ordinary Least Square (OLS) method because in the said model OLS methods provide the estimates which satisfy the property of Best Linear Unbiased Estimator (BLUE).

$$InY = 1.2734 - 0.0789 InX_1 - 0.1751 InX_2 + 0.0286 InX_3 - 0.0584 InX_4$$

$\bar{R}^2 = 0.5761$ F (4, 11) = 23.596   p = 0.000**

Note: ** indicates significant at 0.01 (1%) and * indicates significant at 0.05 (5%).

The estimated model is overall statically significant since the F value of the model is 23.596 and its P value is less than 0.05. The t statistic of individual regression coefficient of X_1 and X_4 are -0.0789 and -0.0584 respectively and both the p values are also less than 0.05. Therefore it appears that the percentage change in total factor productivity is influenced by the size of the grama panchayat and distance from the GP to ZP. The inverse relationship indicates that larger the GP, lower the TFPCH. From these findings it appears that smaller GP one more efficient than larger GP in the implementation of programmes. Another significant variable is distance from ZP office. The inverse relationship shows that the GP which closer to ZP are more efficient in the implementation of programmes. The distance between the GP and its ZP appears to be an influential factor.

With the significant estimated β_1, the null hypothesis that the size of the GP does not influence the efficiency of GPs in the implementation of development programmes is rejected indicating that the size of GP influences the efficiency of GPs in the implementation of development programmes (Table 6).

8. CONCLUSIONS AND SUGGESTIONS

The analysis revealed that there is a considerable increase in the allocation of funds to GP along with the increase in the functions. However, now the question is about the efficient utilization of these funds for attaining maximum social welfare. In this direction there appears to be a significant difference between the developed and underdeveloped Grama Panchayats. In this direction efficient Grama Panchayat Development Plan (GPDP) will play an important role. During field visit it is observed that all the GPs have submitted GPDP. However during the field visit it is observed that participation of stakeholders is very limited and the awareness levels are low. Therefore it is important to create awareness about the importance of GPDP. The study also observed that there is a greater dependence on external sources of funding compared to the Own Sources of Revenue. Specific training programmes are to be designed in consultation with the fiscal policy experts and train the elected members in assessing the local resources and raising Own Sources of Revenue. From the analysis of linking the development status and the funding, it is observed that the poorer districts received lower funding. Though this analysis gives broader trends, it needs much more in depth study to understand the reasons for this trend. Some of the GP with higher human development have generated lower income. During the field visits it is observed that the higher economic status of Yentaganahalli is due to its proximity to a highway and closer to Bangalore city. Therefore it is important to ensure proper utilization of funds for improving the human development. There should be greater flexibility in the implementation of programmes at the GP level. The education of the GP members is having positive effect on efficiency in generating Own Source of Revenue. Therefore it is import to encourage greater participation of educated youth into local administration. Internships are to be created at the higher education courses to introduce local administration at the graduation level. This motivates educated youth to take interest in the local administration. The study supports formation of larger GPs as they found to be economically efficient. The study underlines the importance of education of the elected representatives at GP level.

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