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## Determinants of Inter – district Disparities in the Levels of Agriculture Development in Kashmir Valley

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### Abstract:

*Disparities in levels of development are akin to agriculture sector of the developing economies across the world. India too has exhibited it for long now. However scant literature is available for the state of Jammu and Kashmir with respect to this phenomenon. In this paper we make an attempt to study the phenomenon of determinants of inter – district disparities in the levels of agriculture development for the vale of Kashmir. Using the Z-Score technique we rank the district as according to their levels of development as indicated by variables used for the same elsewhere. An account for the actual determinants of the disparities has also been made.*

**Key words:** Agriculture, development, hectare, Jammu and Kashmir, variation

***In the 21st century, agriculture continues to be a fundamental instrument for sustainable development and poverty reduction. (WDR 2008, P1)***

## **Introduction:**

If any human activity is as old as civilized life it has got to be agriculture. Human sustenance and the transition of human race from wanderers to settled civilizations is in consonance with the headways made in agricultural development. Even in this supersonic era human race stands and rests on the products of the earth. The abundance of earth has always been the life blood of civilizations and its scarcity has been the engineer of almost all its problems. Societies have come to exhibit glaring inter-regional and cross-country differentials in growth and prosperity. However a closer analysis of the growth dynamics of societies in general and nations in particular illuminates the fact that most of these differentials emerge from the fact that the headways made in agriculture and the innovations on the field have been more rampant and took place at an earlier stage in the societies, regions and nations that now present a better picture on the indices of development and esteem.

Nowhere in the economic history of present day developed nations do we find an iota of evidence that can prove nations development in absence of the development of their agricultural sector. The present state of underdeveloped nations of the world can easily be traced to their neglect of the agricultural sector on the one hand and an over emphasis on industrialization on the other, without taking into consideration the need for healthy terms of trade between these sectors. Thankfully, of late, recent phenomenon around the world has brought to the centre the need of agricultural development before any headway can be made in the overall development of the nations. Indian development experience has and is in consonance with the above line of thought as was

made clear by rapid shift of priority in the planning process from agriculture to industry and vice-versa as early as the 2<sup>nd</sup> five year plan.

The Indian subcontinent has been the cradle of civilization and this has been in consonance with the headways made in the development of the Indus valley civilization. Agriculture continues to be the back bone of Indian economy and a highly focused effort has been made for its improvement in the post-independence period. The significance of agriculture in the development strategies of Indian economy continues to remain paramount. Though the economy, contemporarily is witnessing a differentiated structural dynamics of speedier overall growth, the preponderance of the sector to sustain the livelihood of nearly sixty per cent population and the quest of food security for billion plus population of the country, does not let the significance of agriculture sector to be undermined. The advent of green revolution demonstrated the convergence of scientific knowledge and research in agriculture, institutional support for delivery of technology and inputs such as seeds, fertilizers and irrigation and that of its gradual adaption by farming community.

The importance of agriculture in the economic development of any country, rich or poor, is born out by the fact that it is the primary sector of the economy, which provides the basic ingredients necessary for the existence of mankind. The existence of a developed agriculture sector is a pre-condition for bringing industrial revolution in any country. Since most of the industries derive their raw material from this sector and it provides a ready market to the developing industrial sector. A flourishing agriculture sector is far more important for the development of economy. However the developments made in agriculture have never been uniform spatially. As such we have developmental gaps emerging both at the inter as well as at the intra state levels. To this effect some of the relevant literature is summarized below.

## **Literature Review:**

India is a diverse nation both on socio-economic as well as on geographic indicators. The diversity in topography is more prominent and this prominence has duly effected the regional growth of agriculture and has impacted the growth differentials therein. We have a good amount of literature inquiring into the regional dynamics of agricultural growth in India. Some of the scholars (Dholakia 1994: Cashin and Sahay 1996:, Nagaraj et al. 1998 and 2000) have found support to convergence arguments in respect of regional disparities and there are still others (Bajpai and Sachs 1996: Rao et.al 1999: Dipankar et al. 2000; Aiyar 2001; Trivedi 2002; Singh et al. 2003; Bhattacharya & Sakthivel 2004) that have found support to the divergence thesis.

