International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

An Impact of Social Sector Expenditure on IMR and GER in Non- Special Category States of India During 2006-07 To 2020-21

Dr. Aloka Kumar Goyal[1], Drishti Jaiswal[2], Raju Sahni[3]

[1]Professor, Dept. of Economics, DDU Gorakhpur University, Gorakhpur, UP
[2,3]Research Scholar (SRF), Dept. of Economics, DDU Gorakhpur University, Gorakhpur, UP

Abstract
Economic and social transformations are essential components for economic development and social variables for the measurement of economic development have emerged as important indicator. That's why this paper "An impact of Social Sector Expenditure on IMR and GER in Non- Special Category states of India during 2006-07 to 2020-21" has relevance in current scenario. The paper deals with the relationship between per capita health expenditure and IMR, per capita education expenditure and GER of 17 Non Special Category (NSC) states of India and negative and positive correlation has been found. The paper has been divided into- Introduction, Objectives, Methodology and Data sources, Analysis and Discussions and finally Conclusions of the study.

Keywords: GER-Gross Enrolment Ratio, IMR- Infant Mortality Rate, Social Sector Expenditure, Economic growth and Development.

Introduction

Economic growth is a quantitative metric which is measured in terms of an economy's GDP growth while on the other hand, social development is quantitative and qualitative metrics both and as it refers to the population's overall well-being regarding education, health, freedom, capabilities and quality of life measures[1]. However, economic growth does not guarantee that the population or the economy as a whole is better off. Economic growth is a necessary but not a sufficient condition for development of the society and human beings. Development is a continuous process of social and economic changes [2]. Many theoretical studies underlined the linkages between economic growth and social sector expenditure like in the Endogenous Growth Models of Romer, Lucas, Barro and others, have focussed on the role of Human Capital Formation as it acts as the key agents of economic growth. For their enhancement, there is a need of heavy investment in the social sector of the economy for increasing efficiency and productivity of the human capital stocks. Development in the social sector leads to an increase in the capabilities of people, equipping them with enhanced labour productivity. This, in turn, boosts economic growth, and also the quality of life of the people.

[1]Amartya Sen's Capability Approach.
[2] Joseph Schumpeter's Theory of Economic Development (Introduced the concept of "creative destruction")

There is a positive correlation between the social sector expenditure and the development of individuals as well as for the society [3]. The expenditure on social service sectors in India comprises of various components such as education, health, urban and rural development, nutrition, sanitation, water availability and other protective and promotional measures[4].

To make the discussion more focussed; this research paper mainly covers only two components of social sector expenditure- Education and Health Expenditure. For this, IMR is considered as an indicator of health status while on the other hand, GER (Primary GER and Secondary GER) is taken as an indicator of education performance. In this regard, there is a need to study the impact of Social Sector Expenditure on IMR and GER in 17 Non-Special Category states of India.

Objective of the study

1. To study the correlation between-

a) Health Expenditure and IMR

b) Education Expenditure and GER

1. Education Expenditure and Primary GER
2. Education Expenditure and Secondary GER

2. To check the variation of Primary GER, Secondary GER and IMR across the 17 NSC states of India during 2006-07 to 2020-21.

Methodology

This study is mainly an Analytical and Descriptive research in nature. The study is based upon the secondary data. The data has been collected from various sources: - Budget documents of the State governments, States Finances & some earlier issues from RBI Bulletin, Census of India, Sample Registration System Bulletin, Statistics of School Education, Statistics Division of Department of Higher Education (MHRD), National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India and also from Occasional Papers of RBI [5]. Census data (2001 &2011) has been taken to calculate the Per Capita social sector expenditure for different 17 states of India. In this study, 17 states (Andhra Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal) in India of non special category status have been taken for analysis. The periods of the study have been taken from 2006-07 to 2020-21 and the points of time for the study are 2006-07, 2011-12, 2015-16 & 2020-21. For the purpose of analytical study, statistical tools have been used for the measurement of mean (average), standard deviation and coefficient of variation. For computing decreasing rate of IMR (in %) for 17 NSC states, the method is percentage change in IMR in the year 2020-21 on the basis of 2006-07.

[3] Iana Paliova, Robert McNown and Grant Nülle. (2019). *Multiple Dimensions of Human Development Index and Public Social Spending for Sustainable Development.*

[4] Jennifer Rubin, Jirka Taylor, Joachim Krapels, Alex Sutherland, and et al. (2016). Are better health outcomes related to social expenditure? A cross-national empirical analysis of social expenditure and population health measures.

[5] Kaur, B. and Mishra, S. (2003). Occasional Paper of Reserve Bank of India, Vol 24, Nos 1 and 2, Summer and Monsoon.

Analysis and Discussion

a) Status of Per Capita Health Expenditure and IMR

Table: 1. per Capita Health Expenditure and IMR of 17 Non Special Category States

S.No	States	Per Capita Health Expenditure				IMR				Decreasing rate of IMR (in %)
		2006-07	2011-12	2015-16	2020-21	2006-07	2011-12	2015-16	2020-21	
1	Andhra Pradesh	244.48	1113.18	1056.41	1948.91	56	43	37	24	57.14
2	Bihar	150.31	1004.78	2194.46	4995.48	60	44	42	27	55
3	Chhattisgarh	221.53	822.80	2234.75	3977.88	61	48	41	38	37
4	Goa	1108.71	1989.75	2868.46	6767.71	15	11	9	5	66.67
5	Gujarat	213.52	1040.11	2329.07	3386.07	53	41	33	23	56.60
6	Haryana	218.93	787.27	1614.36	3296.88	57	44	36	28	50.88
7	Jharkhand	360.31	1057.33	2238.64	3963.09	49	39	32	25	48.98
8	Karnataka	245.66	925.69	1676.82	3279.20	48	35	28	19	60.42
9	Kerala	392.13	1369.62	2288.43	3826.43	15	12	12	6	60
10	Madhya Pradesh	177.48	909.49	2045.21	3114.99	74	59	50	43	41.89
11	Maharashtra	241.42	857.58	1705.24	2516.83	35	25	21	16	54.29
12	Odisha	155.69	741.88	2104.28	4330.59	73	57	46	36	50.68
13	Punjab	281.86	1680.51	2342.27	3479.67	44	30	23	18	59.09
14	Rajasthan	224.51	1185.93	2900.56	4460.36	67	52	43	32	52.24
15	Tamil Nadu	245.09	939.26	1873.96	3901.01	37	22	19	13	64.86
16	Uttar Pradesh	236.01	1591.48	3250.47	5093.04	71	57	46	38	46.48
17	West Bengal	198.48	1083.63	2126.03	3391.41	38	32	26	19	50
	Average	289.1	1123.	2167.	3866.	50	38	32	24.12	

		8	55	61	44					
	Standard Deviation	220.16	345.5	523.5	1093.38	17.99	14.8	12.28	11	

Source: Sample Registration System Bulletin, various issues, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

Table 1 reveals the state wise Per Capita Health Expenditure and state wise IMR of 17 Non-Special Category states of 2006-07, 2011-12, 2015-16 and 2020-21. The curve of Per Capita Health Expenditure (PCHE) of 17 Non-Special Category states is showing increasing trends while the curve of Infant Mortality Rate (IMR) of 17 Non-Special Category states is showing decreasing trends during the study period. It is quite clear that Per Capita Health Expenditure (PCHE) and Infant Mortality Rate (IMR) are negatively correlated. The National Health Policy (NHP) of India has laid target to reduce Infant Mortality Rate (IMR) to at least as low as 28 per 1000 live births by 2019, in which 12 out of 17 states have shown a reduction in IMR in the year 2020-21. The last column of table 1 is showing the state wise decreasing rate of IMR (in %) of 17 NSC states during the study period. The 17 NSC states are categorised into three categories based on their decreasing value of IMR (in %) i.e. (A) More than or equal to 60%, (B) Between (50-60) % and (C) Below 50%. Four out of 17 NSC states are categorised under A category, while nine out of 17 NSC states are under B category and the remaining four states are under C category during the study period.

