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Inter-District Disparities in Agricultural Development in Haryana

Dr. Anju Rani

Assistant Professor, Dept. of economics, Chaudhary Ranbir Singh University Jind

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ABSTRACT

The term regional disparity is very common in developing and less developed Countries. The development indicates the advancement of overall phenomena in any region. This study based on regional disparities in agriculture development in Haryana state. Haryana farmers have contributed a lot in making India food secure. These states witnessed remarkable agricultural development for the period of Green Revolution. For measurement this agriculture development Kendall's ranking method used. This study based on secondary data. Data have been taken from Ministry of Agriculture Government of India during the period 2003-04 to 2023-24. Ten indicators have been used to analyze the patterns of agricultural development.

Key words: Agricultural development, Regional disparities, co-efficient method, Kendall's method

INTRODUCTION:

Agriculture is the mainstay of Indian economy as about 50-55 percent of Indian population depends directly on agriculture. India needs to support 17 per cent of the population with only 2.3 percent of the geographical area and 4.2 percent of the water resources. The net sown area is 140 million hectare and gross cropped area is 192.2 million hectare. Agriculture development is a necessary condition for the over-all development of the economy. Agriculture development improves social and cultural development due to an increase input per capita income (Kazma Khan & Lubna Khali, 2003). A progressive agriculture has potential of achieve constant economic growth. It helps in achieving the developmental goals of eradication of poverty and modernization of society. The development of agriculture seems to hold the key progress to our economy as a whole. India's food grains production has increased from 94.9 million tonnes to 357.73 million tonnes in the almost four decades 1971 to 2022. In Haryana, the agricultural development has led to adoption of new agricultural machinery, development of tube well and canal irrigation, chemical fertilizers, pesticides, insecticides and fungicides. This also resulted in

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

adoption of new hybrid variety seeds of wheat and rice which later helped in establishing wheat-rice monoculture in large parts of these states.

REVIEW OF LITERATURE:

Yunam and Deka (2022) evaluated the disparities in agricultural development within the NE region of India by computing the composite agricultural development index (CI) for 90 districts from all the 8 states of the region. They found, there was variability in the composite index of agricultural development among the districts. Result showed that the actual achievements were lower than the potential targets for almost all the development indicators in the low developed district. **Deb, Pamela and Rameshwer Mukherjee (2022)** showed regional disparities in the level of deprivation among the Scheduled Tribe population in eastern Indian states based on house listing and housing table of Census of India, 2011 and Socio-Economic Cast Census data. Authors used the Wroclaw Taxonomic method. They found that, out of 110 districts, 55 districts are in a middle-deprived stage and 13 districts are in a highly deprived stage.

Kumar and Mishra (2018) analyzed regional development and disparities in Uttar Pradesh. They used mean, standard deviation, Z-Score and correlation index. Their study selected thirty eight variable for agricultural, social, Infrasture and industrial development to measure disparities. **Shee and Maiti (2017)** analyzed a comparative study between project and non project of JSW Bangal steel. They used composite index for fulfill steady. Fourteen indicators used this study. The value of composite index of agricultural development varies from 0.28 in 2007 to 0.94 in 2014 that indicates a wide regional disparities present at study area and requires immediate attention for all inclusive development. So there is an immediate need for proper planning on project affected mouzas to make alternative livelihood opportunities with help of local NGOs and Government. **Janardhan (2014)** analyzed regional disparities in Ahemdanagr district in India. He selected ten variables for his study and used Kendall-Index to measure disparities**.** His study suggested that government should promote irrigation facility. **G.Abdollahzades et.al (2012)** examined spatial pattern of agriculture development using CAID. They used five dimensions for development composite index. They found agriculture development firstly depends on service and infrasture and secondly on natural & physical endowment. .facing regional imbalances problems which differ from state to state and district to district of India. The socio-economic development is high in the southern region as compared to the north and central regions (Ramphul, 2012). **Panda (2010)** analyzed the inter-state variation in the level and sources of irrigation development in the post-reform period, to measure the relationship between irrigation and agricultural development and to examine the inter-state inequity in distribution on gross cropped area and credit employment in commercial banks. This study covered the period 1992-93 to 1999-2000. This study used compound average growth rate and gini coefficient of concentration for measure the extent of inequality in the share of gross

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

cropped area. He found all India level acreage under canal irrigation has declined while that underground water irrigation has gone up.

Sharma et.al (1997) analyzed regional disparities in agricultural development in India. This study found a direct relationship between the cultivated area and area under HYVs and a wide range of disparities in productivity were observed among different mountainous states of India

OBJECTIVES:

- **To measure the level of agriculture development in Haryana**
- **To analyze the inter-district disparities in agriculture development**

RESEARCH METHODOLOGY: This study is based on secondary data which were taken from Ministry of Agriculture Government of India.

