



A GEOGRAPHICAL ANALYSIS OF SPATIAL VARIATION PATTERN OF AGRICULTURAL PRODUCTIVITY IN KOLHAPUR DISTRICT

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ABSTRACT

Agriculture sector has a dominant role in the Indian economy. In agriculture sector Agriculture Productivity is an important factor, because this terminology vary from region to region, because of physical determinants like temperature, rainfall, soil types and non-physical determinants like irrigation, HYV, modern technology. The main objective behind to find out productivity variation in the study region because of above mentioned reasons. For the present study, tahsilwise secondary data is used from the district statistical abstract taking the 2010-11 as the base year. And for the calculation of agricultural productivity index Kendall's Ranking coefficient method is used and for calculation of rank coefficient main crops of Kolhapur district have been taken. For depicting the result of tabulated data statistical presentation of Simple bar graph and geographical choropleth map is used.

KEYWORDS: Agricultural productivity and pattern, Productivity determinants and coefficient values.

INTRODUCTION

Agriculture is the most important sector of the Indian economy, since it contributes the largest share of national income, and gives a source to livelihood to 61.5 % of our rural people. According to 2011 agricultural census of India approximately 61.5 % of 1300 million population of India is rural and depend on agriculture. While, according to Indian Economic Survey 2018 more than 50 percent workforce engaged in agriculture and of these seventy percent household today also primarily depend on agriculture and 17 to 18 % countries GDP is contributed by agricultural sector. In 2017-18, 2.1 percent GDP has grown in agriculture sector in India. The reasons of this growth are bringing additional area under cultivation, increase in irrigation facility, proper water management, advance technique like, pesticides fertilizers, mechanization and advance cropping practices. Even though all above mentioned components are used all over the country, however agricultural productivity vary from tahsil to tahsil in Kolhapur district. For that reason it is necessary to find out in detail.

CONCEPT OF AGRICULTURAL PRODUCTIVITY:

Term productivity has been used with various meanings and many contradictory fantasies. Sometimes it is considered as the total production capacity through which the production system works, the other is the source ratio of the output is defined as rapidly or collectively extended. Agricultural productivity means the ratio of agricultural output to agricultural input. In India productivity is defined that amount of crop production in per hectare land. In the world India is second largest producer of Rice and Wheat, but 38 th rank in productivity. Likewise India also largest producer in the pulses, but its productivity rank in world is

138. It means when agricultural productivity is measured that time it is not considered that what is the total production, but what is produced in a particular unit, area or land, in India in a hectare. In fact, production means the volume of output, while the productivity indicates output in relation to extended sources. It is generally agreed that productivity is the capacity of Production system with more economically and efficiently

REVIEW OF LITERATURE:

Lopamudra Lenka Samantaray (2015) in his research paper “A Study on the Current Trend of Agricultural Productivity in India and its Future Prospects” has studied the growth of agricultural productivity, various component and reforms in agricultural growth. In 2012 Awate S.J. and Todkari G.U. presented a research paper entitled “Agriculture productivity in Solapur district of Maharashtra: a geographical analysis” in their paper they have stressed on agriculture productivity, Technological factors, sustainability, yield co-efficient, wide variation. They also found in study region large variation in agricultural productivity. Praduman Kumar and Surabhi Mittal 2015, in their research paper “Agricultural Productivity Trends in India: Sustainability Issues” have given more attention on the sustainability on agricultural productivity. There have been several studies to measure productivity for India. Sakshi , Sonia Khajuria (2015) in their paper “ Agricultural Productivity in India: Trends, Challenges and Suggestions” have studied slow growth rate of production, decrease in cultivation area.