b) Status of Per Capita Education Expenditure and GER

Table: 2 (a) Primary GER and Per Capita Education Expenditure of 17 Non Special Category States

S.No	**States**	**Per Capita Education Expenditure**				**Primary GER**			
		2006-07	2011-12	2015-16	2020-21	2006-07	2011-12	2015-16	2020-21
1	Andhra Pradesh	800.10	3288.95	3427.45	4929.58	96.47	92.8	90.93	102.97
2	Bihar	705.03	4880.35	9152.49	14986.44	94.67	99	113.94	98.69
3	Chhattisgarh	816.51	3832.52	8150.26	10281.28	123.19	114.1	104.77	96.31
4	Goa	3302.03	5077.30	7458.01	11521.22	119.62	115.9	107.19	94.3
5	Gujarat	935.07	3912.80	6321.77	8223.31	120.12	110.4	98.94	93.4
6	Haryana	1042.10	4063.33	6405.37	8242.20	88.21	89.5	95.56	101.15
7	Jharkhand	869.32	4424.08	6827.85	9871.69	111.7	117.2	111.53	102.2
8	Karnataka	1038.12	3489.15	5562.13	7083.07	106.99	102.6	104.92	105.08
9	Kerala	1368.4	4489.3	7041.31	7393.45	93.42	87.3	96.65	100.17

		4	0						
10	Madhya Pradesh	579.15	3524.26	6646.93	9751.26	150.41	124.3	103.21	89.49
11	Maharashtra	1277.18	4811.97	7275.67	9130.83	113.61	102.1	102.39	104.82
12	Odisha	642.83	3802.12	6536.70	9898.50	114.07	106.7	105.43	97.39
13	Punjab	929.09	5784.08	7997.99	11003.28	81.33	106.6	111.61	111.57
14	Rajasthan	854.25	4139.13	7881.97	12712.03	122.36	104.2	107.42	106.52
15	Tamil Nadu	906.08	3357.87	5927.84	8647.24	117.81	115.7	105.87	98.51
16	Uttar Pradesh	608.66	6185.07	11196.05	12955.99	113.75	110.9	112.29	103.16
17	West Bengal	735.83	4311.93	5770.65	9395.87	102.77	115.3	103.91	120.73
	Average	1024.11	4316.13	7034.14	9766.31	110.03	106.74	104.5	101.56
	Standard Deviation	624.99	824.37	1663.55	2420.31	16.42	10.35	6.28	7.29

Source: 1. Statistics of School Education, Statistics Division of Department of Higher Education, MHRD. 2006-07 & 2011-12. 2. Gross Enrolment Ratio (GER) by Gender and Level of School Education, (2015-16 and 2020-21), handbook of statistics on Indian states, RBI.

Table 2(a) reveals the state wise Per Capita Education Expenditure and state wise Primary GER of 17 Non-Special Category states of 2006-07, 2011-12, 2015-16 and 2020-21. The Per Capita Education Expenditure (PCEE) of 17 Non-Special Category states is showing increasing trends while the Primary Gross Enrolment Ratio (GER) of 17 Non-Special Category states is showing increasing trends during the study period. It is quite clear that Per Capita Health Expenditure (PCEE) and Primary Gross Enrolment Ratio (GER) are positively correlated (Annexure 2(a)).

On the basis of above discussions, it is clear that there is no clear cut relationship between education expenditure and Primary GER during the study period. Hence, it can be inferred that GER is not dependent only on economic factors but also on social factors.

Table: 2 (b) Secondary GER and Per Capita Education Expenditure of 17 Non Special Category States

S. No	**States**	**Per Capita Education Expenditure**				**Secondary GER**			
		2006-07	2011-12	2015-16	2020-21	2006-07	2011-12	2015-16	2020-21
1	Andhra Pradesh	800.10	3288.95	3427.45	4929.58	58.7	65.5	71.89	84.24
2	Bihar	705.03	4880.3	9152.49	14986.4	24.42	48.4	64.85	63.52

			5		4				
3	Chhattisgarh	816.51	3832.52	8150.26	10281.28	44.29	65.7	89.74	86.24
4	Goa	3302.03	5077.30	7458.01	11521.22	74.77	93.1	103.05	91.07
5	Gujarat	935.07	3912.80	6321.77	8223.31	54.69	59.6	72.31	78.56
6	Haryana	1042.10	4063.33	6405.37	8242.20	56.35	68.8	83.75	95.15
7	Jharkhand	869.32	4424.08	6827.85	9871.69	26.07	44.5	65.69	62.97
8	Karnataka	1038.12	3489.15	5562.13	7083.07	65.73	75.4	79.94	90.62
9	Kerala	1368.44	4489.30	7041.31	7393.45	92.93	99.5	103.47	97.55
10	Madhya Pradesh	579.15	3524.26	6646.93	9751.26	52.95	68.6	79.43	71.3
11	Maharashtra	1277.18	4811.97	7275.67	9130.83	69.56	74.2	88.18	92.64
12	Odisha	642.83	3802.12	6536.70	9898.50	52.74	58.6	76.33	84.52
13	Punjab	929.09	5784.08	7997.99	11003.28	48.95	77.4	87.33	109.17
14	Rajasthan	854.25	4139.13	7881.97	12712.03	48.61	66.1	73.61	84.82
15	Tamil Nadu	906.08	3357.87	5927.84	8647.24	86.72	74.8	95.75	92.59
16	Uttar Pradesh	608.66	6185.07	11196.05	12955.99	48.6	67.2	69.67	66.41
17	West Bengal	735.83	4311.93	5770.65	9395.87	44.55	63.6	79.75	91.18
	Average	1024.11	4316.13	7034.14	9766.31	55.92	68.88	81.46	84.86
	Standard Deviation	624.99	824.37	1663.55	2420.31	18.18	13.62	11.84	12.72

Source: 1. Compiled by author's calculation based on data source from Statistics of School Education, Statistics Division of Department of Higher Education, and MHRD. 2006-07 & 2011-12. 2. Gross Enrolment Ratio (GER) by Gender and Level of School Education, (2015-16 and 2020-21), handbook of statistics on Indian states, RBI.

Table 2(b) reveals the state wise Per Capita Education Expenditure and state wise Secondary GER of 17 Non-Special Category states of 2006-07, 2011-12, 2015-16 and 2020-21. The curve of Per Capita Education Expenditure (PCEE) of 17 Non-Special Category states is showing increasing trends while

the curve of Secondary Gross Enrolment Ratio (GER) of 17 Non-Special Category states is showing increasing trends during the study period. It is quite clear that Per Capita Health Expenditure (PCEE) and Secondary Gross Enrolment Ratio (GER) are positively correlated (Annexure 2(b)). .
In the case of Secondary GER, it is also clear for all 17 NSC states that economic factor is a prominent factor for secondary GER. While, at the level of Primary education, not only economic factor but also social change are necessary factor for improving the Primary GER.

Table: 3. Coefficient of variation of 17 Non Special Category States.

Year	Primary GER	Secondary GER	IMR	Per Capita Expenditure on Health	Per Capita Expenditure on Education
2006-07	14.92	32.51	35.85	76.13	61.02
2011-12	9.70	19.77	38.64	30.75	19.09
2015-16	6.01	14.54	38.36	24.15	23.65
2020-21	7.18	15.00	45.70	28.28	24.78

Source: Compiled by author's own calculation based on available data source.

Table 3 shows the variation of the 17 Non-Special Category states between two time-periods 2006-07 and 2020-21. The above table reveals that the Per Capita Expenditure on Health and Education show a declining variation among 17 Non-Special Category states. Education outcomes indicators (Primary and Secondary GER) are showing a fall in inter-states disparities in Primary GER and Secondary GER are decreasing during the period of time. While on the other hand, the health indicator (IMR) is showing an increase in variations from 35.85 to 45.70 during the study period.

