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AN EMPIRICAL STUDY ON THE OPPORTUNITY AND CONSTRAINTS

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ABSTRACT

The agricultural sector is a substantial contributor to the economy of India, and it is responsible for the employment of more than fifty percent of our total workforce. This sector has done an excellent job of boosting both its production and the level of cultivation it undertakes at each site. Although there has been an increase in population pressure, a decrease in the amount of land available per capita, and bad weather conditions over the course of the last three decades, the per capita availability of foodgrain at the national level has remained nearly the same at 465 grammes per day. This is despite the fact that there has been a decrease in the amount of land available per capita. With a total population of over 104 million people, it is the state with the third highest population density in the United States. DRPCAU, Pusa (Samastipur), Bihar, 1Principal Scientist (Agricultural Statistics) (email: 1Principal Scientist (Agricultural Principal Scientist in Agricultural Economics rediffmail.com), Principal Scientist in Agricultural Statistics (email address: While it only accounts for 2.9% of the entire landmass, India is home to around 9% of the total population of the nation.

keywords: Opportunity, Constraints

INTRODUCTION

The agricultural sector is a substantial contributor to the economy of India, and it is responsible for the employment of more than fifty percent of our total workforce. This sector has done an

excellent job of boosting both its production and the level of cultivation it undertakes at each site. Although there has been an increase in population pressure, a decrease in the amount of land available per capita, and bad weather conditions over the course of the last three decades, the per capita availability of foodgrain at the national level has remained nearly the same at 465 grammes per day. This is despite the fact that there has been a decrease in the amount of land available per capita (GOI 2016). The growth of agricultural practises requires consideration of a variety of factors, including geography and time. These variances are particularly significant in a country as large as India, which has a climate and soil environment that is exceptionally varied. Because the state of Bihar frequently experiences both the weather hazard of drought and the weather hazard of flood at the same time, which produces a difficult environment for agricultural development and makes the scenario of agricultural development for the state of Bihar extremely unique, the scenario of agricultural growth in the state of Bihar is extremely different. About two thirds of Bihar's entire area is covered by land that is arable, and the land in this state is typically level, rich in fertility, and usable. With a total population of over 104 million people, it is the state with the third highest population density in the United States. DRPCAU, Pusa (Samastipur), Bihar, 1Principal Scientist (Agricultural Statistics) (email: 1Principal Scientist (Agricultural Principal Scientist in Agricultural Economics rediffmail.com), Principal Scientist in Agricultural Statistics (email address: While it only accounts for 2.9% of the entire landmass, India is home to around 9% of the total population of the nation. In addition to this, the population density in the state of Bihar is much greater than the national average of 382 persons per square kilometre, making it the state that has the greatest population density in the country. Since it has the highest frequency of poverty (34%) and one of the lowest per capita incomes (36% of the national per capita income), the state is one of the most economically regressed states in the country. Despite this, the rate of expansion of State's GDP has dramatically grown over the course of the last six years, with the state economy increasing at a pace of over 10% yearly (GoB 2016). Despite this, the state has a high newborn mortality rate, as well as common incidences of both undernutrition and malnutrition among children. In addition, the state has a high number of children who are not in school. Agriculture continues to play a significant part in the economy of Bihar, despite the significant changes in the composition of the economy that have occurred over the course of time as a result of the passage of time.

It provides labour for around 67% of the people living in rural areas and contributes approximately 19% to the total net domestic product of the state. Almost half of all rural

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households are comprised of agricultural workers and their families. These families are dominated by marginal farms and small land holder farms, with marginal farms (those that are less than one hectare) making up 91% of all farm households and holding approximately 57% of the land that is farmed in Bihar. Small land holder farms make up the remaining 4% of farm households. In order for farmers in Bihar to continue working the land despite a diminishing resource base, crop production would need to become more intensive. At the same time, substantial development and stability in the sector would be necessary in order to guarantee food security and improve the farmers' standard of living. The vast bulk of the investigation that has been carried out on the topic of the growth and inconsistency of foodgrain production has been predicated on the data that has been gathered at the national and state levels. The unstable nature of India's foodgrain output may be attributed to a variety of significant factors, including those listed above.

