# Regional Pattern of Socio-economic Development in Karnataka[1]

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SUMMARY

The level of development of different districts of Karnataka was obtained with the help of Composite Index based on optimum combination of thirty nine economic indicators. All the twenty districts of the State and districtwise data mostly for the year 1994-95 in respect of thirty nine indicators were included in the study. The level of development was examined separately for agricultural, industrial, infrastructural and overall socio-economic developments. The district of Mandya was ranked first and the district of Uttar Kannada was ranked last in the level of socio-economic development in the State. Wide disparities have been observed in the level of development among different districts of the State. The socio-economic development was positively associated with the growth and progress of agricultural development. Industrial development does not influence significantly either the agricultural development or the socio-economic development.

For bringing about uniform regional development, potential targets for various indicators 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.

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

## *1. Introduction*

After Independence, the united Mysore State was created in 1956 and was renamed Karnataka in 1973. Karnataka lies to the south of Goa and Maharashtra, to west of Andhra Pradesh, to north-west of Tamil Nadu and to north of Kerala. It has a sea coast of nearly 300 kilometers length. Major part of the State lies in Deccan Plateau. Mostly being in rain shadow area and suffering from periodical droughts, irrigation alone can sustain this region. The State has density

1 Study was undertaken in the Research Unit of the Indian Society of Agricultural Statistics, New Delhi during 1997 and the findings were presented at the 51st Annual conference held at Saurashtra University, Rajkot.

of 234 persons per square kilometer as on 1991 and literacy rate of 56 per cent.

Karnataka is predominately rural and agrarian. About 76 per cent of its population lives in rural area with 71 per cent of working force engaged in agricultural and other allied activities generating about 37 per cent of the State's income. About 56 per cent of the total geographical area is net sown. Area under forest is about 20 per cent. Major food crops grown in the State are rice, ragi, jowar, bajra, maize and pulses. The State accounts for 47 per cent of country's ragi production. Among cash crops coffee is the most important as it accounts for 59 per cent of total coffee production in the country and stands first in the yield per hectare. Karnataka is the one of leading States in horticultural crops.

Development is the process which improves the quality of life. Economic planning is undertaken for bringing out uniform regional development because one of the main objectives of India's developmental programmes has been a progressive reduction in regional disparities in the pace of development. Although resource transfers are being executed to the backward regions through a number of instruments like subsidies and central assistance, it has been observed that the regional disparities in the level of development is not declining over time. The present study deals with the evaluation of levels of development in agricultural, industrial, infrastructural facilities and over all socio-economic sectors by constructing the composite index of development at district level in the state of Karnataka. It would be of interest to measure the level of development at district level since there has been a growing concensus about the need of district level planning in the country. A knowledge of the level of development at the district level in various sectors of economy will help in identifying where a given district stands in relation to others. The study also throws light on the association between the levels of development in different sectors. On the basis of levels of development based on various socio-economic indicators, model districts have been identified for fixing up the potential targets of different indicators for poorly developed districts.

## *2. Method of Analysis*

Socio-economic development is multi-dimensional and it is continuous process of improvement of levels of living. The impact of development in different dimensions cannot be captured fully 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 economic indicators combined in an optimum manner. For this study, the districts have been taken as the unit of

analysis. All the twenty districts of Karnataka State have been included in the analysis. The study utilises data on most of the economic indicators for the year 1994-95. A total of thirty nine 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 of the following development indicators.

1. Percentage of forest area to the total geographical area (1994-95)
2. Percentage of barren and uncultivable land to the total geographical area (1994-95)
3. Percentage of net area sown to the total geographical area (1994-95)
4. Percentage of area sown more than once to the net area sown (1994-95)
5. Percentage of net area irrigated to the net area sown (1994-95)
6. Percentage of area under rice to the total cropped area (1994-95)
7. Percentage of area under pulses to the total cropped area (1994-95)
8. Percentage of area under cotton to the total cropped area (1994-95)
9. Percentage of area under sugarcane to the total cropped area (1994-95)
10. Percentage of area under oilseeds to the total cropped area (1994-95)
11. Average yield of rice (100 kg/ha) (1994-95)
12. Average yield of cotton (kg/ha) (1994-95)
13. Average yield of sugarcane (Tonnes/ha) (1994-95)
14. Per capita land available for cultivation (in ha.) (1990-91)
15. Per capita foodgrain production (in kg.) (1992-93)
16. Consumption of fertiliser (kg/ha)(1994-95)
17. Number of cows in milk per lakh of human population (100 cows/lakh population) (1990-91)
18. Number of buffaloes in milk per lakh of human population (100 buffaloes/lakh population) (1991-92)
19. Per capita availability of cow milk per annum (in kg.) (1994-95)
20. Per capita availability of buffalo milk per annum (in kg.) (1994-95)
21. Per capita availability of eggs per annum (in Nos.) (1994-95)