Conclusion

The study presents an analysis of the impact of Social Sector Expenditure on IMR and GER during the period of 2006-07 to 2020-21. The evidence suggests that the trends of Per Capita Health Expenditure (PCHE) and Infant Mortality Rate (IMR) are negatively correlated with each other during the study period. While on the other hand, the trends of Per Capita Education Expenditure (PCEE) and Gross Enrolment Rate (GER), both Primary GER and Secondary GER, are positively correlated with each other during the study period. And also the variation of all (except IMR) Per Capita Health Expenditure (PCHE), Per Capita Education Expenditure (PCEE), Primary GER and Secondary GER, all are showing decline in variation in the 17 NSC states during the study period.
On the basis of above discussion about Primary and Secondary GER, it is quite clear for all 17 NSC states that economic factor is a prominent factor for improving the Secondary GER while social changes as well as economic factors both are playing crucial role for improving the Primary GER.

Suggestion

For the improvement of health sector in 17 Non- Special Category (NSC) States, some suggestions for government, policy makers, researchers etc. are as follows:

- There is a need to increase the health expenditure for rapid decrease in IMR. State Government should allocate a handsome amount on health sector in their budget.

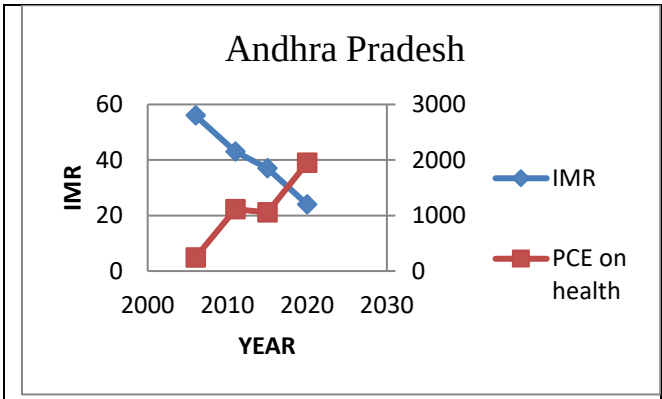
- There is a need to aware the society about education and have to make effort for changing in economic factors and social factors also for improving in Primary GER.

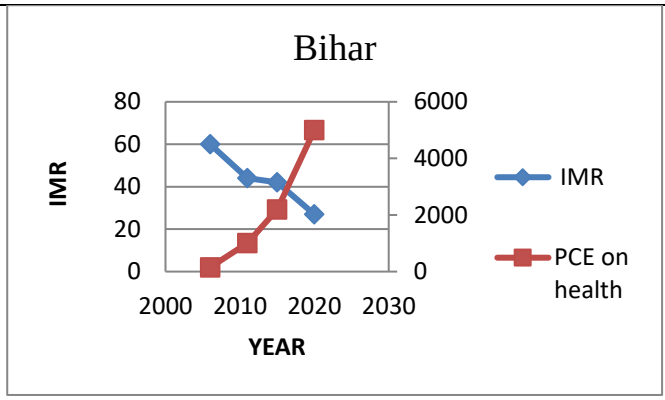
References

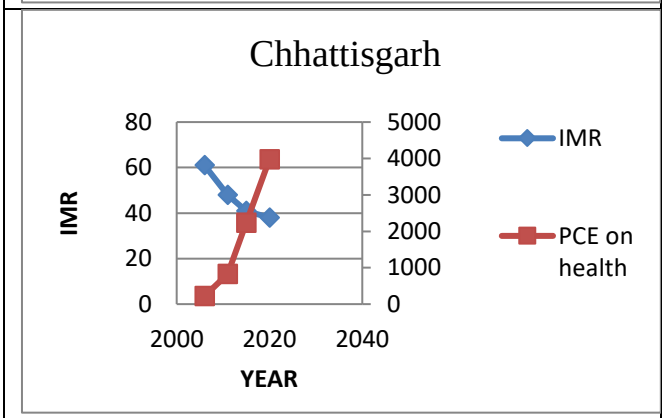
1. Kaur, B. and Mishra, S. (2003). Occasional Paper of Reserve Bank of India, Vol 24, Nos 1 and 2, Summer and Monsoon.
2. Chakroborty Pinaki (2009), "Intra- Regional Inequality and the Role of Public Policy: Lessons Learnt from Kerala," Economic and Political Weekly, Vol. 44, No. 26.
3. Guha, A. and D. Chakraborty (2003), "Relative Positions of Human Development Index Across Indian States: Some Exploratory Results", Artha Vision, Vol. 11, No. 4
4. Kaur, B. Misra, S. (2003). "Social Sector Expenditure and Attainments: An Analysis of Indian States" *Reserve Bank of India Occasional Papers* Vol. 24, Nos. 1 and 2, Summer and Monsoon 2003.
5. Kaur, B. Misra, S. and Suresh, A K. (2013). "Cyclicality of Social Sector Expenditures: Evidence from Indian States" *Reserve Bank of India Occasional Papers* Vol. 34, No. 1 & 2: 2013.
6. Mahalakshmi G and Ramesh C., 2016. "SOCIAL SECTOR EXPENDITURE ACROSS SOUTHERN STATES IN INDIA DURING PRE AND POST REFORM PERIOD" *International Journal of Recent Scientific Research* Vol. 7, Issue, 3, pp. xx, March, 2016.
7. Majumder, Rajarshi(2005) "Human Development in India: Regional Pattern and Policy Issues" Indian Journal of
8. Ministry of Human Resource Development, Department of Secondary Education and Higher Education Planning Monitoring and Statistics Division, Government of India, Education in India - various issues.
9. Musgrave, Philip (1996), "Public and Private Roles in Health: Theory and Financing Patterns", World Bank Discussion Paper No. 339, August.
10. Prabhu, Seeta K and Somnath Chatterjee (1993), "Social Sector Expenditures and Human Development: A Study of Indian States", Development Research Group Study No.6, RBI.
11. PrabhuSeeta K and SangitaKamdar (2000), "Economic Growth and Social Attainments: The Role of Development Strategy", Indian Economy: Agenda for 21st Century,
12. Pradhan, Jaya Prakash and Vinoj Abraham (2002), " Does Human Development Policy Matter for Economic Growth? Evidence from Indian States", South Asia Economic Journal.
13. Reddy, Y V (2002), "Globalisation and Challenges for South Asia", B.P. Koirala India-Nepal Foundation lecture delivered on May 19.

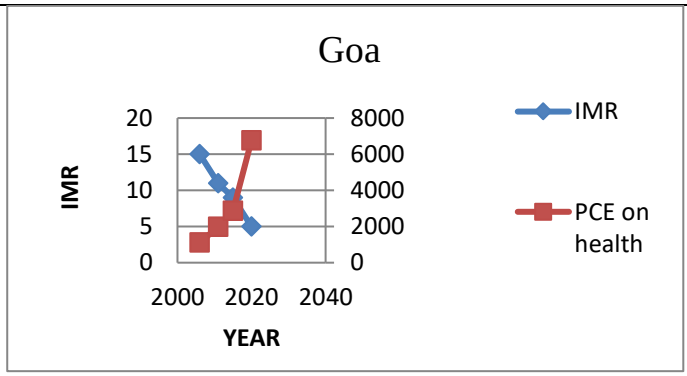
Annexure: 1

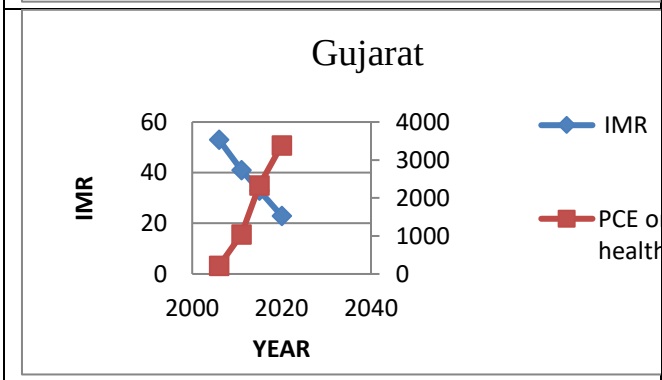
Relationship between Per Capita Health Expenditure and IMR:-