OBJECTIVES:

To analyze the spatial variation pattern of agricultural productivity index of main crops in Kolhapur district

DATABASE AND METHODOLOGY:

Present study mostly based on the secondary data collected by the various agricultural departments like joint director agricultural office, Kolhapur, district agricultural office, district statistical office, Kolhapur. This data is used to calculate the agricultural productivity of twelve tahsils of the Kolhapur district by using Kendall’s co-efficient index method. This technique is more easy and accurate to comparatively other techniques .

$$\text{Ranking co – efficient index} = \frac{\sum R}{n}$$

Where,

$\sum R$ = sum of ranking of all crops
 n = number of crops

STUDY AREA:

Kolhapur district has located in the southwestern part of the state Maharashtra. The total area of the district is 7685 sq. km. And it extended between 15°43' to 17° 17' north latitude and 73°40' to 78°42' east longitude. For administrative purposes it has divided into 12 tehsils namely Ajra, Bhudargad, Chandgad, Gadhinglaj, Gaganbavda, Hatkanagale, Kagal, Karveer, Panhala, Radhanagari, Shahuwadi and Shirol. Present study region totally comes under Krishna and Panchganga river basin. This district has bounded by Sangli, Sindhudurg and Ratnagiri district as well Karnataka state in south. Likewise, study area has mountainous region in the west, plateau region in the middle and plain region in the eastern part.

LOCATION MAP OF STUDY AREA

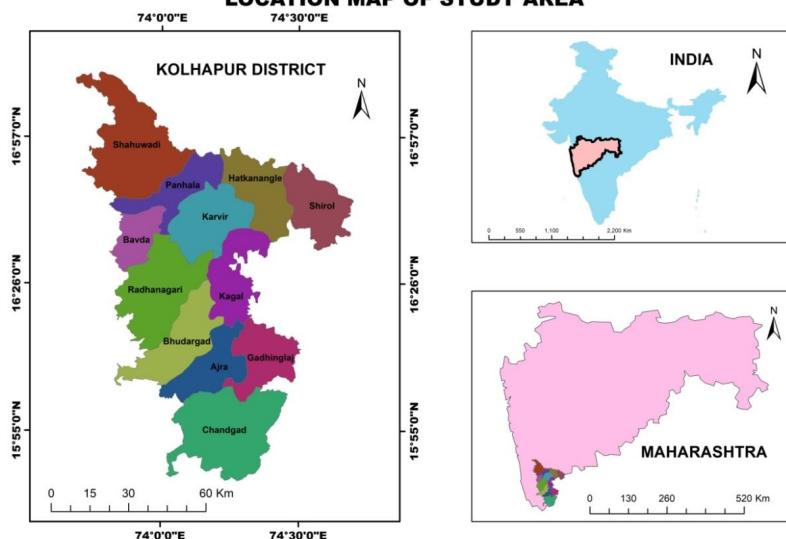
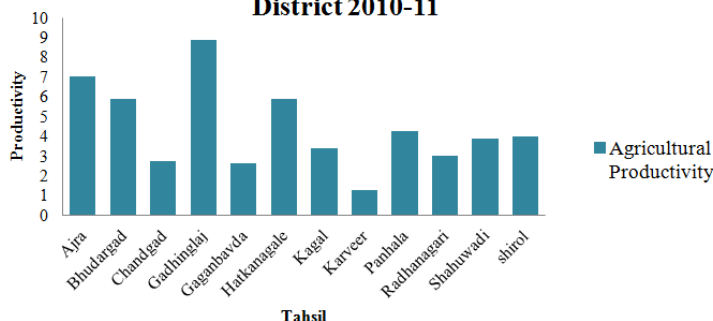