LITERATURE REVIEW

ABHAY KUMAR (2018) The illustrates the rise in foodgrain output that has occurred in several agro-climatic zones of Bihar over the course of the last three decades (1984 to 2014). Over the time period under consideration, there was an increase in the production of foodgrains; nevertheless, maize and wheat registered the most consistent rise during the time period. In every agro-climatic zone, notably during the years 1984–1994, there was a decline in the output of pulses. As compared to the other three agro-climatic zones, agro-climatic zone II had the highest rise in foodgrain output. This was mostly owing to the fact that agro-climatic zone II had a lower foodgrain production during the base year (TE 1984). Over the years 2004–2014, there was an increase in the production of foodgrains. The level of instability in the production of all foodgrains was high, although the level of instability was seen to be greater in rice production and lower in wheat production. The unpredictability of foodgrain output was mostly attributable to the numerous floods that occurred in north Bihar and the droughts that occurred in south Bihar. Moreover, a positive association existed between development and instability across all of the zones. Yet, the sustainable growth in foodgrain production was made feasible because farmers now had better access to inputs and technology. This allowed for the increase to continue. Irrigation, fertilisers, and hybrid high-yield seeds were the three important inputs that had a big influence in raising foodgrain output in the Indian state of Bihar.

Amalendu Kumar (2017) A significant amount of the world's grain production comes from maize. It has significant use in a variety of industries and is also used in the food and feed

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industries. It can be cultivated in a wide range of agroecological circumstances, and its potential production is more than 80 quintals per hectare, making it the food grain crop with the largest yield potential. The worldwide demand for maize is increasing as a result of its wide range of applications and the ongoing need to raise production levels. This crop has a huge amount of promise for increasing agricultural production, profitability, and long-term sustainability. The main disadvantage, however, is that it is often grown in difficult environmental conditions. Maize production and utilisation system in Samastipur district of Bihar with objectives of maize production system prevails in the area, opportunities for utilisation of maize, and constraints thereon is the main focus of the paper. Given this context, the current study plans to access the maize production and utilisation system in Samastipur district of Bihar. Primary data were obtained from 120 various kinds of home holds in six villages that come under two blocks in the Samastipur district for this research. The villages are included in the study.

The primary conclusion drawn from the investigation was that the farmers in the research region only engaged in intensive maize cultivation during the rabi season. Flooding and waterlogging conditions are usually always the primary issue throughout the kharif season, which runs from August to January practically every year. As a result of the significant risks associated with the kharif and summer seasons, farmers were discovered to be cultivating maize that was typically of the local type and required less inputs. According to the information provided by the farmers, the adoption of hybrid maize during risky situations should be avoided and open pollinated varieties should be used instead (OPVs). The increase in maize productivity and production in these regions is hampered by a number of factors, including inadequate marketing and storage facilities, a dearth of high-quality maize seed varieties designed specifically to withstand the stresses of flooding and drought, and a lack of marketing facilities. The fact that the hybrid variety of maize was produced widely during the rabi season not for the purpose of human sustenance but rather for commercial purposes is the primary disadvantage of use. According to the findings of the research, farmers have been leaving their farmed land fallow throughout the Kharif and Summer seasons because of the significant risk involved. The paper suggests that additional research and development is required for increasing production and productivity, particularly in abiotic stress conditions in the study area with the development of suitable hybrid varieties of maize for human consumptions. This is because more research and development is needed to increase production and productivity. This is crucial for the families in the study region who are economically deprived because it ensures their food and nutritional security.

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Nitu Kumari (2021) The purpose of this research was to conduct an in-depth analysis of the status and breadth of rice fallows in India, with a particular focus on the Bhagalpur area of the state of Bihar. The ever-increasing demand for food production that was caused by a growing population was somewhat alleviated as a result of technological advancements and capital-intensive cultivation achieved through the conversion of marginal lands, but the continuous expansion of fallow lands brought about serious concerns regarding the dynamics of policy. The majority of the recorded shifts in the temporal and geographical distribution of fallow lands may be attributed to an increase in the unpredictability of precipitation and irrigation water, as well as a low degree of mechanisation. Nevertheless, this is not the case in regions that are prone to flooding and drought, as well as in states like Bihar, where farmers have limited financial resources and very little room for technical advancement. According to the findings, the most significant limitation for rice fallows was the presence of a rainfed ecological system, a low soil moisture content after the harvest of paddy, and a lack of irrigation infrastructure. The farmers also noted that there was a serious weed infestation in the field, a lack of short-duration and high-yielding kinds, a weak plant stand, no use of fertilisers and pesticides, and no usage of these things were the other key restraints. The amount of land holding was shown to have a positively significant relationship with the area of rice fallows, which indicated that marginal small farmers were unable to withstand the revenue penalty of keeping land fallow.

