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A Geographical Analysis of Agricultural Productivity in Pandharpur Tahsil

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Abstract

Agricultural productivity refers to the measure of the output of agricultural products per unit of input, such as land, labor, or capital. It is a crucial factor in determining the efficiency and profitability of farming. High agricultural productivity can lead to increased food production, fertile soil with adequate nutrients, access to reliable water sources and efficient irrigation systems, temperature and rainfall, adoption of modern farming techniques, machinery, and tools can improve productivity and efficiency, etc. The availability of irrigation is universally recognized as a major component of agricultural productivity. As such, certain minimum level of irrigation seems to be essential for agricultural productivity and selecting the cropping pattern in a region. In this paper is an attempt to analyse the 'Spatial Distribution of Agricultural Productivity in Pandharpur Tahsil: A Geographical Analysis'. It has been observed that the spatial distribution of different factors such as physiography, soil, rainfall, irrigation, etc. are not uniform throughout the study area. Therefore, they affected on the use of chemical fertilizers, use of HYVs of seeds, different kind of mechanizations, etc. So, in the region more disparity in the agricultural productivity. In the study region, the high proportion of agricultural productivity is recorded in circles of Tungat and Pandharpur. Because, these circles are located in closer to the river basin, therefore there are rich fertile soil supports intensive cultivation of crops like sugarcane, wheat, and maize. Therefore, there are high cropping intensity with plenty of agricultural workers coupled with more production and food grains. While, the low share of agricultural productivity is registered in Bhalawani and Kasegaon circles in the Pandharpur tahsil. Because there are continuous cropping and improper use of fertilizers have degraded soil quality, resulting in reduced fertility and lower crop yields

Keywords: Agricultural productivity, Irrigation, climate, cropping pattern

Introduction

As the world's population continues to increase, the issue of agricultural productivity is becoming increasingly pressing. India, one of the world's most populous nations, has made efforts to improve land productivity over the past few decades. Despite concerns about industrialization over the past three decades, Indian farmers continue to grow a large number of crops in the field rather than a single crop, and agriculture continues to be the backbone of the Indian economy. Although physical, climatological, socioeconomic, technological, and organizational factors, as well as farmers' attitudes, have an impact on agricultural production, the availability of irrigation facilities is the most significant factor in agricultural productivity. This is due to the fact that the inputs of agriculture such as the use of high-yielding seeds, fertilizers, advanced technology, agricultural mechanization, cropping intensity, and so on are entirely dependent on the availability, and all of these factors have an impact on agricultural productivity. As a result, variations in agricultural productivity in the study area are influenced by irrigation, which is a significant factor in agricultural productivity. The actual situation demonstrates the how modernization has affected production and productivity of agriculture in the Pandharpur tahsil.

Aim and Objectives

The present study is undertaken with the specific objectives of the scholar are as follow:

To examine the agricultural productivity in Pandharpur tahsil.

Study Area

Pandharpur Tahsil is located in Solapur District, Maharashtra, India. Specifically, Pandharpur is situated on the banks of the Chandrabhaga River, also known as the Bhima River, and is about 72 kilometers from Solapur District headquarters. The tahsil has a significant cultural and spiritual importance, being a major pilgrimage site, especially for devotees of Lord Vitthal. The coordinates for Pandharpur are latitude 17.68 and longitude 75.32 and cover an area of 1303 sq. km. Total population of Pandharpur tahsil is 632578 as per 2011 census. Male constitute 326724 and female population 305854 of Pandharpur tahsil.

The density of population is 485 per sq. km. area, sex ratio of Pandharpur tahsil lies 936. The average rainfall of Pandharpur tahsil is 523 mm. Pandharpur tahsil bounded by Madha to north, Mohol to the north-east, Sangola and Mangalwedha lies respectively to south-east and south-west.

