Regional Disparities in Socio-Economic Development in Tamil Nadu[1]

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SUMMARY

The level of development of different districts of Tamil Nadu was obtained with the help of composite index based on optimum combination of forty two socio-economic indicators. The district-wise data in respect of forty two indicators were used for twenty two districts of the State. The data on most of the indicators were for the year 1994-95. The level of development was obtained separately for agricultural, infrastructural service and socio- economic sectors. The district of Chengalpattu MGR was ranked first and the district of Pasumpon Muthuramalinga Thevar was ranked last in the level of socio-economic development in the State. Wide disparities were obtained in the level of development among different districts. Northern and north-eastern districts were found to be better developed. The socio-economic development was positively associated with the growth and progress of agricultural development and infrastructural facilities. The level of education, provision of health services, banking facilities, transport and communication systems did not significantly influence the agricultural development in the State.

For bringing out uniform regional development, potential targets have been estimated for low developed districts. These districts require improvements of various dimensions in some of the indicators for enhancing the level of overall socio-economic development. Some of the districts require unified balanced integration of curative, preventive and promotional health services.

Key words: Composite index, Model districts, Development indicators, Potential targets, Socio-economic development.

1. Introduction

The Indian Society of Agricultural Statistics had conducted a series of research studies on the evaluation of economic development of different states.

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1   Study undertaken in the Research Unit of the Indian Society of Agricultural Statistics, New Delhi during 1999, and the results and findings presented during the 53rd Annual Conference of the Society held at St. Joseph's College (Autonomous), Tiruchirappalli (TN) from 2 to 4 December, 1999.

The data for the year 1971-72 and 1981-82 in respect of major 17 states had been critically analysed and wide disparities in the levels of development were found in different states [1, 2]. It was, therefore, felt necessary to make a deeper analysis using the district level data for socio-economic indicators for evaluating the imbalances of development in the states. The district level data had so far been analysed for the states of Orissa [3,4], Andhra Pradesh [5], Kerala [6], Uttar Pradesh [7], Maharashtra [8] and Karnataka [9]. For evaluating the inter-district variation in the level of development, a study using the data in respect of all the districts of the southern region of the country was also undertaken [10]. A seminar was organised jointly by the Planning Commission, Government of India and State Planning Institute, Government of Uttar Pradesh during 1992 where various problems and prospects of economic development in the country were discussed [11].

The state of the Tamil Nadu is mostly rural and agrarian. About 66 per cent population of the state live in rural areas. As per 1991 population census, the total population of the state was 5.58 crores which was about 6.6 per cent of the total All India population. The percentage of workers to total population was about 43.3 against the All India average of about 37.5. The population density in the state is about 429 persons per square kilometer and the annual growth rate of the population is about 1.5 per cent. The literacy rate in the state is about 62.7 percent which is higher than the All India rate of 52.2 per cent. Agriculture is an important primary sector. It provides food to the growing population, raw materials to the agro based industries and various other products to fulfill the basic needs. The state's economy largely depends upon agricultural sector. Major food crops are rice, jowar, ragi, bajra, maize and pulses. Important commercial crops grown in the state are sugarcane, cotton, groundnut, chillies, banana, coffee, tea, coconut etc. Major forest products are timber, sandalwood, pulpwood and fuelwood. The state occupies a premier position in the production and extensive application of bio-fertilizer.

Development is the process which improves the quality of life. Development programmes have been implemented in the state in a planned way to bring out uniform regional development because one of the main objectives of planning has been a progressive reduction in regional disparities in the pace of development. Even though, in agricultural sector, the green revolution has increased the total crop production and in the industrial sector, commendable progress has been made due to implementation of modern improved techniques, yet the regional disparities in the levels of development are not declining over time. The present study deals with the evaluation of levels of development in agricultural sector, infrastructural service sector and overall socio-economic sector by constructing the composite index of

development at district level in the state of Tamil Nadu. It would be quite interesting and useful to evaluate the level of development at district level since there has been a growing consensus about the need of district level planning in the country. A knowledge of the level of development at district level will help in identifying where a given district stands in relation to others. The study also throws light on the association between the level of development in different sectors. The regions and the populations under different stages of development have been evaluated and the model districts have been identified for fixing up the potential targets of different indicators for low developed districts so that these districts may make improvement in the present level of development.