Measuring disparity in India at the disaggregated level is still a sparsely researched area. Generalized and reliable support to the extent of intra-state and intra-district variations in agriculture development has no definitive empirical support. There are very few available studies of reliability, dealing with intra-state disparity. Shaban (2006) for the state of Maharashtra, using the Principle Component Analysis (PCA) for the benchmark years 1972-73, 1982-83 and 1988-89, finds that regions of Vidarbha and Marathwada and the district of Ratnagiri, Raigadh Dhule and Jalgaon have been the least developed both at sectorial and the aggregate levels of development. Shastri (1988) has examined the regional disparity for the state of Rajasthan, which covers a period of 23 years (1961-1984). The study delineates the ‘developed’ and ‘underdeveloped’ districts and within the districts, the ‘developed’ and ‘underdeveloped’ sectors which require the attention of the policy makers. It clearly brings out the existing inter-district imbalances in the economic development of Rajasthan and makes the need for greater emphasis on regional approach to development planning obviously. A recent study, by

Diwakar examines the regional disparity at disaggregate level, using district as a unit for the state of Uttar Pradesh and finds that no district in the Eastern and Bundelkhand regions were in the most developed category. At the same time, many districts in the Western and Central regions were also on the lower rungs.

### **Objectives of the present study:**

The present study draws its objectives from some of the scarcities exhibited by the existing literature. It is an attempt to delineate the inter-district variations in agricultural development in Kashmir valley. The study is designed to achieve the following objectives.

1. Calculate the inter-district variations in levels of agricultural development in Kashmir;
2. Rank the districts in accordance with the level of agricultural development achieved;
3. Account for the differences in levels of agriculture development at the district level.

**Hypothesis:** *“Inter-district variations in levels of agricultural development in Kashmir are not significant.”*

### **Methodology:**

The present work is based on secondary sources of data. The data has been collected from different governmental and non-governmental sources. Agricultural statistics were made available by the department of agriculture and certain district level reports of the Directorate of Economics and statistics. In order to assess the levels of agricultural development 7 indicators have been taken in to account as given in Table 1.

**Table 1. List of selected variables**

S. No.	Variables	Definition
1	X <sub>1</sub>	Percentage of net sown area to total reported area.
2	X <sub>2</sub>	Cropping intensity (in percent).
3	X <sub>3</sub>	Percentage of net irrigated area to net sown area.
4	X <sub>4</sub>	Percentage of net irrigated area to total cropped area or total sown area
5	X <sub>5</sub>	Consumption of fertilizers in kg. per hector
6	X <sub>6</sub>	Percentage of canal irrigated area to gross irrigated area
7	X <sub>7</sub>	Percentage of irrigated area by other sources to gross irrigated area

In the present study seven variables of agricultural development are analyzed with the help of ‘Z –Score’ statistical technique (following Sharma (1971) for the period 2010 - 2011. The technique is explained as follows.

$$Z_{ij} = \frac{x_i - \bar{X}}{Sd}$$

Where Z<sub>ij</sub> = Standard score of the i<sup>th</sup> observation.

X<sub>i</sub>= original value of the i<sup>th</sup> observation.

X = Mean for all values of X variable.

Sd= Standard deviation of X

Further, the result of standard score obtained for the different indicators was aggregated by Composite Standard Score (CSS) so that the regional disparities in the levels of agricultural development of the districts may be obtained on a common scale. This is expressed as:

$$\text{Composite Standard Score (CSS)} = \frac{\sum Z_{ij}}{N}$$

Where Z indicators Z score of an indicator ‘J’ in district N refers to number of indicators.

All the data has been arranged in descending order and standardized zero mean for interpretation. In order to classify

the districts according to the magnitude of the development, the composite scores were divided into three categories: high, medium and low.

### **Study Area:**

The present study has been carried out in the valley of Kashmir, which forms a part of the state of Jammu and Kashmir. Jammu and Kashmir is the northernmost state of India. It is situated mostly in the Himalayan Mountains. Jammu and Kashmir shares a border with the People's Republic of China to the north-east, the states of Himachal Pradesh and Punjab to the south and Pakistani-administered territories of Kashmir, namely Azad Kashmir and the Northern Areas to the west and north-west respectively. Jammu and Kashmir consists of three regions: Jammu, the Kashmir valley and Ladakh. Srinagar is the summer capital, while Jammu, its winter capital. While the Kashmir valley, often known as Paradise on earth is famous for its beautiful mountainous landscape, Jammu's numerous shrines attract tens of thousands of Hindu and Muslim pilgrims every year. Ladakh, also known as "Little Tibet", is renowned for its remote mountain beauty and Buddhist culture.