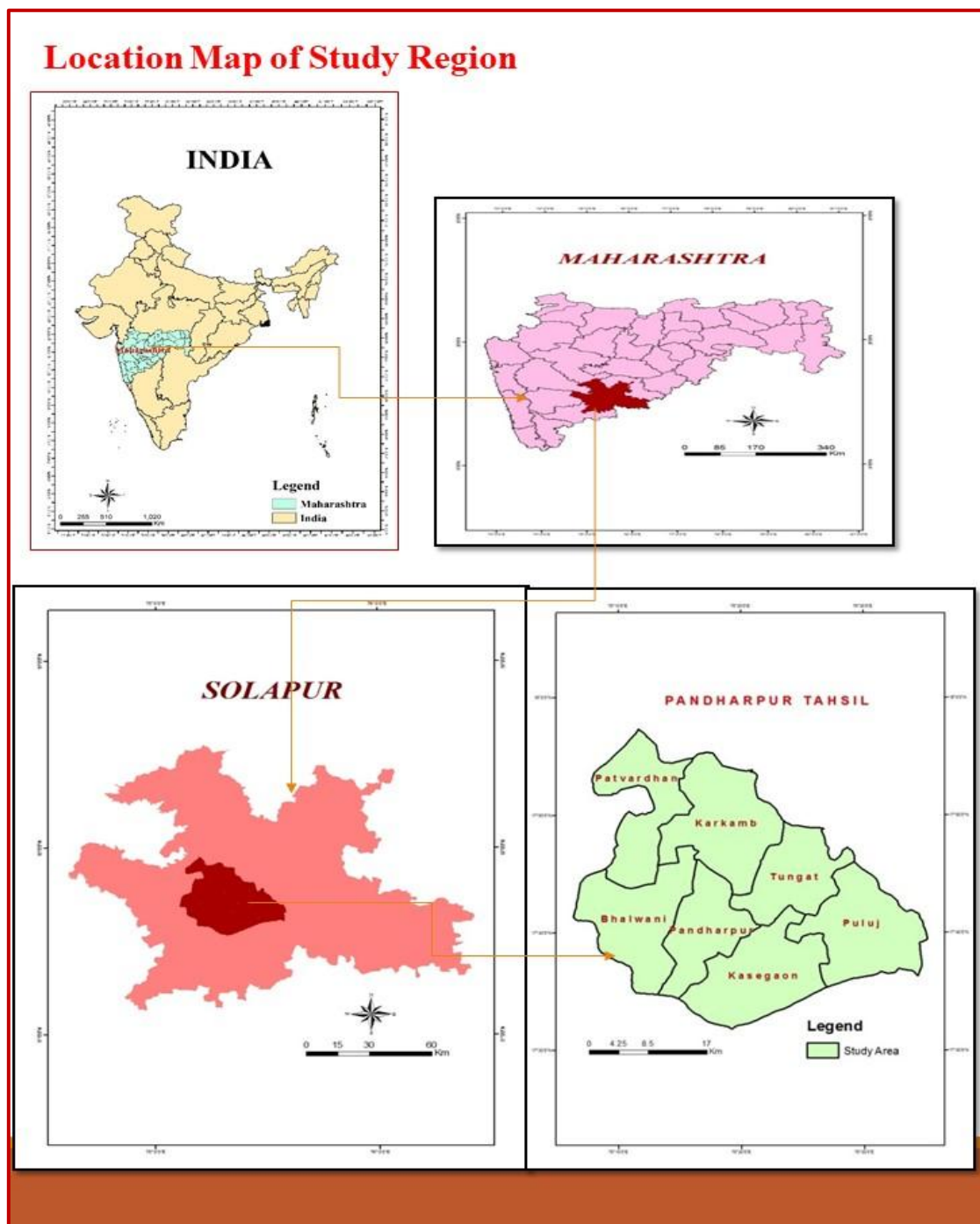


Fig. 1

Database and Methodology

The present study based on the primarily data collected through schedule to the farmers in the selected different villages in the study region.

The detail study of agricultural productivity is conducted to understand the variations in the study area. In this concern agricultural productivity is applied for the identification of variations in the village to village. The collected area under different cropping production is tabulated arranged in proper format and statistical methods are used different cropping production applied for the obtaining results.

The identification of intensity of cropping agricultural productivity in selected villages of case studies on the bases of spatial distribution of agricultural facilities, comparative analysis is made among 21 villages with 18 farmers to each village to understanding the agricultural productivity condition of the present situation due to the variations in the agricultural facilities.