DATA ANALYSIS:

The Kendall's ranking coefficient index method used to level of regional disparities in agricultural development in Haryana. Firstly he calculated percentage share of all variables. After percentage calculated ranking of all variables, finally calculated coefficient index. To find the level of agricultural development ten variables used. Ten variables is this:-

X1= Percentage no. of tractors; X2= Percentage irrigated areas;

X3= Percentage total cropped areas; X4= Percentage number of tube wells and pumping sets;

X5= Percentage use of fertilizers; X6=Percentage use of pesticides;

X7= Percentage literacy rate; X8=Percentage agriculture credit society;

X9= Percentage density; X10= Percentage major cash crop (sugarcane, oilseed, total cotton) by using these variables coefficient index calculated using Kendall's ranking coefficient index method.

Ranking coefficient index formula=ƐR/N **ƐR**=Sum of Rank, **N**= Number of variables

RESULT AND DISCUSSION:

Level of agriculture development in Haryana: This study selected ten variables for agriculture development. This study divided in three parts. First Part ten variables calculated percentages; second part calculated rank of variable percentages and three parts calculate Co-efficient Index.

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

Table-1

Districts	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Ambala	3.46	4.82	3.21	2.80	3.98	7.17	5.17	3.98	6.18	2.30
Bhiwani	7.11	3.90	8.05	6.44	5.68	7.17	4.75	4.18	2.85	11.32
Charkhi Dadri	N.A	4.15	3.42	N.A	N.A	N.A	N.A	1.51	9.87	4.32
Faridabad	1.31	4.77	0.97	0.49	0.59	4.80	5.16	2.22	3.04	0.09
Fatehabad	5.75	4.78	6.67	5.44	7.74	2.94	4.29	3.04	5.90	6.72
Gurugram	2.03	4.72	1.69	2.62	0.91	1.01	5.35	3.46	5.91	1.90
Hisar	8.99	4.49	10.02	9.59	7.03	10.81	4.61	8.00	3.70	13.69
Jhajjar	6.20	4.52	3.88	5.27	2.12	1.62	5.10	2.19	4.63	2.59
Jind	5.30	4.78	7.16	9.56	8.34	4.58	4.51	3.99	4.21	5.67
Kaithal	5.19	4.81	5.92	7.44	6.51	7.40	4.37	5.90	3.90	1.31
Karnal	6.90	4.80	4.53	6.61	10.11	12.93	4.72	4.89	4.84	0.08
Kurukshetra	0.51	4.79	4.28	4.89	6.79	5.88	4.82	3.21	5.19	2.60
Mahendragarh	2.83	3.80	4.43	3.16	2.33	0.94	4.91	1.89	4.09	8.26
Nuh	1.95	3.69	2.81	2.15	1.35	N.A	3.42	1.89	N.A	1.79
Palwal	4.76	4.58	3.15	0.35	3.28	N.A	4.38	1.68	N.A	2.47
Panchkula	1.03	3.88	0.71	0.42	0.61	N.A	5.17	4.97	5.08	0.14
Panipat	3.55	0.19	2.95	4.38	3.42	9.17	4.80	5.18	7.34	1.13
Rewari	3.22	4.80	3.19	1.77	2.40	0.31	5.12	3.68	4.58	4.24
Rohtak	3.98	4.83	3.48	3.61	3.44	1.13	5.07	3.23	5.15	2.68
Sirsa	10.50	4.71	11.51	9.47	9.70	8.35	4.35	5.19	2.49	21.43
Sonipat	6.45	4.79	4.65	8.58	5.71	6.65	5.00	4.76	5.76	1.68
Yamunanagar	4.43	4.84	3.33	4.97	6.17	6.93	4.93	4.97	5.31	3.59
Sources: Calculated by Author										

Note: NA means not available

Table 1 shows level of agriculture development in Haryana district- wise.

Percentages number of tractors (X1): Haryana is a significant contribution to India's tractor production. A tractor helps increasing cropping intensity. Maximum use of tractors found Sirsa district with10.5 percentage whereas lowest in Kurukshetra district with 0.5 percentages. **Percentage irrigated areas(X2):** Haryana has an impressive irrigated system with around 84 %

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Volume:11, Issue:01 "January 2026"

of its cultivated areas under irrigation. A highest irrigated area is Yamunanagr with 4.84 percentages. **Percentage total cropped areas(X3):** The variable under cultivation is highest in Sirsa district. It was followed by Hisar district. It was lowest in Panchkula district with 0.71 percentages. **Percentage number of tube wells and pumping sets(X4):** Haryana have many district with tub-well and pumping set installations. Highest tube wells and pumping sets in Hisar whereas lowest in Palwal with 0.35 percentages. It was followed by Panchkula with 0.42 percentages, Faridabad with 0.49 percentages.