22. Number of employees per registered factory (1994-95)
23. Number of enterprises per thousand population (1990-91)
24. Number of persons working in the enterprises per thousand population (1990-91)
25. Percentage of employment in establishments (1994-95)
26. Number of persons served by a commercial bank (in thousand) (1994-95)
27. Total road length for 100 sq. kms of geographical area (km.) (1993-94)
28. Number of registered motor vehicles per lakh of population (in 100) (1994-95)
29. Percentage of villages connected by roads (1994-95)
30. Population served by a post office (in 100) (1994-95)
31. Growth rate in per capita income at constant price (1980-81 to 1993-94)
32. Population served by a medical institution (in lakh) (1994-95)
33. Population growth rate (1981-1991)
34. Density of population (1991 Census)
35. Percentage of workers to total population (1991)
36. Percentage of agricultural workers to the total workers (1991)
37. Literacy rate (1991 Census)
38. Crude birth rates for 1984 to 1990
39. Mean age at marriage of females (1981)

A total of thirty nine Developmental indicators have been included in the analysis. 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

Since variables in respect of different indicators are taken from various population distributions and these are recorded in different levels of measurement, their values are not quite suitable for combined analysis. Hence these variables have been transformed and standardized and their standardized 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 indicators on development) is identified and the deviations of transformed variables from the corresponding

best values are obtained for each indicator. The statistical techniques presented by Narain, Rai and Sarup [1] are applied to construct composite index of development for each district. The composite indices of development have been obtained separately for agricultural, industrial, infrastructural service and socio-economic sectors for different districts. The value of composite index thus obtained 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 poorly developed districts have been identified from different divisions on the basis of composite index of development. Model districts are better developed and the best values of different indicators of model districts are taken as the potential targets for low developed districts.

## *3. Results and Discussion*

### 3.1 The Level of Development

The composite indices of development have been worked out for different districts separately for agricultural, industrial, infrastructural service and overall socio economic sectors. The districts have been ranked on the basis of development indices and composite indices (C.I.) of development along with the districts rank are presented in Table 1.

It may be seen from the table that out of 20 districts of the State, the district of Mandya was ranked first and the district of Uttar Kannada was ranked last in the overall socio-economic development. The values of composite indices varied from 0.71 to 0.96. The district of Mandya was again ranked first in the level of development in agricultural sector whereas the district of Bangalore (Rural) was placed on the last position in the State. The composite indices of agricultural development varied from 0.57 to 0.89. The district of Bangalore was ranked first and the district of Bidar was ranked last in industrial development. The values of composite indices varied from 0.26 to 0.76. In the development of infrastructural service sector, the district of Dakshina Kannada was ranked first and Uttar Kannada was at the last place. The composite indices varied from 0.66 to 0.98.

A simple ranking of the districts on the basis of composite indices would be sufficient for classificatory purposes. A suitable fractile classification of the districts can be made by using the means and standard errors of the composite indices of various sectors as indicated below.

**Table 1.** Composite Indices of Development

| Districts | Agriculture | | Industry | | Infrastructure | | Socio-economic | |
|---|---|---|---|---|---|---|---|---|
| | C.I. | Rank | C.I. | Rank | C.I. | Rank | C.I. | Rank |
| Bangalore | 0.80 | 16 | 0.26 | 01 | 0.70 | 02 | 0.78 | 05 |
| Bangalore (R) | 0.89 | 20 | 0.34 | 02 | 0.79 | 13 | 0.87 | 17 |
| Chitradurga | 0.68 | 06 | 0.67 | 14 | 0.78 | 11 | 0.79 | 08 |
| Kolar | 0.76 | 13 | 0.44 | 03 | 0.75 | 07 | 0.79 | 07 |
| Shimoga | 0.64 | 03 | 0.61 | 10 | 0.75 | 06 | 0.75 | 03 |
| Tumkur | 0.78 | 14 | 0.62 | 11 | 0.80 | 14 | 0.85 | 15 |
| Belgaum | 0.72 | 08 | 0.59 | 08 | 0.73 | 04 | 0.78 | 06 |
| Bijapur | 0.74 | 11 | 0.71 | 17 | 0.80 | 15 | 0.84 | 14 |
| Dharwad | 0.75 | 12 | 0.61 | 09 | 0.71 | 03 | 0.80 | 09 |
| U. Kannada | 0.86 | 19 | 0.58 | 07 | 0.98 | 20 | 0.96 | 20 |
| Bellary | 0.68 | 07 | 0.65 | 13 | 0.83 | 16 | 0.81 | 10 |
| Bidar | 0.72 | 09 | 0.76 | 20 | 0.87 | 18 | 0.87 | 16 |
| Gulbarga | 0.79 | 15 | 0.71 | 16 | 0.85 | 17 | 0.89 | 19 |
| Raichur | 0.65 | 05 | 0.75 | 19 | 0.87 | 19 | 0.83 | 13 |
| Chikmagalur | 0.73 | 10 | 0.70 | 15 | 0.76 | 08 | 0.92 | 11 |
| D. Kannada | 0.85 | 18 | 0.52 | 05 | 0.66 | 01 | 0.83 | 12 |
| Hassan | 0.61 | 02 | 0.65 | 12 | 0.79 | 12 | 0.76 | 04 |
| Kodagu | 0.83 | 17 | 0.74 | 18 | 0.76 | 09 | 0.88 | 18 |
| Mandya | 0.57 | 01 | 0.52 | 06 | 0.77 | 10 | 0.71 | 01 |
| Mysore | 0.64 | 04 | 0.49 | 04 | 0.74 | 05 | 0.73 | 02 |