2. Method of Analysis

Development is a multi-dimensional continuous process. The impact of development in different dimensions cannot be fully measured by any single indicator. Moreover, a number of indicators when analysed individually, do not provide an integrated and comprehensible picture of reality. Hence, there is a need for building up of a composite index of development based on various indicators combined in an optimum manner. For this study, the districts have been taken as the unit of analysis. Twenty two districts of the state of Tamil Nadu are included in the study. One district having about 0.13% area and 6.8% population of the state is not covered in the study because it does not have any rural population. The study utilises data on most of the economic indicators for the year 1994-95. A total of forty two development indicators have been included in the study.

2.1 Development Indicators

Each district faces situational factors of development unique to it as well as common administrative and financial problems. Administrative, financial and other situational factors common to all the districts have been taken as the indicators of development. The composite indices of development for different districts have been obtained by using the data on the following indicators [12]:

Agricultural Sector

1. Area under paddy (%)

2. Productivity of rice (kg/ha)

3. Productivity of total cereal crops (kg/ha)

4. Productivity of total pulse crops (kg/ha)

5. Area under cotton (%)

6. Productivity of cotton (00 Bales/ha)

7. Area under sugarcane (%)

8. Productivity of sugarcane

9. Area under groundnut (%)

10. Productivity of groundnut

11. Application of chemical fertilizer (NPK)

12. Percentage net area irrigated

13. Amount of rainfall (00 mm.)

14. Number of regulated markets

15. Number of veterinary hospitals and dispensaries

16. Value of fish production ('000 lakh Rs.)

17. Number of tree and fruits seedlings

18. Number of agricultural pumpsets

19. Area under Mulberry plantation (ha)

20. Production of cocoons (in lakh kg.)

21. Number of tractors

22. Number of Beneficiaries under IRDP

Infrastructural Facilities

23. Population density per square km.

24. Sex ratio

25. Percentage population increase (1981-91)

26. Percentage urban population

27. Percentage literacy

28. Percentage SC and ST population

29. Estimated annual birth rate

30. Estimated annual death rate

31. Infant mortality rate

32. Maternal death rate

33. Number of institutions of family welfare programmes

34. Number of hostels for SC, ST and OBC students

35. Road length ('00 km)

36. Number of registered motor vehicles

37. Number of houses per 1000 occupied houses

38. Number of municipal bodies, townships and other developmental agencies

39. Amount of money deposited under small savings programme

40. Number of fair price shops

41. Number of beneficiaries for free supply of test books and old age pension etc.

42. Number of houses distributed without cost to weaker sections of the society

A total of forty two development indicators have been included in the analysis for evaluating the level of socio-economic development of different districts. These indicators may not form an all inclusive list but these are the major interacting components of socio-economic development.

2.2 Estimation of Composite Index of Development and Fixation of Potential Targets

Variables in respect of different indicators are taken from various population distributions and these are recorded in different levels of measurement. The values of these variables are not quite suitable for simple additions in combined analysis. Hence variables are transformed and standardised and their standardised values are used to build up the composite index of development. The best value of transformed variable for each indicator (with maximum/minimum value depending upon the direction of the impact of indicator on development) is identified and the deviations of transformed variable from the corresponding best values are obtained for each indicator. The statistical technique presented by Narain *et al* [1, 5, 10] are applied to construct the composite index of development for each district. The composite indices have been obtained separately for agricultural, infrastructural and socio-economic developments for different districts. The value of composite index is non-negative and lies between 0 and 1. A value close to zero, indicates higher level of development whereas a value close to one indicates lower level of development.