Percentage use of fertilizers(X5): Karnal district in Haryana is the highest user of fertilizers with 10.11 percentages. Other districts in Haryana like Sirsa and Hisar also have significant activity and fertilizer usages. Percentage use of pesticides(X6): Haryana is the one of the top state in India when it comes to pesticides usages, with an average consumption of 1,100 kilos per hectare. Highest use of pesticides in Karnal district. It was followed by Sirsa and Hisar districts. Percentage literacy rate(X7): A literacy rate can significantly impact agriculture development in Haryana as educated farmer are more likely to adopt modern farming techniques, understand market trends. Highest literacy rate in Gurugram with 5.35 percentages. It was followed by Panchkula Ambala and Faridabad. Percentage agriculture credit society (X8): Agriculture credit societies play vital role in Haryana agriculture development. Highest percentage of agriculture credit socitiesin Hisar. It was followed by Sirsa. Percentage density(X9): Population density in Haryana 573 person per square kilometer. Highest density in Charkhi Dadri with 9.87 percentages. It was followed by Panipat with 7.34 percentages, Sonepat with 5.76 percentages respectively.

RANKING COEFFICIENT INDEX:

Table 2 shows co-efficient index of ten variables is calculated for each district. The agriculture development has been divided in three categories; High, Medium and low in table no.3

Table-2

Districts	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	E-Rank	Co-Efficient Index
Ambala	14	3	15	15	11	6	2	11	3	13	**79**	**7.9**
Bhiwani	3	15	3	7	10	6	12	9	19	3	**87**	**8.7**
Charkhi Dadri	N.A	14	13	22	22	N.A	N.A	21	1	7	**100**	**10.0**
Faridabad	19	8	21	19	21	10	3	17	18	20	**156**	**15.6**
Fatehabad	7	7	5	8	4	12	19	16	4	5	**87**	**8.7**

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

Gurugram	17	9	20	16	19	15	1	13	5	14	**129**	**12.9**
Hisar	2	13	2	1	5	2	14	2	17	2	**60**	**6.0**
Jhajjar	6	12	11	9	17	14	5	18	12	11	**115**	**11.5**
Jind	8	7	4	2	3	11	15	10	14	6	**80**	**8.0**
Kaithal	9	4	6	5	7	5	17	3	16	17	**92**	**9.2**
Karnal	4	5	8	6	2	1	13	7	11	21	**78**	**7.8**
Kurukshetra	21	6	10	11	6	9	10	15	8	10	**106**	**10.6**
Mahendragarh	16	17	9	14	16	16	9	19	15	4	**135**	**13.5**
Nuh	18	18	19	17	18	N.A	20	19	NA	15	**144**	**14.5**
Palwal	10	11	17	21	14	N.A	16	20	NA	12	**121**	**12.1**
Panchkula	20	16	22	20	20	N.A	2	1	10	19	**130**	**13.0**
Panipat	13	19	18	12	13	3	11	5	2	18	**114**	**11.4**
Rewari	15	5	16	18	15	17	4	12	13	7	**122**	**12.2**
Rohtak	12	2	12	13	12	13	6	14	9	9	**102**	**10.2**
Sirsa	1	10	1	3	1	4	18	3	18	1	**60**	**6.0**
Sonipat	5	6	7	4	9	8	7	8	6	16	**76**	**7.6**
Yamunanagar	11	1	14	10	8	7	8	6	7	8	**80**	**8.0**
Sources: Calculated by Author												

Table-3 Level of Agriculture Development for 2002-03 to 2023-24

Co-efficient Index	Level of Development	Name of District	No. of Districts
0-6	**High**	Hisar, Sirsa	**2**
6-10	**Medium**	Ambala, Bhiwani, Charkhi Dadri, Fatehabad, Jind,Kaithal, Karnal, Sonepat, Ymuna nagr	**10**
Above 10	**Low**	Gurugram,Jhajjar,Rohtak, Mehendergarh, Nuh, Panipat, Rewari Panchkula, Palwal, Kurukshetra Faridabad	**11**
Sources: Calculated by Author			

ISSN: 2455-8834

Volume:11, Issue:01 "January 2026"

High Level Development: Only two districts under this category are Hisar and Sirsa. It included Tub well and pumping set (X4) is first position availability in Hisar district. And Second positions are Percentages number of tractors (X1), Percentage total cropped areas(X3), Percentage use of pesticides(X6), Percentage agriculture credit society (X8) and Percentage major cash crop (X10). Sirsa district included Percentages number of tractors (X1), Percentage total cropped areas(X3), Percentage use of fertilizers(X5) and Percentage major cash crop (X10) in first position.

Medium Level of Development: This category consists 10 districts; Ambala, Bhiwani, Charkhi Dadri, Fatehabad, Jind,Kaithal, Karnal, Sonepat and Ymuna nagr.

Low Level of Development: This category consists 11 districts; Gurugram,Jhajjar,Rohtak, Mehendergarh, Nuh, Panipat, Rewari Panchkula, Palwal, Kurukshetra and Faridabad. The whole are representation by detrimental conditions like less accessibility poor soil and low income of poor farmers and less irrigation facilities.

Conclusion: The present study reveals that agriculture development. Majority of district under low level of development. Only two districts come under high level of development. There are ten districts comes under medium level of development. Haryana shows significant regional disparities in agricultural development. While the north and central districts are highly developed comparison to southern districts. Targeted policies focusing crop diversification and technological support are essential to reduce these inter-district disparities.

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