Kendal's Ranking Coefficient Method

In this technique the component areal units are ranked according to per hector yield of crops and the arithmetic average rank called the ranking coefficient for each unit is obtained. It is obvious that a component areal unit with relatively high yields, he had populated the following formula for the calculation of index of agricultural productivity.

$$\text{Ranking coefficient index} = \frac{\Sigma R}{n}$$

Levels of Agricultural Productivity Based on Kendall's Method

The agricultural production and productivity have been recognized depending upon the use of other inputs, such as modernization high yielding variety of seeds, chemical fertilizers, herbicides and pesticides different circles in Pandharpur tehsil. Here attained different level of modernization consequently the agriculture production and productivity have with seeds. Three-to-four-fold increase; studies have been conducted by various organizations and individuals which have highlighted the impact of agriculture.

The agricultural productivity of the region is important for many other reasons apart from the effects of increasing farm productivity and providing more food. The more productive farmers have left the market to seek success elsewhere as some farmers adopt new techniques and differences in productivity arise. The more productive farmers have benefit from an increase in their welfare, while farmers who are not productive will benefit from an income distribution, savings, and labor migration. The region's prospects for growth and competitiveness on the agricultural market.

As a result, the region becomes more competitive on the tahsil market, allowing it to acquire a greater number of customers and increase product sales. It is offered for the same amount money, as a region or area of farms became more productivity. It has a comparative advantage in the production of agricultural products. These goods at a lower opportunity cost than might otherwise be the case. As farms become more productive, the wages of those who work in agriculture rise, where agriculture frequently employs the most people

Table 1

Ranks and Coefficient of Ranking Index based on Kendall's method of Major Crops in Pandharpur Tahsil, 2023-24

Sr. No.	Name of circle	Sugar cane	Jowar	Bajra	Wheat	Maise	Fruits	Others	Coefficient of Ranking Index
1	Patwardhan	1	7	5	1	1	5	1	3
2	Karkamb	7	2	3	6	7	2	4	4.43
3	Bhalawani	5	1	1	7	5	3	6	4
4	Tungat	6	5	6	4	4	7	7	5.57
5	Pandharpur	3	6	2	3	3	4	2	3.29
6	Kasegaon	2	3	4	2	2	1	3	2.43
7	Puluj	4	4	7	5	6	6	4	5.14

Source: Computed by researcher based on data collection through field work, 2023-24.