Elumalai Kannan (2022) Agriculture is an important industry that contributes significantly to the growth of the economy in impoverished countries. Notwithstanding the many policy changes that have been implemented in the agricultural sector in Bihar since the middle of the 2000s, the state of Bihar in eastern India continues to be the poorest in the country. We construct a growth diagnostics framework for the agricultural sector in order to identify the most significant limits on its expansion, and we do this so that we may better serve the industry. According to the findings of our study, the slow rate of agricultural expansion in Bihar may be attributed to a combination of poor functioning agricultural markets and a low degree of crop variety. Even after the Market Committee Act was repealed, there is still very little price transmission between markets, as seen by the growth in the amount of price volatility for agricultural products. The low degree of agricultural diversity is mostly attributable to a number of major restrictions, including poor market connections and the absence of functioning producer collectives. Our recommendations for public policy include the establishment of basic market infrastructure by the state in order to entice private investment in cold storage and warehousing facilities, the improvement of the operational capabilities of ground-level

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institutions such as farmer producer organisations, and the formulation of an all-encompassing policy regarding crop diversification, which may include the use of contract farming.

RESEARCH METHODOLOGY

This chapter provides an overview of the primary research approaches that we choose to use for our study. In this chapter, we also explore the procedures for putting the data into use, as well as the sources of the data. The remainder of the chapter will proceed as described in the following plan: In the next section, we will go into further detail on the various research approaches that were used for this study. In the third section, we will talk about the data that was utilised for the analysis.

GROWTH DIAGNOSTICS

The growth diagnostics study will begin by putting primary emphasis on accelerating economic expansion as its primary research objective. If there are distortions in the allocation of resources in an economy, which might be the result of excessive interventions by the government or defects in the market, then a weak economic performance can be blamed on such factors. These biases create a chasm of difference between the private and societal assessments of some activities (Hausmann et al.). There are a lot of things that may influence the development of an economy. It is not required that all of the limitations connected with these elements will at the same time be binding on economic development. It's possible that some restrictions will have just a little impact on growth. As a consequence, comprehensive changes that try to eliminate all of the restraints may not provide the desired results in terms of fostering development. The goal of the growth diagnostics approach that was introduced by Hausmann et al. (2008) is to identify the most constraining limitations on economic activity. This is done with the intention of focusing policy priority on these constraints. The removal of these limitations would have the most significant direct effect on the rate of development. As a result, the priority should be placed on removing or significantly lowering the most significant distortions. The ecological, political, and institutional environments each have their own unique effects on the limits that are placed on economic activity. To assist in the formulation of suitable policy for the effective allocation of limited financial resources, a deeper understanding of the limiting limitations being faced is helpful. The technique of growth diagnostics is conceived of as a decision tree, which takes an approach starting at the top and working its way down (Figure 1). This technique takes into account the hierarchy of distortions, which goes from the most significant

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distortions to the least significant distortions. The plan may be to begin by bringing the level of the most significant distortion down to that of the second most significant distortion, and then to continue in the same manner in the succeeding round. It has been shown that using this method might improve overall wellbeing. On the other hand, in order to do this, a comprehensive list of restrictions is required, which is difficult to get and is not known directly. In addition, there is no assurance that the welfare system would be improved in a way that prioritises the changes that would have the most significant effect first.