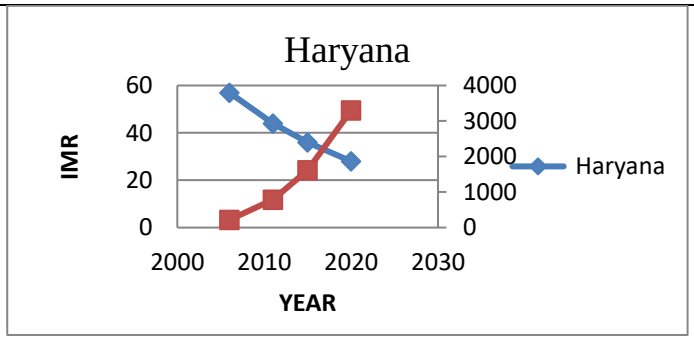


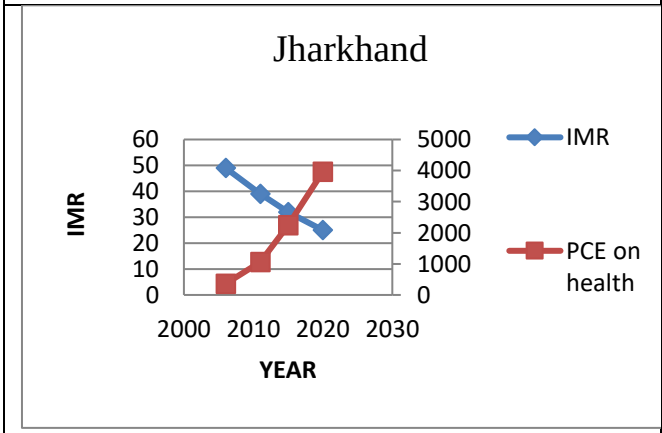


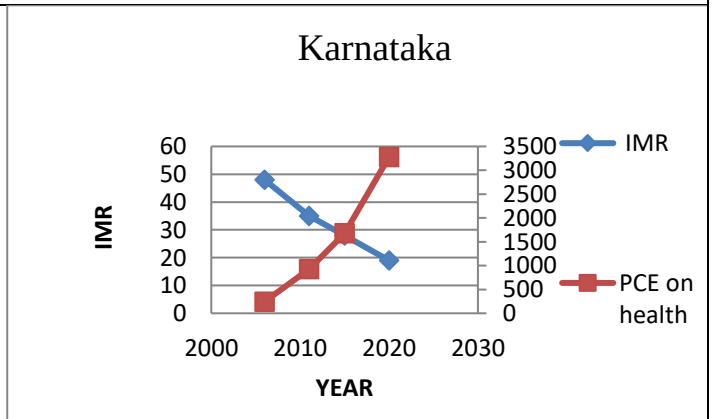


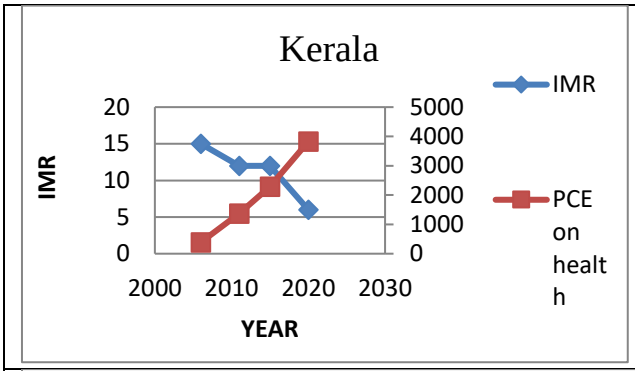


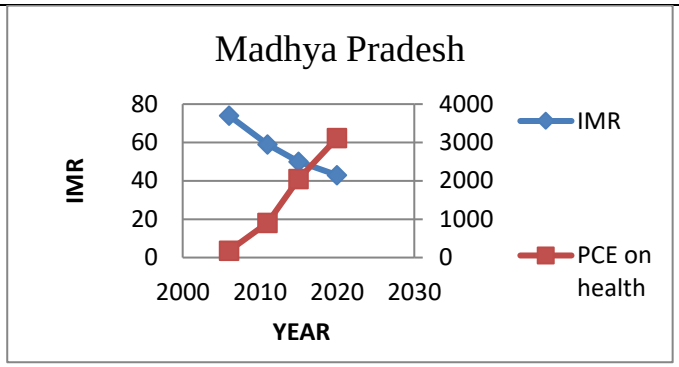


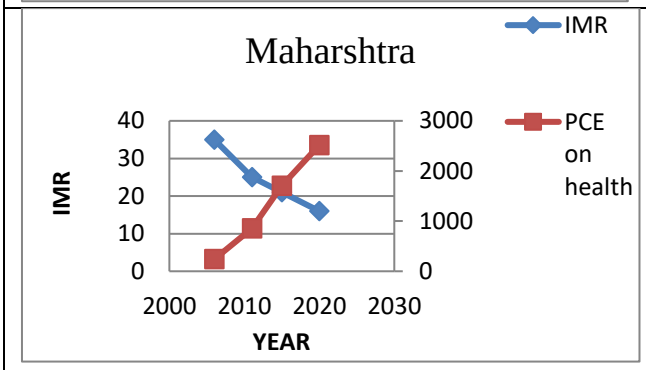


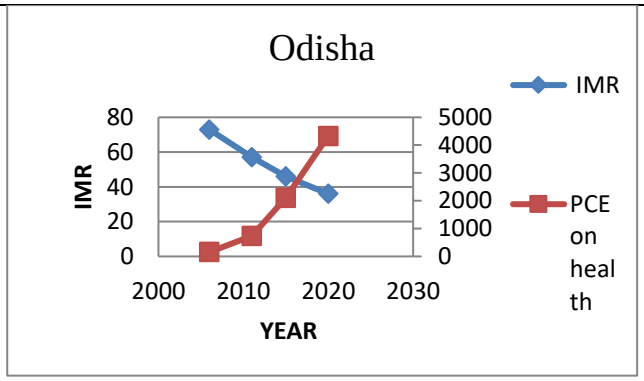


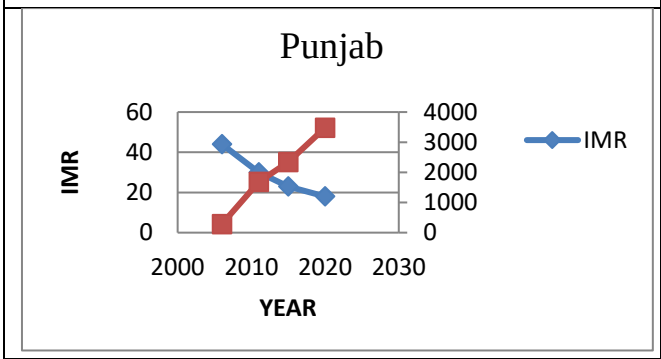


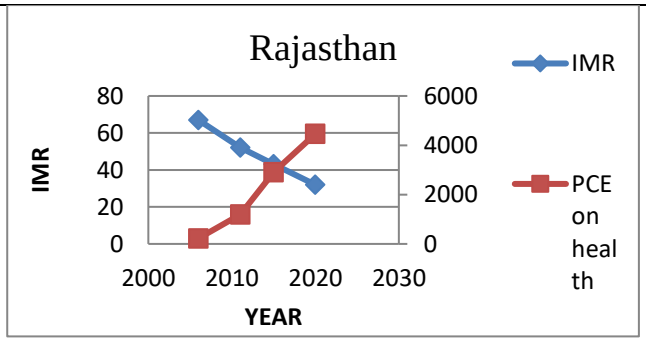

Kerala
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 5 10 15 20
0 1000 2000 3000 4000 5000