Model districts for low developed districts have been identified on the basis of composite index of development and the development distances between different districts. Model districts are better developed districts and the best values of different indicators of model districts are taken as the potential targets for low developed districts.

3. Results and Discussions

3.1 The Level of Development

The composite indices of development (CI) have been worked out for different districts separately for agriculture, infrastructural service and overall socio-economic sectors. The districts have been ranked on the basis of development indices. Table 1 presents the composite indices (CI) of development along with the ranks of different districts.

It may be seen from the above table that out of 22 districts of the State, the district of Chengalpattu MGR was ranked first and the district of Pasumpon Muthramlinga Thevar was ranked last in the overall socio-economic development. The value of composite indices varied from 0.37 to 0.80. In agricultural sector also the district of Chengalpattu MGR was ranked first in the State whereas the district of Nilgiris was ranked last. The composite indices of development varied from 0.53 to 0.98. Regarding infrastructural service

Table 1 : Composite Index of Development

S.No.	Districts	Agriculture		Infrastructure		Socio-economic	
		CI	Rank	CI	Rank	CI	Rank
1.	Chengalpattu MGR	0.53	01	0.32	01	0.37	01
2.	South Arcot	0.69	11	0.59	08	0.62	08
3.	Velupuram Ramaswamy Padayachiar	0.68	08	0.73	18	0.75	18
4.	North Arcot Ambedkar	0.62	06	0.43	03	0.47	02
5.	Tiruvannamalai Sambuvarayar	0.69	10	0.42	02	0.48	03
6.	Salem	0.54	02	0.71	17	0.71	13
7.	Dharmapuri	0.68	09	0.47	05	0.52	04
8.	Periyar	0.57	04	0.71	16	0.71	15
9.	Coimbatore	0.71	14	0.69	13	0.71	16
10.	The Nilgiris	0.98	22	0.73	20	0.80	21
11.	Tiruchirapalli	0.64	07	0.70	14	0.71	14
12.	Thanjavur	0.70	12	0.47	06	0.53	06
13.	Nagapattinam Quaid-e-Milleth	0.72	15	0.46	04	0.53	05
14.	Pudukkottai	0.70	13	0.62	09	0.65	10
15.	Madurai	0.62	05	0.57	07	0.59	07
16.	Dindigul-Anna	0.75	18	0.74	21	0.77	20
17.	Ramanathapuram	0.84	21	0.63	11	0.69	12
18.	Kamarajar	0.72	16	0.73	19	0.75	19
19.	Pasumpon Muthuramlinga Thevar	0.76	19	0.78	22	0.80	22
20.	Tiruneveli Kattabomman	0.56	03	0.64	12	0.65	09
21.	Chidambaranar	0.79	20	0.70	15	0.74	17
22.	Kannia Kumari	0.73	17	0.62	10	0.66	11

facilities, the district of Chengalpattu MGR was again ranked first and the district of Pasumpon Muthurmlinga Thevar was ranked last in the State. The composite indices varied from 0.32 to 0.78.

A simple ranking of the districts on the basis of level of development has been presented. This is sufficient for classificatory purposes. A suitable fractile classification of the districts can be made by using the average level of development and its standard errors. The districts having the composite index

equal to or less than (mean - 2SE) are classified in category I as developed districts. The districts with composite index lying between (mean ± 2 SE) are classified in category II as middle level of developed districts and the districts having the composite index equal to or greater than (mean + 2SE) are classified in category III as low developed districts.

3.2 Area and Population in Different Stages of Development

It would be quite interesting and useful to find out the relative share of area and population affected under different levels of development in the State. The area and population covered by the districts falling under different levels of development are presented in Table 2.