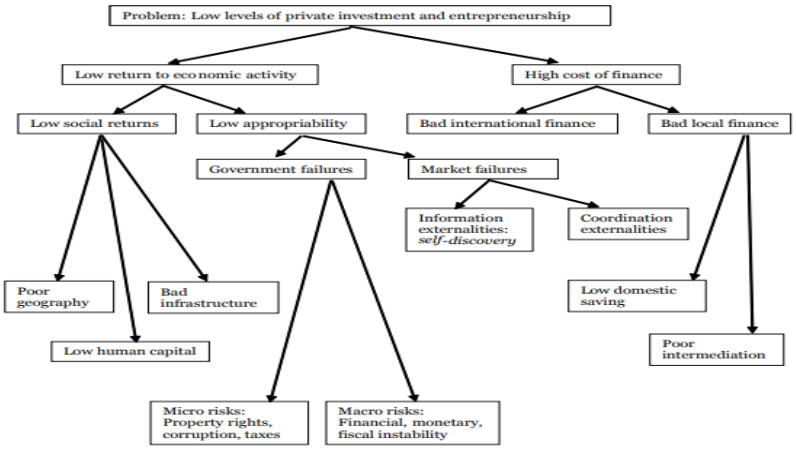

Figure 1 Decision Tree For Growth Diagnostics

The growth diagnostics study will begin by putting primary emphasis on accelerating economic expansion as its primary research objective. If there are distortions in the allocation of resources in an economy, which might be the result of excessive interventions by the government or defects in the market, then a weak economic performance can be blamed on such factors. These biases create a chasm of difference between the private and societal assessments of some activities (Hausmann et al.). There are a lot of things that may influence the development of an economy. It is not required that all of the limitations connected with these elements will at the same time be binding on economic development. It's possible that some restrictions will have just a little impact on growth. As a consequence, comprehensive changes that try to eliminate all of the restraints may not provide the desired results in terms of fostering development. The goal of the growth diagnostics approach that was introduced by Hausmann et al. (2008) is to identify the most constraining limitations on economic activity. This is done with the intention of focusing policy priority on these constraints. The removal of these limitations would have the most significant direct effect on the rate of development. As a result, the priority should be placed on removing or significantly lowering the most significant distortions.

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DATA ANALETSIS

In comparison to the average increase of 3.12 percent seen throughout India from 2001-02 to 2016-17, research analysis reveals that agricultural production in Bihar expanded at a rate of just 2.04% over that time period. This has occurred despite a stable political climate, improvement in spending on rural infrastructure, policy measures under agriculture road maps, and changes in agricultural markets. In addition, the rural infrastructure investment has improved. The expansion of crop production is dependent on four factors: the influence of area, the effect of yield, the effect of price, and the effect of diversification. The contribution of yield improvement to production increase was the most important of these growth drivers, along with good diversification and price impacts. Other growth drivers included: As compared to the contribution that the yield effect makes to the expansion of production, the pricing effect's share of the total is 10.2 percent. We have conducted a growth diagnostics analysis on the revenue and the cost side to identify the factors that could influence both farm income and input costs associated with pattern of inputs use. This was done in order to investigate the low growth syndrome and examine the distortions associated with these growth drivers. Using the methods described in Chapter 2, the goal of this chapter is to determine the limits that are legally binding. The structure of the chapter is going to look like this: In the first section, an effort is made to determine which variables are to blame for Bihar's slower rate of agricultural expansion. In the next part, an effort will be made to determine the constraints that are binding using the methods that we have chosen. According to the findings of our investigation, there are two primary binding limitations. In Section 3, we have proceeded to derive policy insights from our research of growth diagnostics at the district level. The fact that the Minot-Hausmann hybrid framework takes into consideration the expenditure side of total income is one of the most essential aspects of this framework. This is significant because farmers may maximise their revenue by increasing either the value of their product or the cost of their inputs. It is possible to lower costs associated with inputs by making use of the requisite amount of inputs, applying them at the appropriate time, using the appropriate manner of application, and effectively haggling in the input marketplaces. The delivery of material inputs to farmers, including seed, fertiliser, equipment, and financing, has been the primary emphasis of agricultural road plans that have been implemented since 2008. As a direct reaction to growing salaries and a lack of available agricultural labourers, the mechanisation of agricultural operations has been making rapid progress as of late. The slower rate of production development in Bihar may be attributable, at least in part, to increased input prices. The profitability of crop cultivation decreases as a direct

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result of an increase in the cost of inputs. The choice of farmers whether or not to invest in productivity-enhancing inputs like irrigation, better seeds, and fertilisers may be influenced by the low profitability of their crops. As a result of poor farm profitability, low farm investment further leads to a decline in both the amount and quality of the goods that are produced, which in turn leads to lower farm profitability. This also has an effect, in a roundabout manner, on the farmers' motivation to embrace new technical techniques and vary their planting patterns.

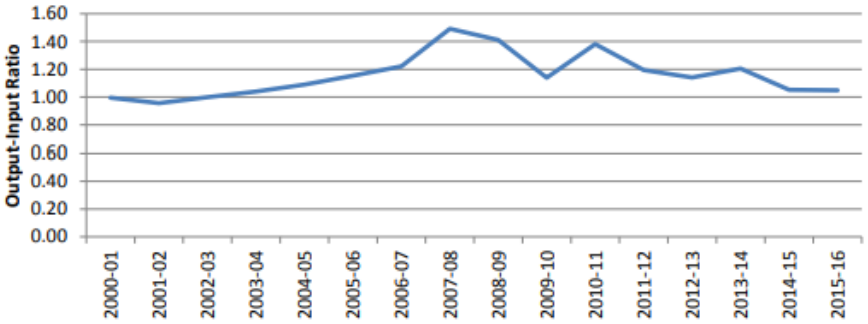

Figure 1 Ratio Of Gross Value Of Output To Total Input Costs

The ratio of the entire output to the total inputs, however, demonstrates that the value of the product was much more than the total input expenses (Figure 1). Up until 2007–2008, the ratio of the value of output over inputs fluctuated with a growing trend. After that year, however, it began to fluctuate with a decreasing trend. Despite the fact that it has decreased over the last several years, the ratio has stayed greater than 1, which indicates that the proportional rise in output is larger than the total inputs. This also suggests that there has been a fall in the profitability of agricultural farming.