Table : Ranks and Coefficient of Productivity Index of Main Crops

Name of tahsil	Rice	wheat	Jowar	Soyabean	Ragi	Groundnut	Gram	Sugarcane	Total rank	Coefficient of Ranking Index
Ajra	8	0	6	7	9	10	8	8	56	7
Bhudargad	11	0	0	0	8	12	7	9	47	5.87
Chandgad	2	0	0	0	3	7	0	10	22	2.75
Gadhinglaj	6	8	4	2	7	9	4	7	47	8.87
Gaganbavda	3	5	0	0	2	0	0	11	21	2.62
Hatkanagale	12	4	2	3	6	5	3	12	47	5.87
Kagal	1	1	5	5	0	4	6	5	27	3.37
Karveer	4	3	0	1	0	1	0	1	10	1.25
Panhala	9	7	0	9	1	3	2	3	34	4.25
Radhanagari	5	0	0	0	5	8	0	6	24	3
Shahuwadi	7	2	1	6	4	2	5	4	31	3.87
shirol	10	6	3	4	0	6	1	2	32	4

Source: Compiled and calculated by researcher.

Tahsilwise Agricultural Productivity of Kolhapur District 2010-11



Source: computed by researcher

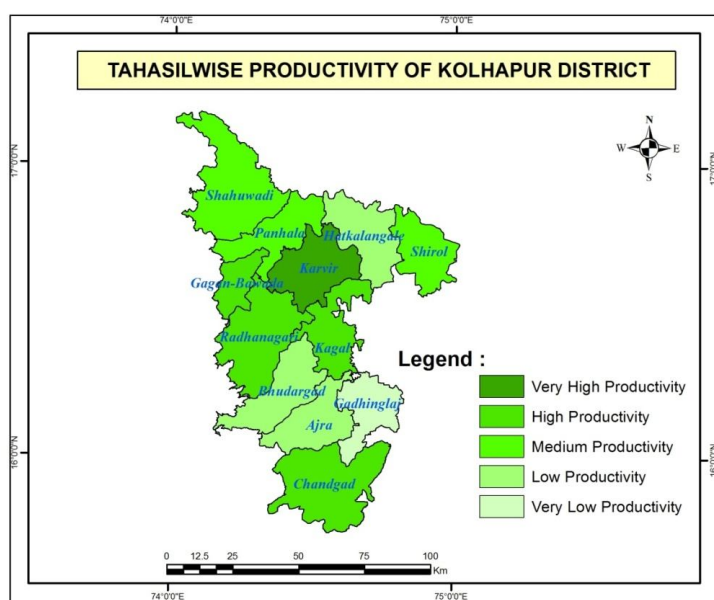
PATTERN OF AGRICULTURAL PRODUCTIVITY:

According to Kendall's ranking coefficient method the coefficient values are divided in to five equal categories. i.e. Very High productivity, High productivity, Medium Productivity, Low Productivity and Very Low Productivity. Those values of productivity index has been given in the following table. This method of agricultural productivity shows that lower the index value higher the agricultural productivity and vice-versa.

Productivity pattern	Calculated value	Tahsils
Very High Productivity	< 1.8	Karveer
High Productivity	< 3.6	Kagal, Chandgad, Gaganbavda, Radhanagari
Medium Productivity	< 5.4	Shirol, Shahuwadi, Panhala
Low Productivity	< 7.2	Ajra, Bhudargad, Hatkanagale
Very Low Productivity	> 7.2	Gadhinglaj

VERY HIGH AGRICULTURAL PRODUCTIVITY:

Very High agricultural productivity observed in Karveer tahsil. i.e. 1.25. in this tahsil well irrigation facilities, fertile soil, use of fertilizers, use of High Yielding Varieties, modern equipments. Mechanization and transportation network. Soyabean Ground nut and Sugarcane are the dominant crops of this region

**HIGH AGRICULTURAL PRODUCTIVITY:**

High agricultural productivity found in the Kagal, Chandgad, Gaganbavada and Radhanagari tahsils and their productivity index is 3.37, 2.75, 2.62 and 3.00 respectively. In Kagal tahsil Rice, wheat and ground nut are the dominant crops. Because of sufficient rainfall in Chandgad tahsil Rice and Ragi are the dominant crops. In Gaganbavada tahsil also Rice and Ragi crops are grown because of heavy rainfall. Rice and Ragi are the dominant crops in Radhanagari Tahsil. This region also have sufficient irrigation facilities.