Table 2 : Area and Population under Different Levels of Development

Sector of Economy	Level of Development	No. of Districts	Area (%)	Population (%)
Agriculture	High (≤ 0.64)	07	42.6	46.1
	Medium (0.65 – 0.73)	10	40.8	42.1
	Low (≥ 0.74)	05	16.6	11.8
Infrastructural facilities	High (≤ 0.50)	06	29.3	32.1
	Medium (0.51 – 0.71)	11	53.4	53.4
	Low (≥ 0.72)	05	17.3	14.5
Socio-economic	High (≤ 0.62)	08	38.5	43.4
	Medium (0.63 – 0.71)	08	40.6	39.2
	Low (≥ 0.72)	06	20.9	17.4

It is evident from the table that about 38.5% area consisting of about 43.4% population of the State fall in the districts which are better developed in the overall socio-economic field. About 40.6% area and 39.2% population come from the districts which are middle level developed. The remaining 20.9% area and 17.4% population fall in the districts which are low developed in the socio-economic sector. In agricultural sector, about 42.6% area and 46.1% population belong to the districts which are better developed. Middle level developed districts cover about 40.8% area and 42.1% population whereas low developed districts occupy about 16.6% area and 11.8% population of the State. Regarding infrastructural service facilities, six districts with about 29.3% area and 32.1% population are found to be better developed. Eleven districts covering about 53.4% area and 53.4% population are in the middle level of development whereas five districts having about 17.3% area and 14.5% population fall in the level of low developed districts. It is further noticed that poorly developed

districts are not as thickly populated as the districts belonging to the category of better development.

3.3 Inter Relationships Among Different Sectors

For examining the relationships among development of agricultural, infrastructural service and overall socio-economic sectors, pairwise correlations have been worked out and presented in Table 3.

Table 3 : Pairwise Correlation Coefficient

S.No.	Pair of Sectors	Correlation Coefficient
1.	Agriculture and Infrastructure	0.39
2.	Agriculture and Socio-economic	0.53*
3.	Infrastructure and Socio-economic	0.97**

* Significant at 0.05 level.

** Significant at 0.01 level.

The correlation coefficient between the developments in agricultural and socio-economic sectors is found to be significant at 0.05 probability level. However, the correlation coefficient between the developments in agriculture and infrastructural service facilities is not significant. On the deeper examinations of indicators included under infrastructural facilities, it was found that most of the indicators are highly influenced by the level of education. The agricultural development is not found to be significantly affected by the level of education. The literacy percentage among the rural population in the State is found to be very much less than the literacy among urban population. Hence the growth and progress of agricultural development did not fully utilise the infrastructural facilities. The level of education and other related infrastructural facilities are found to have a very high significant correlation coefficient with the socio-economic development in the State.

3.4 Potential Targets of Indicator for Low Developed Districts

It would be useful to examine the extent of improvements required in different indicators of the low developed districts for enhancing the level of development. It would also provide avenues to bring about uniform regional development in the State. Such information may help the planners and administrators to readjust the resources for reducing inequalities in the levels of development among different districts. The best values of the indicators of better developed districts will be taken as potential targets for the low developed districts.

In the socio-economic field, the districts of Chengalpattu MGR, South Arcot, North Arcot Ambedkar, Tiruvannamalai Sambuvarayar, Dharmapuri, Thanjavur, Nagapattinam Quaid-e-Milleth and Madurai are found to be better developed districts. Most of these districts are situated in the northern and north-eastern part of the State. The Velupuram Ramaswamy Padayachiar, Nilgiris, Dindigul-Anna, Kamarajar, Pasumpon Muthuramalinga Thevar and Chidambaranar are observed to be low developed districts. These districts mostly belong to the western and southern part of the State. It is observed that there is a clear demarcation in the level of development in the State. The north and north-eastern part is better developed and western and southern part is low developed. The remaining districts are middle level developed but they are having tendacy to make improvement in the level of development.