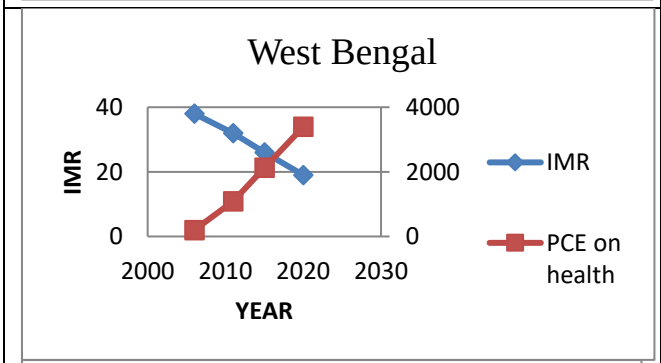

Madhya Pradesh
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 20 40 60 80
0 1000 2000 3000 4000

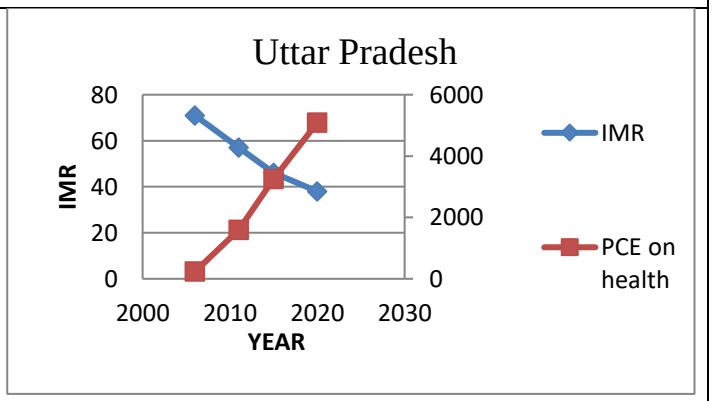

Maharshtra
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 10 20 30 40
0 1000 2000 3000

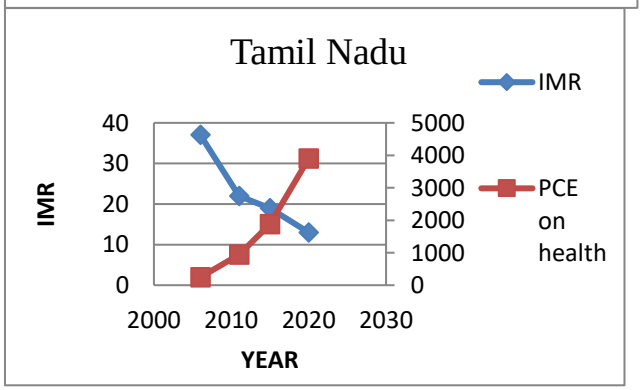

Odisha
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 20 40 60 80
0 1000 2000 3000 4000 5000


Punjab
IMR
YEAR
2000 2010 2020 2030
0 20 40 60
0 1000 2000 3000 4000


Rajasthan
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 20 40 60 80
0 2000 4000 6000

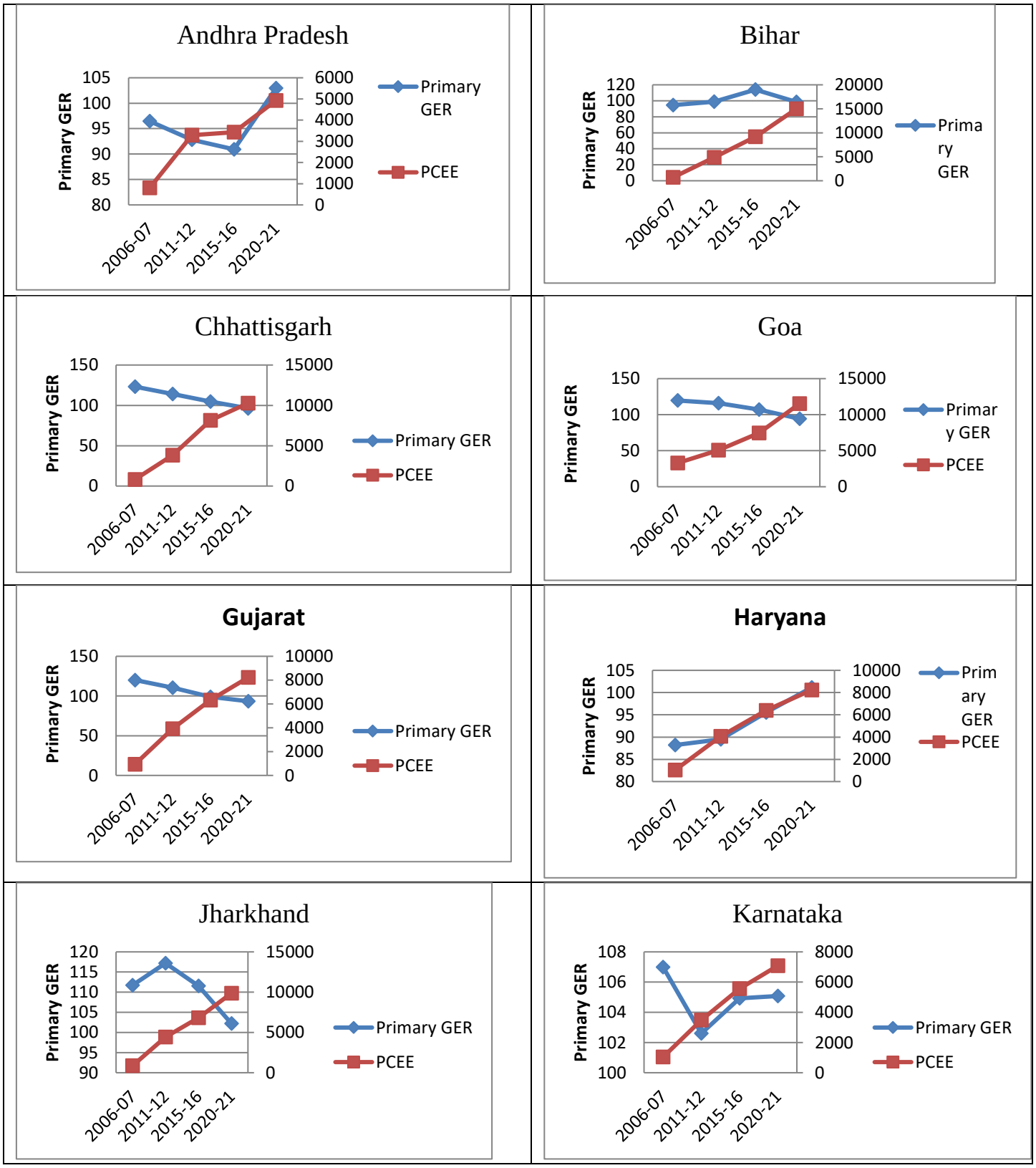

West Bengal
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 20 40
0 2000 4000

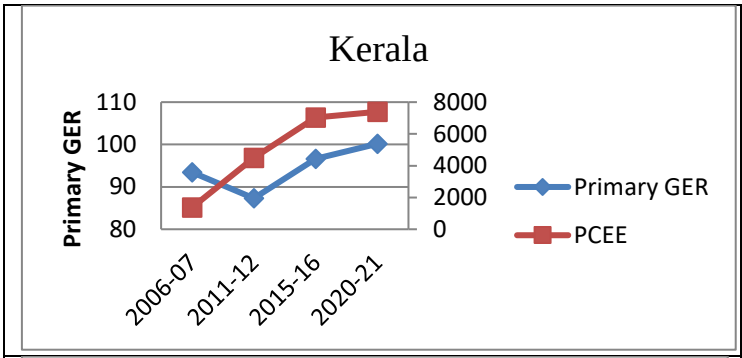

Uttar Pradesh
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 20 40 60 80
0 2000 4000 6000