MEDIUM AGRICULTURAL PRODUCTIVITY:

In the tahsil Shirol, Shahuwadi and Panhala medium agricultural productivity is found and productivity index is 4.00, 3.87 and 4.25 respectively. Panhala and Shahuwadi comes under hilly and mountainous region. In Shirol Sugarcane, Jowar and Gram are the main crops because of plain land, fertile soil, mechanization, lift and well irrigation. In Shahuwadi tahsil Jowar, Groundnut are the dominant crops because of lack of Irrigation facilities, coarse soil, moderate use of mechanization. Ragi, Groundnut, Gram and Sugarcane are main crops grows mainly on rainfall in Panhala tahsil

LOW AGRICULTURE PRODUCTIVITY:

Ajra, Bhudargad and Hatkanagale tahsils have productivity index is 7.00, 5.87, and 5.87 respectively. Because of hilly region, coarse soil, lack of irrigation facilities, lack use of fertilizers, poor mechanization Ajra and Bhudargad tahsils have low productivity. Even though fertile soil and plain land in Hatkanagale there is low productivity because, scarcity of rainfall, lack of irrigation facilities. In Ajra tahsil Jowar and Soyabean crops are grown. In Bhudargad Gram and sugarcane are the main crops. Jowar, Soyabean and Gram are the dominant crops in Hatkanangle tahsil.

VERY LOW AGRICULTURE PRODUCTIVITY:

Very low agriculture productivity is found in Gadhinglaj tahsil which is 8.87 index value. Rice, Soyabean and Sugarcane are the main crops. Tank and well irrigation is the main source of irrigation. Because of coarse soil, lack of irrigation network, lack of use of HYV and fertilizers

Gadhinglaj tahsil has very low productivity.

CONCLUSION;

In tahsilwise analysis of Kolhapur district it has been observed that great variation in the Agricultural Productivity level. Five tahsils comes under very high and high productivity. Very High and High Productivity is observed in Karveer and Kagal, Chandgad, Gaganbavada, and Radhanagari tahsils respectively. This area comes under perennial irrigation facilities, use of HYV. is Sugarcane is dominant crop observed in karveer tahsil. Shirol, Shahuwadi and Panhala tahsils observed moderate productivity. Except Shirol, Shahuwadi and Panhala have scarcity of water in summer season. Low and Very Low Productivity is observed in Ajra, Bhudargad, Hatkanangale and Gadhinglaj Tahsils respectively. Less use of fertilizers, technology deficiencies, coarse soil are the main reasons.

It is seem's from above analysis that there is disparity in productivity level from tahsil to tahsil. It is necessary to pay more attention to use innovative technology, sufficient use of fertilizers, irrigation facilities in summer season in low and very low agriculture productivity region to reduce the gap of productivity level.

REFERENCES:

1. **Jasbir Sing and S S Dhillon(1998)** "Agricultural Geography" Tata McGraw-Hill Publication Company Ltd. Pp-263.
2. **Sule B. M. and Barakade A. J. 2014** "An Impact of Irrigation on Agricultural Productivity in Solapur District with References to Case Studies in Selected Villages: A Geographical Analysis" European Academic Research Journal ISSN 2286-4822, Vol. II, Issue 3, Pp 3328.
3. **Ashish kumar** "Indian agriculture", by, Shrishti book distributors, New delhi (India) page 30,
4. **Hussain Majid** "Agricultur geography"
5. **Sunil Ogale, Virendra Nagarale (2014):** "Agricultural Productivity of the Baramati Tahsil, Pune District (Maharashtra). " IOSR Journal of Agriculture and Veterinary Science, p-ISSN: 2319-2372. Volume 7, Issue 5 Ver. II
6. Dr. R. B. Bansode (1997) "Lift irrigation and problems associated with it in Karveer tahsil – A Geographical analysis." M.Phil thesis submitted to Shivaji university Kolhapur.