The districts of Chengalpattu MGR, North Arcot, South Arcot, Tiruvannamalai Sambuvarayar, Thanjavur and Madurai were found to be the model districts for most of the low developed districts. The extent of improvement needed in various indicators of the low developed districts is given below:

I. Velupuram Ramaswamy Padayachiar District

The district is well developed in agricultural sector. The literacy rate particularly in the rural area is very poor. There are limited facilities in the district for the health services and general death and infant mortality rates are very high. Steps should be taken to provide facilities for educating the people particularly rural population and providing essential medical facilities so that the present death rates may be reduced. Welfare developmental programmes may be enhanced so that the public in general and people belonging to the weaker sections of the society in particular may get benefit of developmental activities. Road transport is not very satisfactory in the district which may be improved. The district needs strengthening of infrastructural facilities and establishment of agro-based industries.

II. The Nilgiris District

The district is hilly and mostly covered by forest. Agricultural development in the district is very poor. The land in the district is not quite favourable for growing food and other cash crops. The productivity of these crops is very low. The possibility of growing tea and coffee in the district may be explored and the developmental programmes should be undertaken for encouraging the cultivation of these crops. The literacy rate is very high and about half of the population of the district is urban. There are good picnic spots and the some more may be developed. Facilities for hotels and lodges may be increased and developed in the district.

III. Dindigul-Anna District

Both agricultural and infrastructural developments are poor. In general crop productivity is low because of poor irrigation facilities. As there is no adequate rainfall in the district, assured irrigation facilities may be developed. Use of fertilizer should also be propagated. Literacy rate is low which requires immediate improvement. Good transport system and medical facilities may also be developed.

IV. Kamarajar District

The district is low developed in agricultural sector and infrastructural facilities. The average rainfall in the district is quite low and there is not enough irrigation facilities. Irrigation facilities may be provided for improving crop productivity. Tree and fruit seedlings and growing of non-food crops like cotton etc. may be encouraged. Adequate medical facilities may be created in the district for reducing the high rates of birth and death. Road transport system should be extended to cover more area in district and rural development programmes may be implemented by involving the local people.

V. Pasumpon Muthuramalinga Thevar District

The district is backward in agricultural development and infrastructural facilities. For ensuring per capita food production, major improvements are required in creating more irrigation facilities and consumption of fertilizer. Improvements are also needed in road transport, medical facilities and communication system in the district.

VI. Chidambaranar District

The district is very poor in agricultural development. More irrigation facilities should be created and their proper use should be encouraged. Improvements in transport and communication systems should be made. The district is having tendency of making improvements in the overall socio-economic development.   .

On detailed examination of the level of development, it was found that the entire area of the district is not backward. Some parts of the district are low developed whereas other parts are well developed or middle level developed. Therefore, for giving area-wise specific recommendations, if would be desirable to examine and evaluate the level of development at a lower level say taluka or block level. This will give an idea regarding the low developed part of the district where major improvements are needed in the developmental indicators. Infrastructural facilities might be created in these areas and location specific technology might be implemented.

4. Conclusions

The broad conclusions emerging from the study are as follow:

1. With respect to overall socio-economic development, the districts of Chengalpattu MGR, South Arcot, North Arcot Ambedkar, Tiruvannamalai Sambuvarayar, Dharmapuri, Thanjavur, Nagapattinam Quaid-e-Milleth and Madurai were found to be better developed as compared to the remaining districts of the State. Most of these districts belong to the northern part and north-eastern part of the State. Similarly the districts of The Nilgiris, Velupuram Ramaswamy Padayachiar, Dindigul-Anna, Kamarajar, Pasumpon Muthuramalinga Thevar and Chidambaranar were low developed districts. Most of these districts belong to western and sourthern part of the State. The level of development in the rest of the districts was of middle order but most of these districts were having the tendency to make improvement in the pattern of development.