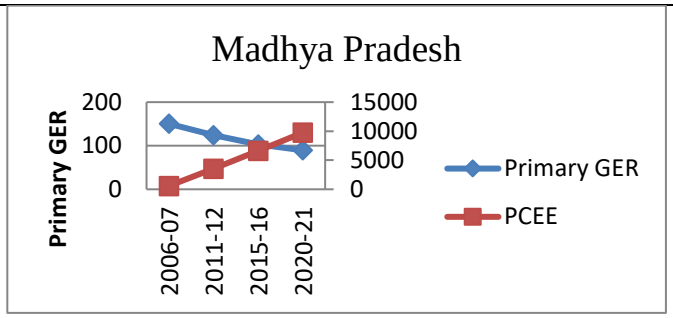

Tamil Nadu
IMR
PCE on health
YEAR
2000 2010 2020 2030
0 10 20 30 40
0 1000 2000 3000 4000 5000

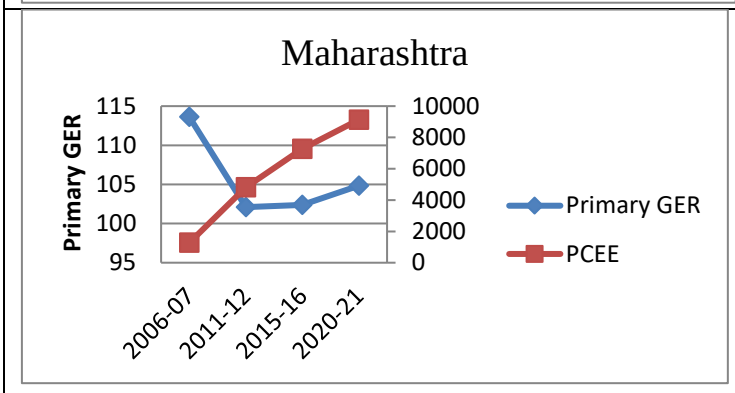
Annexure 2(A)

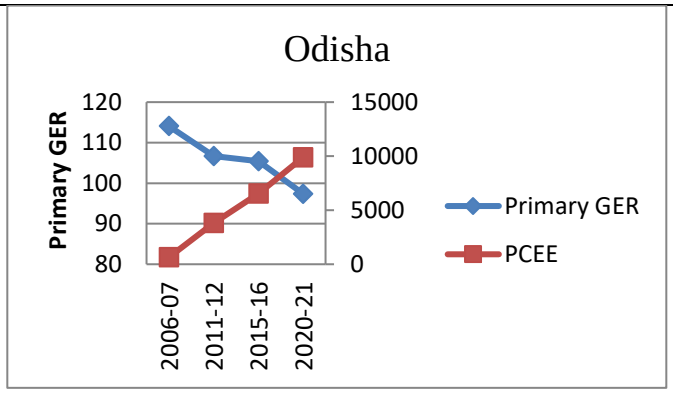
Relationship between Per Capita Education Expenditure and Primary GER:-

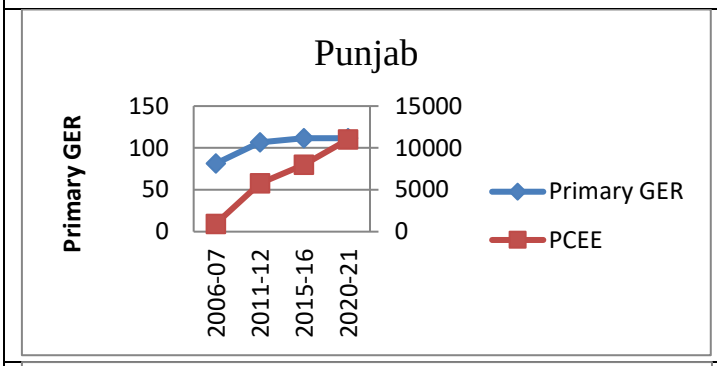


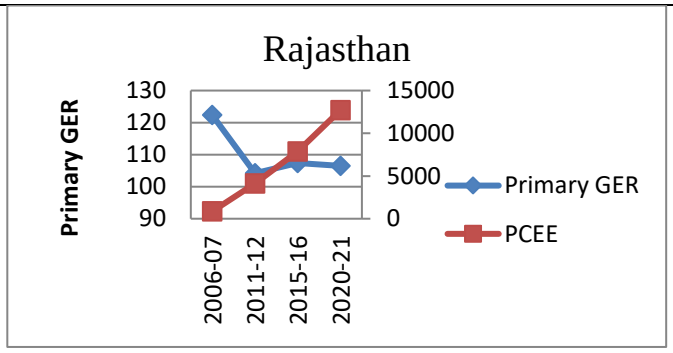

Kerala
Primary GER
110
100
90
80
8000
6000
4000
2000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE

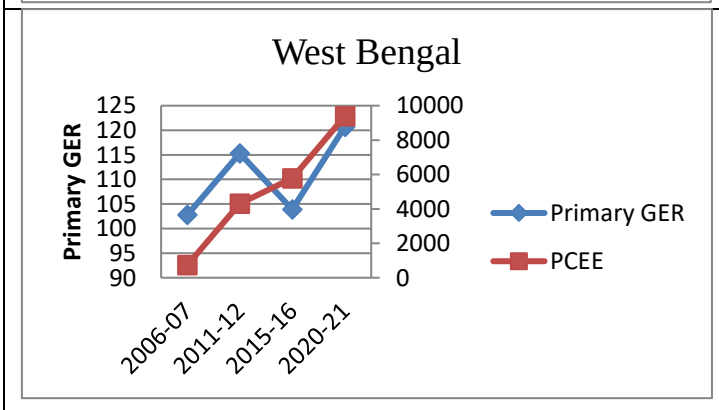

Madhya Pradesh
Primary GER
200
100
0
15000
10000
5000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE

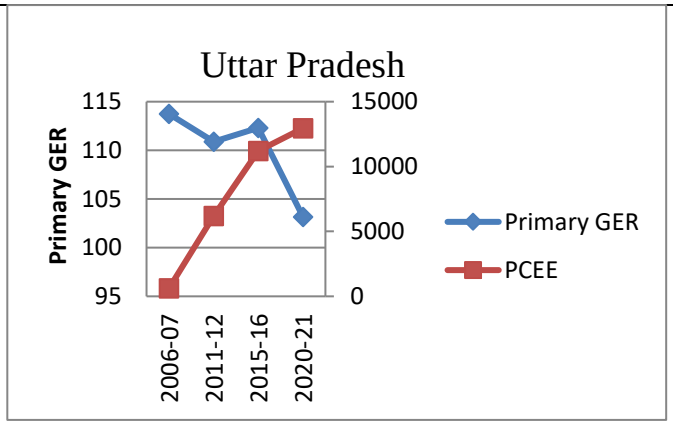

Maharashtra
Primary GER
115
110
105
100
95
10000
8000
6000
4000
2000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE

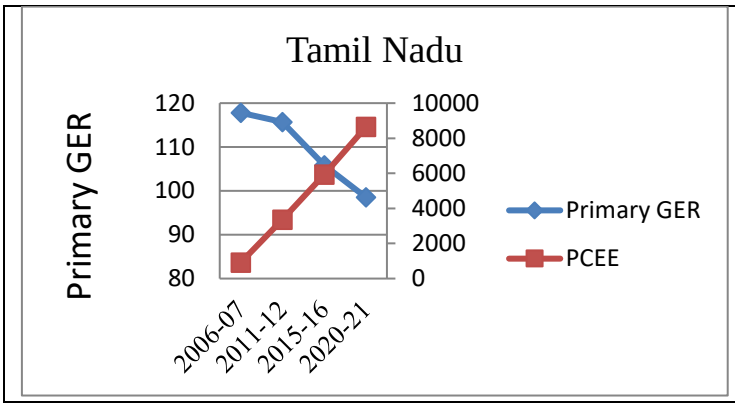

Odisha
Primary GER
120
110
100
90
80
15000
10000
5000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE


Punjab
Primary GER
150
100
50
0
15000
10000
5000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE


Rajasthan
Primary GER
130
120
110
100
90
15000
10000
5000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE

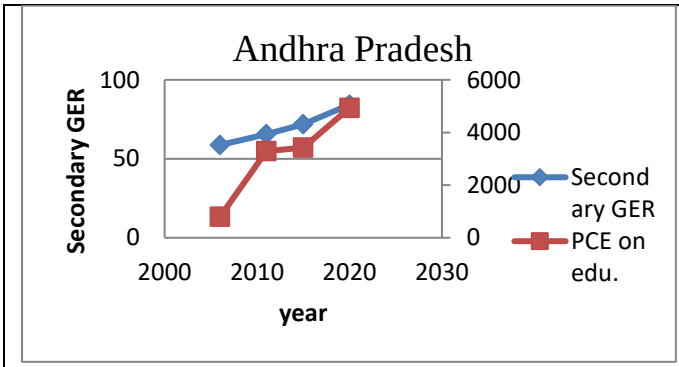

West Bengal
Primary GER
125
120
115
110
105
100
95
90
10000
8000
6000
4000
2000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE

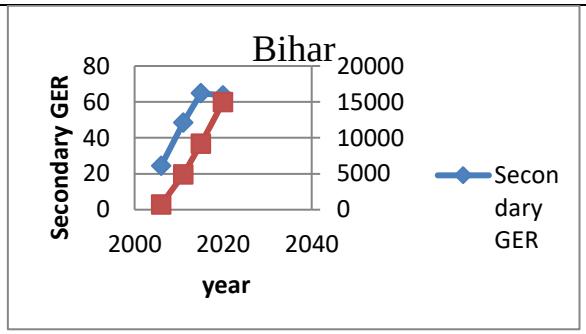

Uttar Pradesh
Primary GER
115
110
105
100
95
15000
10000
5000
0
2006-07
2011-12
2015-16
2020-21
Primary GER
PCEE

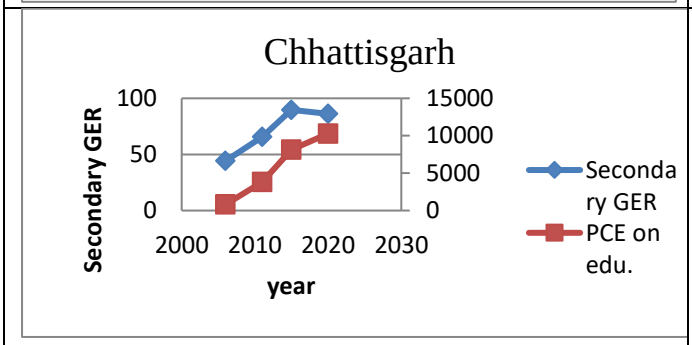


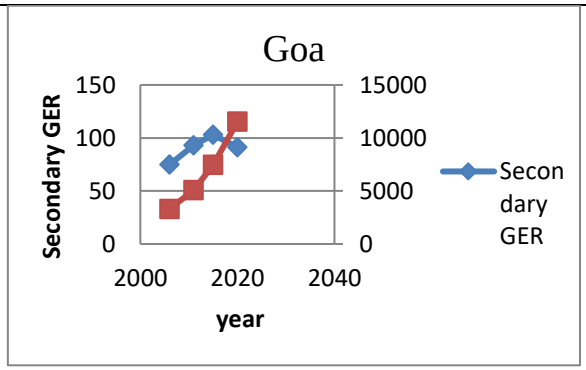
Annexure: 2(b).

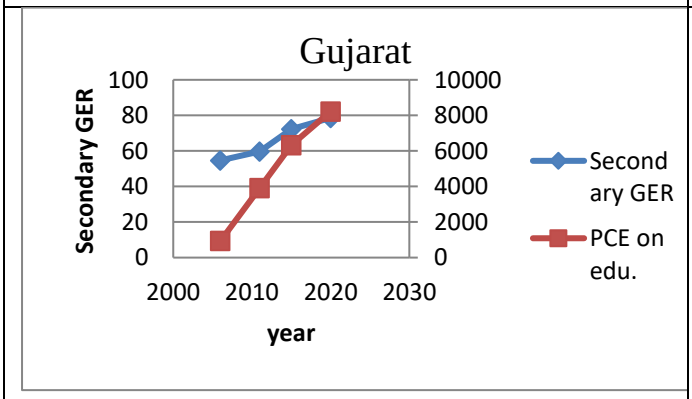
Relationship between Per Capita Education Expenditure and Secondary GER:-