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 ± 2SE) are classified in category II as developing and the districts having composite index greater than (mean + 2SE) are classified in category III as poorly developed districts.

### 3.2 Relative Share or Area and Population in Different Stages of Development:

An important aspect of the study is 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.

It is evident from the table that about 36 per cent area consisting of about 47 per cent population of the State fall in the districts which are better developed

**Table 2.** Area and Population under Different Levels of Development

| Sectors of Economy | Level of Development | No. of Districts | Area (%) | Population (%) |
|---|---|---|---|---|
| Socio-Economic | High (≤ 0.79) | 08 | 36 | 47 |
| | Medium (0.80 – 0.85) | 07 | 42 | 37 |
| | Low (≥ 0.86) | 05 | 22 | 16 |
| Agriculture | High (≤ 0.70) | 07 | 36 | 33 |
| | Medium (0.71 – 0.78) | 07 | 39 | 37 |
| | Low (≥ 0.79) | 06 | 25 | 30 |
| Industry | High (≤ 0.57) | 08 | 34 | 47 |
| | Medium (0.58 – 0.65) | 05 | 27 | 25 |
| | Low (≥ 0.66) | 07 | 39 | 28 |
| Infrastructure | High (≤ 0.76) | 09 | 42 | 52 |
| | Medium (0.77 – 0.83) | 07 | 34 | 35 |
| | Low (≥ 0.84) | 04 | 24 | 16 |

in the overall socio-economic field. About 42 per cent area and 37 per cent population come from the districts which are middle level developed. The remaining 22 per cent area and 16 per cent population fall in the districts which are low developed or backward in the socio-economic sector. In agricultural sector about 36 per cent area with 33 per cent population belong to the districts which are better developed. Middle level developed districts cover about 39 per cent area and 37 per cent population whereas low developed districts occupy about 25 per cent area and 30 per cent population of the State. In industrial sector about 34 per cent area and 47 per cent population come from the better developed districts whereas about 27 per cent area and 25 per cent population belong to the middle level developed districts. About 39 per cent area and 28 per cent population come from the low developed districts. It is observed that 52 per cent population from 42 per cent area are having better level of infrastructural facilities and 32 per cent population from 34 per cent area come from the districts with the middle level infrastructural facilities. Four districts with about 24 per cent area and 16 per cent population are having poor level of infrastructural facilities. 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

In order to examine the relationship among agricultural, industrial, infrastructural and overall socio-economic developments, pairwise correlations have been worked out and presented in Table 3.

The correlation coefficients between agricultural and socio-economic developments as well as between infrastructural and socio-economic

**Table 3.** Pairwise Correlation Coefficient

| Pairs of Sectors | Correlation Coefficient |
|---|---|
| 1. Agriculture and Industry | –0.269 |
| 2. Agriculture and Infrastructure | 0.042 |
| 3. Agriculture and Overall socio-economic development | 0.742** |
| 4. Industry and Infrastructure | 0.462* |
| 5. Industry and Overall socio-economic development | 0.296 |
| 6. Infrastructure and Overall socio-economic development | 0.643** |

* Significant at 0.05 level.
** Significant at 0.01 level.

developments are observed to be quite high and these are statistically highly significant. This is expected since growth and progress of agricultural development and infrastructural facilities are very much influencing the overall socio-economic development in the positive direction. The correlation coefficient between the development in the industrial sector and infrastructural facilities is significant at 0.05 probability level. The growth and progress of industry and infrastructural facilities are influencing each other in the positive direction. The correlation coefficient between agricultural and industrial developments is not significant which indicates that the districts which are agriculturally advanced, are not well developed in industrial sector. In other words, agricultural and industrial developments do not go together in the same district. Generally districts having more urban population are well developed in industrial sector and low developed in agricultural field. Infrastructural facilities are also not influencing the agricultural development. The correlation

coefficient between industrial and overall socio-economic development is observed to be positive but it is not significantly different from zero. The overall socio-economic development is not influenced by the development in industrial sector.