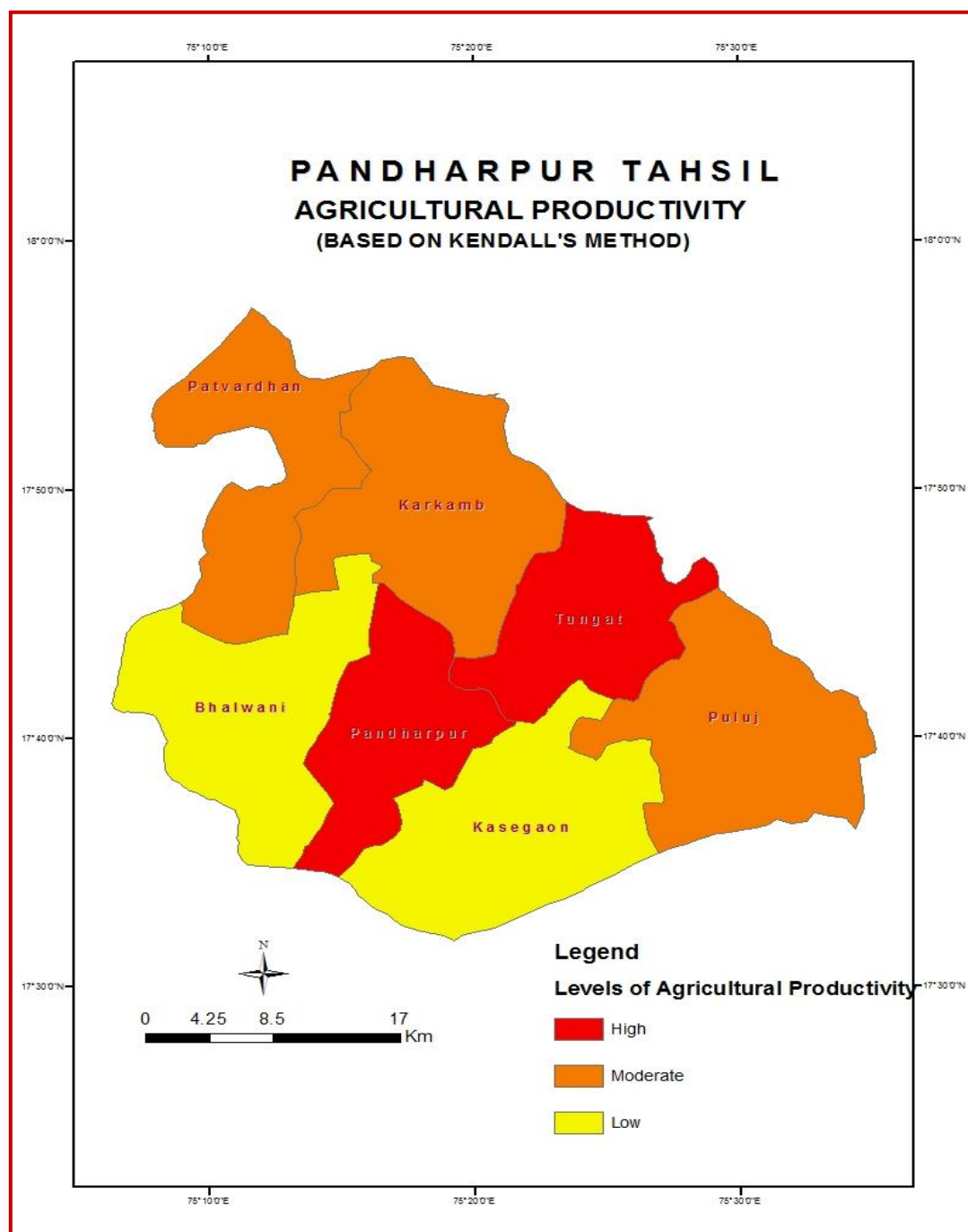


Fig. 2 High Level of Agricultural Productivity

The high proportion of agricultural productivity is recorded in circles of Tungat and Pandharpur. Because, these circles are located in closer to the river basin, therefore there are rich fertile soil supports intensive cultivation of crops like sugarcane, wheat, and maize, the dominant crops in these circles such as sugarcane, wheat, and maize, are well-suited to the region's climate and soil conditions. There are receptive to new agricultural innovations, which helps farmers adopt best practices and improve productivity. There have adopted crop diversification strategies, growing a mix of traditional vegetables, pulses, millets, cereals, and fruits, which has ensured production throughout the year

Moderate Level of Agricultural Productivity

The moderate proportion of agricultural productivity is recorded in Patwardhan, Karkamb, and Puloj circles in the Pandharpur tahsil. Due to sufficient water for irrigation, the farmers are growing a variety of crops, some of which require a lot of water, like sugarcane, and others that don't, like Jowar, maize, and bajra. There are a lot of problems because the crops are using too much water, which makes the soil less fertile.

Low Level of Agricultural Productivity

The low share of agricultural productivity is registered in Bhalawani and Kasegaon circles in the Pandharpur tahsil. Because there are continuous cropping and improper use of fertilizers have degraded soil quality, resulting in reduced

fertility and lower crop yields, many farmers in the region lack access to modern farming techniques, high-yielding varieties of seeds, and credit facilities, hindering their ability to invest in quality inputs and technologies, small and marginal landholdings limit the adoption of modern farming practices and mechanization, contributing to lower productivity.

Conclusion

It has been observed that the high agricultural productivity is found in circle of Tungat in the Pandharpur tahasil. Because there are high proportion of irrigation through the canal, river, well, tube-well resulted as high use of agricultural mechanization such as tractors, high use of fertilizers, HYVs of seeds so there are high agricultural productivity. While low agricultural productivity is recorded in Bhalawani and Kasegaon circles due to the limited development of agricultural mechanization.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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