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Research Article

DIMENSION OF AGRICULTURE DEVELOPMENT IN SPECIAL STATUS STATES OF INDIA

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Abstract- The present study is an effort to measure agricultural development level of special status Indian states applying the Wroclaw Taxonomic technique based upon composite index based on optimum combinations of nine agricultural development indicators. The constructed agricultural development index shows that ranking of 11 specific states of India on the bases of selected indicators. The state-wise data on these indicators for the year 2013-14 was used for obtaining the level of development of 11 specific states of India out of total 29 states of India. The study utilizes very recent time point for measurement of agriculture development for eleven special status states of India. It is found that Assam scores first rank in the agriculture development whereas Mizoram stands on the last position. Wide disparities have been observed in the level of agricultural development between different special status states of India.

Keywords- Composite index, Agricultural development, Special status states of India

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Introduction

India holds the second position in the world in agricultural production. India has practiced exceptional growth in the past decade and occupied the 9th rank in terms of nominal gross domestic product. Agriculture plays a main distribute in the Gross Domestic Product (GDP) of the country. Agriculture is currently the biggest industry in India. It plays an input role in the socio-economic growth of the country. In terms of agricultural contribution, some of the most developed states in India are: Punjab, Uttar Pradesh, Madhya Pradesh, Haryana, Bihar, Andhra Pradesh, Maharashtra, West Bengal, and Gujarat. All these states play a key role in the agrarian development of India. The special category status was implemented during the 5th FYP and then increased further later on. It is based on some defined criteria like hilly terrain, Border States, economically backward, etc. and was for the NER, J&K, Himachal and Uttarakhand and after increasing the allocation of state pool from 32 to 42% on recommendation of 14th Finance commission. Special category states were provided enhanced assistance by the central government guided by the Gadgil-Mukherjee formula up till 2014, the grants to loans ratio was kept highly favorable at 90% for central plan assistance projects, untied central project assistance. Along with rising poverty numbers ensuring food security is the most promising area before the policymakers though India has made massive progress towards food security since independence. Over the period of time Indian population has increased thrice however food grain production has quadrupled resulting into increase in food grain per-capita [1]. Before the mid-1960s India relied on imports and food aid to meet domestic necessities. However, two years of severe drought in 1965 and 1966 forced India to explore the domestic sources as a substitute of constant relying on imports for food security. India adopted significant policy reforms for attaining the status of self sufficiency in food grain. The government has approved continuation of the RKVY (Rahtriya Krishi Vikas Yojana) whereby, funding will be routed into three components: production growth, infrastructure and assets, and sub-schemes and flexi-fund. The proposed allocation for the same during 2015-16 is INR 18000 crore. In order to promote development of a common national market for agricultural commodities through e-platforms, the department has approved INR200 crore for a central-sector scheme for promotion of national agricultural market through Agri-Tech Infrastructure Fund (ATIF), Which is to be implemented during 2014-15 to 2016-17. The broader reforms were towards improving crop yields through introducing disease resistant wheat varieties, better farming practices, etc. These policy reforms under the ambit of green revolution were firstly concentrated on mainly in the irrigated areas of the states of Punjab, Haryana and Uttar Pradesh [2]. With success of this agriculture policy, India's green revolution technology was extended to rice. The extension was motivated due to poor irrigation infrastructure which was strengthened substantially with the innovations of tube wells by Indian farmers [3]. With these policy initiatives India's agricultural economy has witnessed remarkable growth but the structural behavior has reversed as the share of agriculture in GDP has fallen from 43 percent in 1970 to 16 percent in 2011 [4]. The story behind structural shift is the pre-dominance of services sector in India in the past couple of decades. Despite of lower pie of the sector in total GDP, the agriculture plays a very important role in India's economy as around three fifths of Indian population depends on agriculture for their principal means of livelihood. As per estimates by the Central Statistics Office (C.S.O), the share of agriculture and allied sectors (including agriculture, livestock, forestry and fishery) was 15.35 percent of Gross Value Added during 2015-16 at 2011-12 prices. India is the largest producer, consumer and exporter of spices and spice product. As per the World Trade Organization's Trade Statistics, the share of India's agricultural exports and imports in world trade in 2013-14 were 2.7 percent and 1.3 percent, respectively. In 2013-14, the share of agriculture in total GDP was 18 percent. As against the target of 4 percent growth for the agriculture and allied sectors, the growth registered was 3.7 in 2013-14 percent and 1.1 percent in 2014-15 and agriculture exports as a percentage of agriculture GDP have increased from 9.1 percent in 2008-09 to 14.1 percent in

2013-14. During the same period, agriculture imports as a percentage of agricultural GDP also increased from 4 percent to 5.5 percent. India's fruit production has grown faster than vegetables, making it the second largest fruit producer in the world. India's horticulture output, comprising fruits, vegetables and spices is estimated to be 283.4 million tons in 2015-16 [5]. Agriculture exports contribute 10 percent of the country's exports and India's food grain production has increased marginally to 252.23 million tons in 2015-16. The above figures clearly highlight the growing role of agriculture sector in Indian economy.