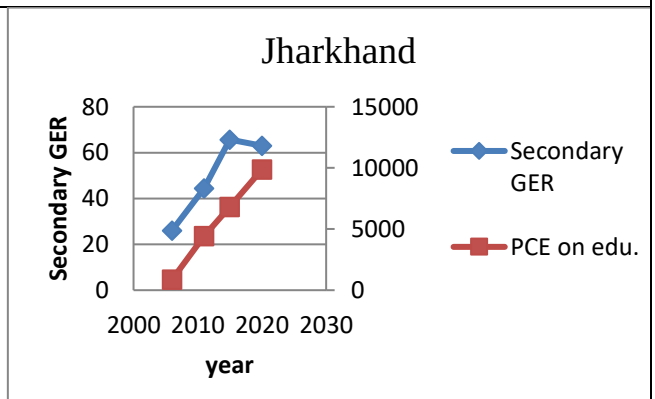


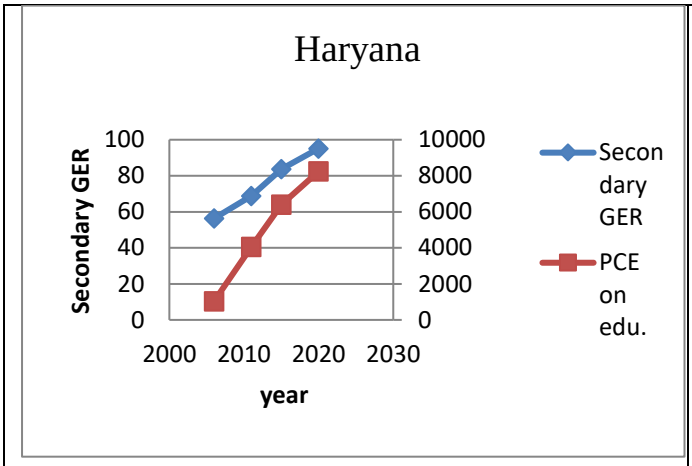


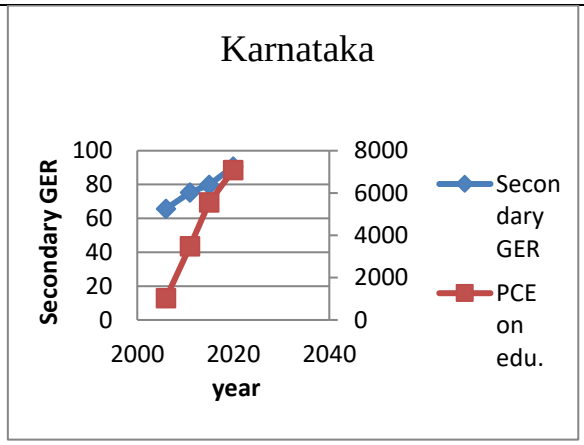


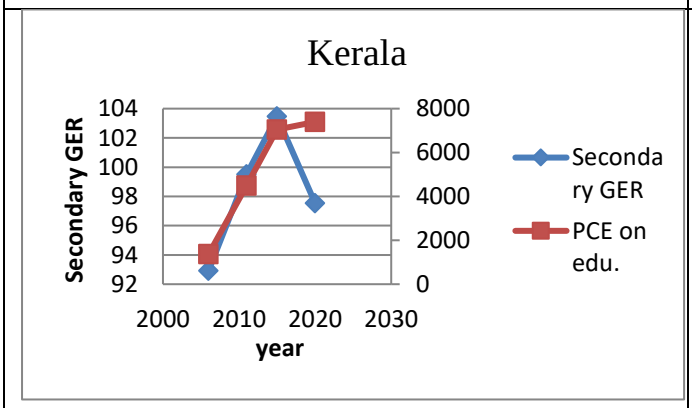


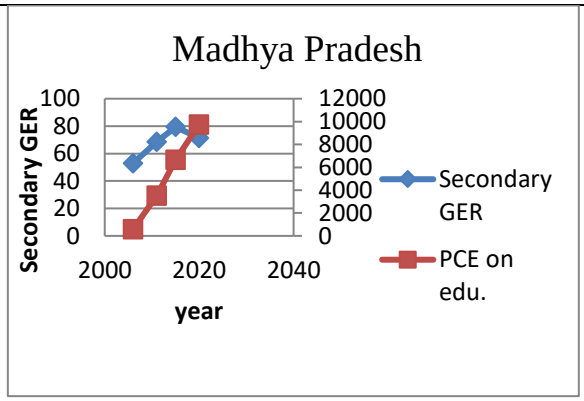


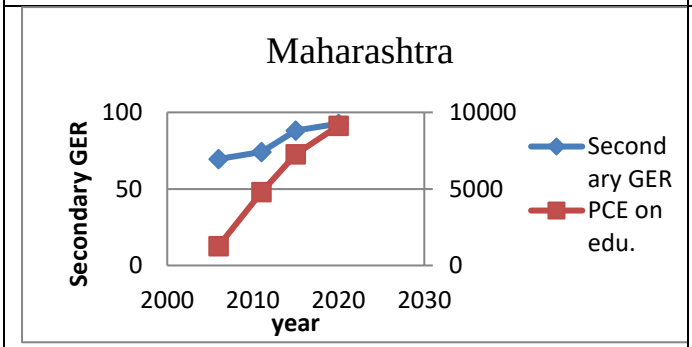


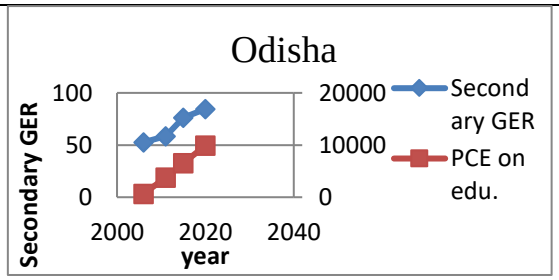

Haryana
Secondary GER
100
80
60
40
20
0
10000
8000
6000
4000
2000
0
2000 2010 2020 2030
year
Secondary GER
PCE on edu.

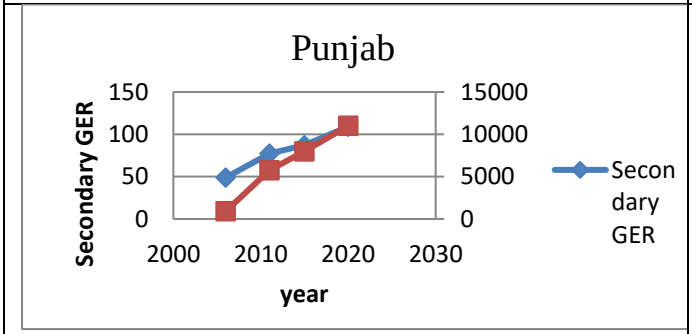

Karnataka
Secondary GER
100
80
60
40
20
0
8000
6000
4000
2000
0
2000 2020 2040
year
Secondary GER
PCE on edu.

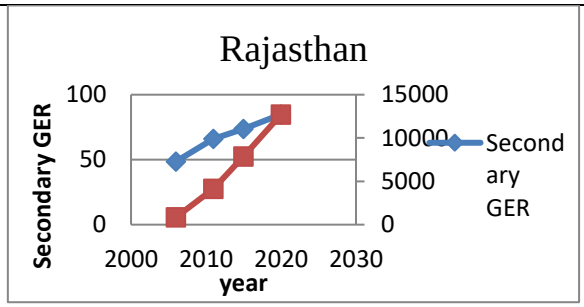

Kerala
Secondary GER
104
102
100
98
96
94
92
8000
6000
4000
2000
0
2000 2010 2020 2030
year
Secondary GER
PCE on edu.

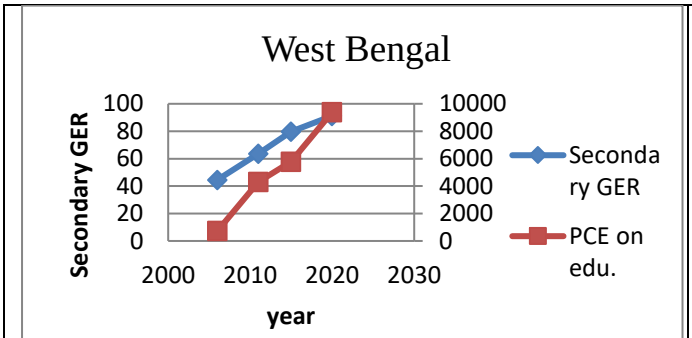

Madhya Pradesh
Secondary GER
100
80
60
40
20
0
12000
10000
8000
6000
4000
2000
0
2000 2020 2040
year
Secondary GER
PCE on edu.

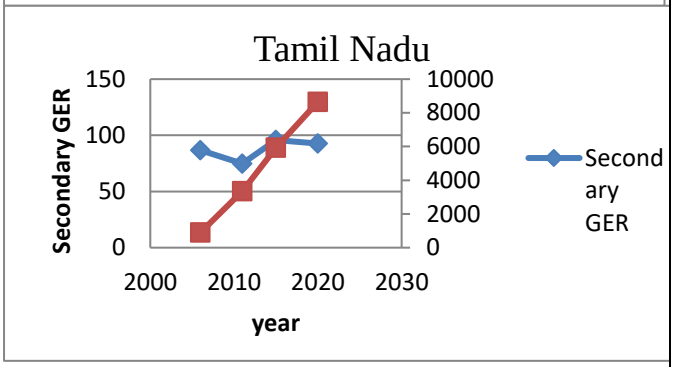

Maharashtra
Secondary GER
100
50
0
10000
5000
0
2000 2010 2020 2030
year
Secondary GER
PCE on edu.

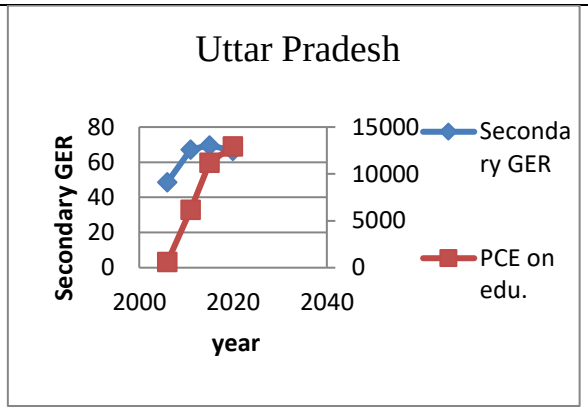

Odisha
Secondary GER
100
50
0
20000
10000
0
2000 2020 2040
year
Secondary GER
PCE on edu.


Punjab
Secondary GER
150
100
50
0
15000
10000
5000
0
2000 2010 2020 2030
year
Secondary GER


Rajasthan
Secondary GER
100
50
0
15000
10000
5000
0
2000 2010 2020 2030
year
Secondary GER


West Bengal
Secondary GER
100
80
60
40
20
0
10000
8000
6000
4000
2000
0
2000
2010
2020
2030
year
Secondary GER
PCE on edu.


Tamil Nadu
Secondary GER
150
100
50
0
10000
8000
6000
4000
2000
0
2000
2010
2020
2030
year
Secondary GER


Uttar Pradesh
Secondary GER
80
60
40
20
0
15000
10000
5000
0
2000
2020
2040
year
Secondary GER
PCE on edu.