Kashmir valley lies between the parallels of 32° 25' N and 34° 45' and the meridians of 73° 35' E and 75° 31' E. One of the important characteristics of the valley floor is that it has gentle slope towards the north-west side, that is why all main drainage system flows towards the direction of north west. The study area is bounded by Udampur, Rajouri, and Poonch districts of Jammu province, on the west and north by Azad Kashmir and east, north – east by Kargil district of Ladakh.

## Analysis of Results:

Estimation of Z-scores from the data reveals that the valley can be divided into three distinctly developed zones. With 0.15sd as the benchmark we find 4 districts falling in the high developed zone followed by 4 in the medium and 2 in the least developed zones. (See Table 2)

**Table 2: Ranking of district in respect of agricultural development.**

Index valve	Above 0.15	0.15 to -0.15	Below -0.15	Total
Category	High developed zone	Medium developed zone	Low developed zone	
Name of the district	Kulgam,Srinagar, Shopain,Anantnag	Ganderbal, Pulwama, Budgam, Bondipora,	Baramulla, Kupwara	10
Number of districts	04	04	02	10
Percentage area to district total	40	40	20	100

**High Developed Zone:** This zone covers 40 percent area of the region and the Composite Z-Score valve ranging between 0.43, 0.42, 0.39and 0.25 in Kulgam, Srinagar, Shopain, and Anantnag respectively. The high level of agricultural development in this zone is mainly is due to high irrigated area, high percentage of net sown area, high cropping intensity and high consumption of fertilizers.

**Medium Developed Zone:** This zone covers 40 percent area of the region. The Composite Z-Score value ranges between 0.051, 0.0.4, 0.004 and -0.082 in Ganderbal, Pulwama, Budgam and Bandipore respectively. In all these districts percentage of net sown area, consumption of fertilizers and irrigation facilities is moderate.



**Low Developed Zone:** It comprises two districts covering 20 percent area of the district having Composite Z-Score ranging between -0.36 to - 0.66 in Kupwara and Baramulla respectively. The low level of agricultural development in this zone is mainly due to low net sown area, low irrigation development and inadequate consumption of fertilizers. This zone shows poor situation regarding all the variables of agricultural development, as this zone covers the northern part of the region which is hilly, forested, infertile, sloppy, undulating with narrow basins.

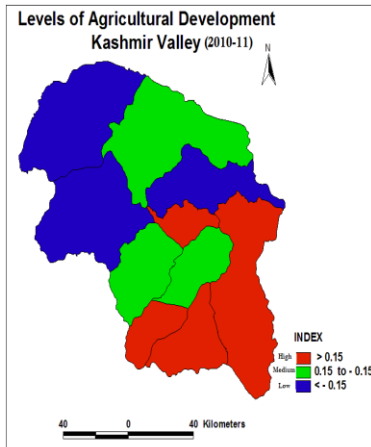
**Table 3: Standard Score of the Variables for Levels of Agricultural Development in the Kashmir Valley.**

<i>Disrict</i>	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	<i>Composite Z-Score</i>
Anantnag	1.18	0.91	0.54	-1.11	0.26	-0.33	0.36	<i>0.25</i>
Kulgam	0.60	-0.033	0.43	0.66	1.21	-2.25	2.44	<i>0.43</i>
Pulwama	-0.21	2.15	0.01	-1.99	0.22	0.95	-1.03	<i>0.014</i>
Shopian	-0.81	-0.10	0.13	0.33	1.96	1.23	-	<i>0.39</i>
Srinagar	-1.60	0.59	1.77	1.51	0.66	-0.26	0.29	<i>0.42</i>
Ganderbal	-1.83	0.38	0.75	0.96	-0.59	0.33	-0.36	<i>0.051</i>
Budgam	-0.19	-0.39	0.30	1.00	-0.66	0.42	-0.45	<i>0.004</i>
Baramulla	0.33	-1.26	-1.79	-1.03	-0.78	1.08	-1.17	<i>-0.66</i>
Bandipora	0.58	-0.57	0.81	-0.40	-1.07	-0.89	0.96	<i>-0.082</i>
Kupwara	1.37	-1.42	-1.33	0.029	-1.22	-0.27	0.29	<i>-0.36</i>

### **Levels of agricultural development:**

In order to assess the levels of agricultural development in the Kashmir valley, all the seven variables have been aggregated. The Z- Score valve seven variables transformed and combined with Z Score and composite score was prepared (Table 2). The composite score ranges from 0.43 (highest) in the Kulgam to -0.66 (lowest) in the Baramulla. Kulgam is the most developed district in the Kashmir Valley and Baramulla at the bottom. On the basis of composite Z-score, the districts have been categorized into three classes: high, medium and low

(Fig.1), which clearly shows disparity in the levels of agricultural development in the Kashmir valley.