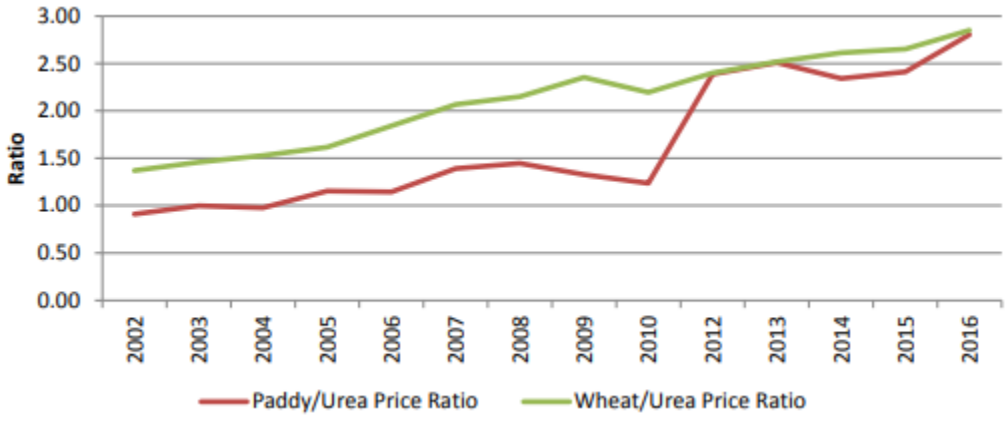

Figure 2 Grain To Fertiliser Price Ratio

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During the course of agricultural history, there has been a steadily rising trend towards the growing usage of bought inputs. Farmers are able to achieve greater yields via the use of external inputs such as fertilisers and pesticides when they have access to sufficient amounts of irrigation. In point of fact, the predominant crop types are receptive to the use of these inputs for the purpose of generating their potential yield. Yet, making advantage of these acquired inputs requires having access to financing as well as having quality inputs available at the appropriate moment. Since it is impossible to analyse the price of each individual input, the ratio of the price of fertiliser (urea) to the price of grain is analysed in this article to determine whether or not the cost of inputs has an effect on the growth performance. Figure 4.2 demonstrates that over the whole of the research period, the proportion of the wholesale price of wheat to the price of urea was more than one. A like pattern may also be seen in the connection between the price of paddy and the price of urea. It may be deduced from this that the price of grain was greater than the price of fertiliser. The preceding result that the value of the output has increased proportionally more than the expenses of the input is supported by this finding. In addition, the study of the determinants of output growth that was provided in the preceding part has made it abundantly evident that the level of input intensification that is present in the agricultural sector of Bihar is rather modest. According to these data, declining agricultural development in Bihar cannot be attributed to growing input costs, since this hypothesis is refuted.

CONCLUSION

Agriculture in Bihar is responsible for one-fifth of the state's total revenue and provides jobs for over three-quarters of the rural labour population. Agricultural roadmaps that have been implemented in various stages since 2008-2009 have the intention of creating the holistic development of the sector with a focus on enhancing productivity growth and improving farmers' income. The agricultural sector has had a reversal in its performance after a few decades of neglect, with recent years reporting a notable growth rate. This comes after the industry was neglected for a number of decades. The crop sector's contribution to the total agricultural production in the 2015–16 agricultural year amounted at 53.6 percent. Horticulture was responsible for little under a quarter of the total production, while field crops were responsible for around one third of the total agricultural output. In terms of growth in value of output, field crops and horticulture registered splendid growth rates during the periods of agriculture road maps (2008-09 to 2015- 16) in comparison to the period before agriculture

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road map implementation. This was the case during the periods of agriculture road maps (2008-09 to 2015- 16). (2000-01 to 2007-08). The pattern of agricultural production in Bihar is not very diverse. Paddy, wheat, and maize make up more over 70 percent of the total planted land in the state. This percentage accounts for the three main crops grown there. There is a certain degree of area substitution going place among cereals, with a preference being shown towards wheat and maize. Between 2002–2003, the total land area planted with pulse crops has shrunk by more than twenty percent. Between 2002-03 and 2016-17, the percentage of land that was used for growing sugarcane increased from 1.3 percent to 3.2 percent of the total land area that was used for crop production.

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