### 3.4 Potential Targets of Indicators for Low Developed Districts

It would be quite useful and interesting 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 of the State. The best values of indicators of better developed districts will be taken as potential targets for the low developed districts. Five districts one each from Bangalore, Belgaum and Mysore divisions and two from Gulbarga division covering about 16 per cent population of the State are found to be low developed in the overall socio-economic field. The extent of improvement needed in various indicators of the low developed districts is presented below.

I. Bangalore (Rural) District:

This district is backward in agricultural development. About 80 per cent population of the district belong to rural area but only about 50 per cent land is put under agricultural uses. There is very little irrigation facilities and consumption of fertilisers. The per capita foodgrains production in the district is about 25 kg. which is much less than the State average of 181 kg. Literacy in the rural area is also very low. Major improvements are needed to enhance the agricultural development in the district. In the industrial sector, the district is well developed.

II. Uttar Kannada District:

This district is backward in agricultural development. It has very poor infrastructural facilities. About 80 per cent of the district is covered by forest and only 10 per cent area is available for cultivation. For ensuring increased per capita foodgrains and milk production, major improvements are required in creating more irrigation facilities and consumption of fertilisers. The district is not having enough banking facilities and satisfactory transport and communication systems. These may be improved.

III. Bidar District:

The district is backward in industrial development. All the indicators related to industrial development require major improvement. Irrigation facilities and consumption of fertilisers should be increased. The literacy rate in the district is low and transport and communication systems are poor. These indicators require improvements for enhancing the level of development of the district.

IV. Gulbarga District:

This district is poorly developed in agricultural and industrial sectors. Use of irrigation facilities and application of fertilisers should be encouraged in the district. About 30 per cent population of district belong to weaker section of the society and the literacy rate is only 39 per cent which should be enhanced by providing more facilities for about education. Transport and communication systems need improvement for better development of the district.

V. Kodagu District:

The district is low developed in agricultural and industrial sectors. About 84 per cent population of the district come from the rural area. Proper use of irrigation facilities and application of fertilisers should be advocated and improvement in transport and communication systems should be made.

### *4. Conclusions*

The broad conclusions emerging from the study are as follows:

1. With respect to overall socio-economic development, the districts of Bangalore, Chitradurga, Kolar, Shimoga, Balgaum, Hassan, Mandya and Mysore were found to be better developed as compared to the remaining districts of the State. The districts of Bangalore (Rural), Uttar Kannada, Bidar, Gulbarga and Kodagu were socio-economically low developed. The level of development in the rest of the districts was of middle order but the districts were having the tendency to make improvement in the pattern of development.
2. Seven districts namely Chitradurga, Shimoga, Bellary, Raichur, Hassan, Mandya and Mysore and eight districts namely Bangalore, Bangalore (Rural), Kolar, Belgaum, Uttar Kannada, Dakshin Kannada, Mandya and Mysore were found to be better developed in agricultural and industrial sectors respectively. Better developed districts in agriculture cover about 36 per cent area and 33 per cent population whereas better developed districts in industrial sector cover about 34 per cent area and 47 per cent population. The districts which are better developed

in industrial sector are observed to be more thickly populated as compared to the better developed districts in agricultural sector. Only two districts namely Mandya and Mysore were found to be better developed in agricultural, industrial and overall socio-economic sectors. Six districts in agricultural sector and seven districts in industrial sector were very poorly developed.

3. The overall socio-economic development in the State was positively associated with the agricultural development. The growth and progress in the field of agriculture are influencing the overall socio-economic development in the positive direction. The infrastructural facilities have positive impact on socio-economic development. Neither agricultural nor socio-economic developments at district level are significantly affected by the industrial development.
4. Wide disparities in the levels of development had been observed among different districts of the State.
5. In order to reduce the disparities and improve the levels of development, potential targets for various indicators had been estimated for poorly developed districts. The districts which are low developed, require improvements of various dimensions in different indicators for enhancing the levels of development.

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