Literature Review

From the relevant literature, it has been observed that there are some studies [6-8] which evaluate the stage of socio-economic progress at the district level for the states situated in South parts of India. However, there is a lack of in detail analysis of socio-economic development for the states located in North parts of India and inter-regional comparison. Realizing the significance and importance of the problem of regional socio-economic disparities, the study measures and compares the levels of socio-economic development of different regions of India at the district level and classifies the districts based on the levels of their development. The main purpose of the study is to evaluate the level of development in agriculture, industry, infrastructural amenities and generally socio-economic disparities by constructing a composite index of development from the key parameters .The study appraises and ranks precisely the districts of the different regions of the country, according to their levels of socio-economic development. It is followed by throwing light on the association between different sectors of the economy. In this way by estimating the potential targets for various development indicators for the low developed districts, the study suggests the improvements needed in different indicators for enhancing the level of socio-economic development. It is hoped that the results of the study would be useful for regional planning in India. [9] Reported that cross country analysis of the impact of macro-economic environment on growth indicators that a reasonably low rate of inflation, a small budget deficit and low black market exchange rate premium have a strong positive impact on capital accumulation and productivity growth in case of developing countries. [10] Concluded that gender disparities are very closely associated with poverty levels. For example, improving women's access to education or land in rural areas is likely to lead a main increase in agricultural productivity. [11] Evaluated the existing inconsistency of inter-state development and in this manner identifying the indicators responsible for the variety in development. as an alternative of studying the variability of a particular variable across states, a composite index based on several indicators has been developed using principal component analysis and states are arranged according to the indices derived using four broadly accepted components; (a) economic production and economic condition or in other words level of economic development; (b) common minimum needs; (c) health and health-related services and (d) communication. The findings of the analysis support the general perception about the states. The states in India are marked with wide disparity in socio-economic development. The factors, which are found out to be more important for the overall development process, relate to basic needs like education, availability of food, minimum purchasing power and facilities like safe drinking water, health care infrastructure etc. [12] examined on the impact of economic reforms on the social sector in India by comparing the data of the pre-reform period and the reform period, the paper notice a declining trend in the budgetary allocations of both the central and state governments for various sub-sectors of the social sector, especially health and education. [13] Examined the state's macro-economic performance and policies in terms of economic growth and human development. The macro-economic performance in the last two decades is evaluated taking into account the 1990 as base year. [14] Examined inter-state disparities in rural infrastructure in India and its impact on agricultural development and rural poverty through a cross sectional study of 16 major states. Composite indices of rural economic and social infrastructure had prepared for the selected states for 1980-81, 1990-91 and 2000-01 covering 16 indicators of economic infrastructure and 7 indicators of social infrastructure. The technique of Principal Component Analysis (PCA) was used to prepare the composite index of infrastructure development. The analysis exposed that tremendous disparities continue to persist with respect to the availability of economic and social indicators in rural areas at the state level. Economic and social infrastructure was found to have a strong positive effect on agricultural productivity and a strong negative effect on rural poverty. [15] Identified the intra-state disparities in five states in India; Gujarat, Haryana, Kerala, Orissa and Punjab were used three indicators, consumption, inequality and the incidence of poverty, to examine this issue. These indicators taken together reflected generally well-being of the population as they were the conclusion of the interaction of a large set of economic and policy variables. The states chosen for the analysis of intra-state disparities had a relatively homogeneous initial level of poverty in 1973-74, the coefficient of variation (counting the headcount ratio (HCR) being about 20% in 15 major states). [16] Examined pattern of regional disparities in socio-economic development in India at district level in northern and central region of India on the basis of 43 indicators of agriculture, industrial and infrastructural sector. The study is an effort for evaluating the status of development at state level separately for health sector and educational sector for Indian states. It would be of interest to estimate the status of development at state level, since there has been growing consensus about the need of state level planning in the country. Under these are following objectives.