2. Seven districts namely Chengalpattu MGR, North Arcot Ambedkar, Salem, Periyar, Tiruchirapalli, Madurai and Tiruneveli Kattabomman and six districts namely Chengalpattu MGR, North Arcot Ambedkar, Tiruvannamalai Sambuvarayar, Dharmapuri, Thanjavur, Nagapattinam Quaid-e-Milleth were found to be better developed in agricultural and infrastructural facilities respectively. The districts of Chengalpattu MGR, North Arcot Ambedkar were observed to be better developed in agricultural, infrastructural and socio-economic sectors. Five districts in agricultural sector and five districts in infrastructural facilities were having very low development. Three districts namely The Nilgiris, Dindigul-Anna and Pasumpon Muthuramalinga Thevar were observed to be low developed in agricultural, infrastructural and socio-economic sectors.

3. The overall socio-economic development was positively associated with both agricultural development and infrastructural facilities. The impact of infrastructural facilities on overall socio-economic development was higher than the agricultural development. Agricultural development along with the better avenues for education, medical and banking facilities, road transport and communication systems will enhance the level of overall socio-economic development.

4. Wide disparities in the levels of development had been observed in different districts. Northern and north-eastern part of the state was found to be better developed whereas some of the western and southern districts of the State were low developed.

5. Better developed districts were found to be thickly populated as compared to low developed districts.

6. In order to reduce the disparities in the level of development, potential targets for various developmental indicators had been estimated for the low developed districts. These districts require improvements of various dimensions in different indicators for enhancing the levels of development. It would be useful to examine and evaluate the level of development at a lower level say taluka or block level for making location specific recommendations as the entire part of the most of the low developed districts is not low developed but some part is also better developed.

REFERENCES

[1]   Narain, P., Rai, S.C. and Shanti Sarup, 1991. Statistical evaluation of development on socio-economic front. *J. Ind. Soc. Agric. Statist.*, **43**, 329-345.

[2]   Narain, P., Rai, S.C. and Shanti Sarup, 1992. Evaluation of economic development in India. Souvenir of 11th Economic Development Conference in "Complementarity of Agriculture and Industry in Development". *Instt. Trade & Industrial Development*, New Delhi, 67-77.

[3]   Narain, P., Rai, S.C. and Shanti Sarup, 1992. Classification of districts based on socio-economic development in Orissa. *Yojana*, **36**, No. 23, 9-12.

[4]   Narain, P., Rai, S.C. and Shanti Sarup, 1993. Evaluation of economic development in Orissa. *J. Ind. Soc. Agric. Statist.*, **45**, 249-278.

[5]   Narain, P., Rai, S.C. and Shanti Sarup, 1994. Regional dimensions of socio-economic development in Andhra Pradesh. *J. Ind. Soc. Agric. Statist.*, **46**, 156-165.

[6]   Narain, P., Rai, S.C. and Shanti Sarup, 1994. Inter-districts disparities in socio-economic development in Kerala. *J. Ind. Soc. Agric. Statist.*, **46**, 362-377.

[7]   Narain, P., Rai, S.C. and Shanti Sarup, 1995. Regional disparities in the levels of development in Uttar Pradesh. *J. Ind. Soc. Agric. Statist.*, **47**, 288-304.

[8]   Narain, P., Rai, S.C. and Shanti Sarup, 1996. Dynamics of socio-economic development in Maharashtra *J. Ind. Soc. Agric. Statist.*, **48**, 360-372.

[9]   Narain, P., Rai, S.C. and Bhatia, V.K., 1997. Regional pattern of socio-economic development in Karnataka. *J. Ind. Soc. Agric. Statist.*, **50**, 380-391.

[10]   Narain, P., Rai, S.C. and Bhatia, V.K., 1999. Inter district variation of development in southern region. *J. Ind. Soc. Agric. Statist.*, **52**, 106-120.

[11]   Regional Dimensions of India's Economic Development. Proceedings of Seminar held on April 22-24, 1992 sponsored by Planning Commission, Govt. of India and State Planning Institute, Govt. of U.P.

[12]   Statistical Hand Book of Tamil Nadu, 1995. Commissioner of Statistics, Deptt. of Statistics, Government of Tamil Nadu, Chennai.