**Figure 1. Kashmir Valley levels of agricultural development (2010-11) prepared by Composite Z-Score technique.**

## Conclusion

The conclusion drawn from this analysis is that the levels of agricultural development are not uniform in all the districts of Kashmir valley. The composite Z -Score value points to a wide range variation of variables in various districts of the region. In the region as whole four districts show high levels of agricultural development, 4 falls under the medium levels of agricultural development and the remaining 2 have low levels of agricultural development. The development of agriculture implies optimum use of existing land resources with the help of scientific practice and application of modern inputs. The primary objective of agricultural development is usually the increased growth of agricultural output to provide the livelihood to growing population. The districts which have low level of agricultural development need special attention. The development pace can be accelerated through certain changes incorporated in existing infrastructural facilities.

## **BIBLIOGRAPHY:**

Ashish, M. 1983. "Agricultural economy of Kumaun Hills. Threat of Ecological Disaster." in *The Himalaya, Man and Nature*, edited by O.P. Singh. New Delhi: Rajesh Publication.

Bajpai, N., and J. D. Sachs. 1996. "Trends in Interstate inequalities of Income in India." Discussion Papers. Harvard Institute for International Development. Number 528.

Bhattacharya, B.B., and S. Sakthivel. 2004. "Regional Growth and Disparity in India: Comparison of Pre and Post-Reform Decades." *Economic and Political Weekly*. March 6. 1071-1077.

Cashin, P. A., and R. Sahay. 1996. "Internal Migration, Centre-State Grants and Economic Growth in the States of India." IMF Staff Papers, IMF 43: 123-71.

Chand, R., S. S. Raju, and L. M. Pandey. 2007. "Growth Crisis in Agriculture Severity and Options at National and State Levels." *Economic and Political Weekly* 42(26): 2528-2533.

Dantwala, M.L. 1978. "Future of Institutional Reform and Technological Change in India's Agricultural Development." *Economic and Political Weekly*. Special Issue. 23-24.

Grewal, S.S and Rangji, P.S. 1983. "An Analytical Study of Growth of Punjab Agriculture." *Indian Journal of Agricultural Economics* 38(4): 509-519.

Galab, Shaik and Ratna Reddy. 2006. "Agrarian crisis Looking Beyond Debt Trap." *Economic and Political Weekly*. XXXIII: 1838-42.

Krishna, G. 1992. "The concept of Agricultural development." In *Dynamic of Agricultural Development*, edited by Noor Mohammad. Vol. 7. New Delhi: Concept Publishing Company.

Mallikarjun, M. 2002. "Intra Regional Disparities in Economic development – A study of Andhra Pradesh." *Indian Journal of Regional Science* XXXIV(1): 1-11.

Ramakrishna, G. 1992. "Growth and Fluctuations in Indian Agriculture 1950-51 to 1990-91." *Asian Economic Review* 35(1): 47-52.

Rao, M.G, R.T. Shand and Kalirajan. 1999. "Convergence of Incomes across Indian States: A Divergent View." *Economic and Political Weekly*. March 27. 769-78.

Sachs, J.D., N. Bajpai, and A. Ramiah. 2002. "Understanding Regional Economic Growth in India." *Asian Economic Papers* 1 (3): 32-62.

Shaban, A. 2006. "Regional Structures, Growth and Convergence of Income in Maharashtra." *Economic and Political Weekly*.

Sharma, S. P. 1971. "Agriculture regionalization of India." In *Economic and socio-cultural dimension of Regionalization*, edited by Chandra Sekhar, 253-276. New Delhi.

Shrivastava, S.L. 1983. "Regional Disparities in Agricultural Development in Madhya Pradesh." *Indian Journal of Regional Science* XV (2): 55- 60.

Siddiqui, S.H. 1987. "Regional Variation of Agricultural Development in the North Bihar Plain." *Geographical Review of India* 49(3): 49- 53.