Objectives

To measure the relative performance of agriculture development for special status states of India.

Research Methodology

As development is a multi -dimensional process, so its impact cannot be fully captured by any single indicator. A number of indicators when analyzed individually do not provide an integrated picture of reality. Hence, there is a need for building up of a composite index of development based on optimum combinations of various agriculture development indicators. Some states have faced situational factors of development unique to it as well as common and environmental factors. Common indicators to all the states have been included in the analysis for evaluating the level of agriculture development. Composite indices of agriculture development have been obtained for different specific Indian states by using the data on the following agriculture development indicators:-

Agriculture development indicators:

1. Gross state domestic product of agriculture at constant prices (in lakh R.S.)
2. Net state domestic product of agriculture at constant prices (in lakh R.S.)
3. Gross sown area (in thousand hectares)
4. Gross irrigated area (in thousand hectares)
5. Net irrigated area
6. Cropping intensity (in percent)
7. Total food grain production (thousand tons)
8. Total area of food grain (thousand hectares)
9. Consumption of fertilizer (kg.per hectares)

A total of nine agriculture development indicators have been taken for the analysis. These indicators may not form an all-inclusive list but these are the major interacting components of agriculture development. These indicators are directly related with the agriculture development in the states of India.

Sample Design

Currently, 11 states of India have been given the 'special state statuses-Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Uttarakhand, Himachal Pradesh, Jammu Kashmir. Special categories status is classification given Centre to assist in development of those states that face geographical and socio-economic disadvantages like; high terrains, strategic international borders, economic and infrastructural backwardness non-viable state finances. The classification came into existence in 1969 as per the suggestion given by the fifth finance commission, set to devise a formula for sharing the funds of Centre government among the states. Now current study is based on the secondary data derived from the Reserve bank of India, "Hand book statistics on Indian states" and Economic Survey Reports of the state and official websites of

the states. The secondary data has been collected for a year 2013-14 .The composite index for agriculture performance of the different states of India has been calculated on the basis of Wroclaw Taxonomic method which has been explained in detail

Research Method

The composite index of development is constructed applying Wroclaw Taxonomic Method developed [17] have also used this statistical method for calculating the Composite index which can include any number of indicators. Let $[X_{ij}]$ be the data matrix, i = 1, 2, ..., n (Number of unit) and j = 1, 2, ... k (number of indicators). $[X_{ij}]$ are transformed to $[Z_{ij}]$ as follows:

$$[Z_{ij}] = (\overline{X}_{ij} - X_j) / S_j$$

$\overline{X}_j$= mean of the jth indicator, S_j = standard deviation of the jth indicator and $[Z_{ij}]$ is the matrix of standardized indicators. From $[Z_{ij}]$, identify the best value of each indicator, maximum value or minimum value depending upon the direction of the impact of indicator on the development.

$$P_{ij} = (Z_{ij} - Z_{oj})^2 \text{ and } (C_i) = \left[\sum_{j=1}^{k} Pij/(C.V.)j\right]^{½}$$

Where P_{ij}= pattern of development, Z_{oj}=Best value for indicator, and $(C.V.)_j$ is the coefficient of variation of the jth indicator in X_{ij}.

D_i (Composite Index) = C_i/C

Where C = (Mean Value of C_i + 3* (Standard deviation of C_i)

Results and Discussion

Development level

The composite indices of agriculture development have been worked out for specific state of India in respect of agriculture sector. The states have been ranked on the basis of composite indices. The values of composite indices along with the rank of states are given in [Table-1]. It may be seen from [Table-1] that in case of agriculture development, the state of Assam was ranked first the state of Mizoram was ranked last. The composite indices varied from 0.291 to 0.735

Table-1 *Composite index (C.I.) and rank for specific States of India*

Agriculture Development

States	Index Value	Rank
Arunchal Pradesh	0.630	8
Assam	0.291	1
Himachal Pradesh	0.405	4
Jammu and Kashmir	0.346	2
Manipur	0.711	10
Meghalaya	0.647	9
Mizoram	0.735	11
Nagaland	0.608	7
Sikkim	0.588	6
Tripura	0.539	5
Uttarakhand	0.361	3

Source: author's calculation

Conclusion

The study concludes that with respect agriculture development, the state of Assam and Jammu Kashmir are found to be better developed in comparison to other states. The states of Mizoram and Manipur are low developed. Special care should be taken for the implementing the agriculture developmental programmers in these state.

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