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COMPARE THE TECHNICAL EFFECTIVENESS OF FARMERS WITH AND WITHOUT CONTRACTS IN AGRICULTURAL PRODUCTION

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ABSTRACT

When it comes to manufacturing that is focused on exporting, it has shown a significant quantity of growth potential. Due to the fact that contract farming is the primary driver of export-oriented organic rice production in India, there is a significant amount of opportunity for improving the technical efficiency of smallholder rice farmers via the use of contract farming practice. The purpose of this research is to explore the impact that contract farming participation has on the technical efficiency of smallholder rice farmers. The data set used for this investigation is a cross-sectional representation of 650 respondents. Stochastic frontier analysis (SFA) was the method that we used in order to explore the frontier of production and assess the level of inefficiency. In addition, the estimates of technical efficiency were subjected to controls for endogeneity and self-selection bias via the use of propensity score matching (PSM). The technical efficiency score of organic rice farmers in India is 89.7 percent, which indicates that there is potential for development of 10.3 percent. This is despite the fact that the current demographics and input levels will continue to exist. When it comes to the production frontier, everything from the size of the land to the price of seed to the amount of money invested in equipment is equally essential. In the study, a number of different subjects are discussed, including improved technical efficiency, production that is focused on exports, the well-being of smallholder farmers, and contract farming. Additionally, the findings of the research may provide suggestions for the policies and procedures that need to be implemented.

KEYWORDS : *: contract farming; technical efficiency, agricultural production*

INTRODUCTION

Contract farming is considered as a technique to give new market options in many developing countries. This is done from the perspective of overcoming market faults and increasing the income of smallholder farmers. For the purpose of facilitating vertical cooperation, contract farming is an essential component in the agricultural value chain. It makes it easier for smallholder farmers to access markets and improves the

efficiency of their output, which in turn increases the earnings of farm families and ensures that they will always have access to food. In many countries, contract farming has been more popular since the 1950s. This is largely because to the several advantages it offers, which include a reduction in transaction costs and market risk. By the time the century came to a close, contract farming had become an essential component of modern agriculture in industrialised countries. The beginning of contract farming in China did not occur until the middle of the 1980s, along the southeast coast. This is a much later time period compared to industrialised countries. The approval of the Chinese government has been granted to those involved. Both the "firm + smallholder" model and the "firm + intermediary + smallholder" model are examples of organisational structures that might be used by agribusiness firms that engage in contract farming.

The focus of this study is on contract farming practiced within the framework of the "firm + smallholder" paradigm. When it comes to contract farming, this sort of agreement often comprises an agribusiness company and farm families working together. It comprises a production and marketing contract that is legally binding and encompasses particular criteria, in which the farm household promises to produce a set quantity and quality of agricultural goods for the agribusiness company. In addition to this, the contract details the manner in which the items will be manufactured as well as the handling of the pricing. Contracts for the production and distribution of agricultural commodities are signed simultaneously by farmers and businesses in order to facilitate the implementation of order-based agricultural production that is being implemented. For farmers, this is an essential approach that should be implemented in order to reduce the risks associated with the market, boost farm income, and reduce production expenses. The present situation regarding contract farming in India, it is of the utmost importance to investigate the ways in which this method influences the incomes of farmers.

This will allow policymakers to foster the development of companies and their workers in a way that is mutually beneficial. During this time, the beef cattle industry is confronted with considerable obstacles that are preventing it from expanding. These obstacles include a lack of standardisation, exorbitant price, insufficient feed-grain supplies, and a shortage of meat. It is possible to increase the production and income of farmers in a realistic manner, and the beef cattle industry is a fundamental component of the expansion of the rural and agricultural economies. The practice of contract farming is now going through a period of significant change, but marketing it is becoming more complex and challenging. The question of whether or whether contract farming is effective in its goal of increasing the incomes of farmers, as well as the implications of contract farming on the incomes of farmers, is being investigated.

There are a number of positive effects that have been documented in the study that has been conducted on the subject of contract farming. These include food security, rural transformation, production efficiency, the transition to green agriculture, and other positive effects. According to the findings of a number of studies,

contract farming has a beneficial impact on the income of agriculture households who participate in it. The empirical investigation into the connection between contract farming and income in the oil palm business revealed that the data proved that sales and resource supplying contracts significantly increased farm family income. This was the conclusion reached by the investigation. When compared to medium and large farms, small farms had a bigger rise in their income levels as a result of contract farming. apple and green onion producers who used contract farming were contrasted with those that did not utilise such farming methods. Their investigation reveals that smallholder farmers may be able to increase their income via contract farming.

On the other hand, there are many who say that the only households whose incomes are increased by production-management contracts are those farm families that have difficulty obtaining bank loans, and that marketing contracts do not provide any financial assistance to such people. Through the use of contract farming, agricultural production efficiency, the adoption of new technologies, the creation of jobs, and the provision of finance to farmers are all improved. Having said that, the quality of income for those who are economically dependent on farming is not totally improved by this. Farmers are deprived of decision-making and commercial decision-making power as a consequence of their excessive reliance on contractual agricultural commodities and investments in specialist assets. As a result, they are compelled to accept unfair contract terms. Up to this point, research on contract farming has been conducted using a multi-pronged method.

Due to the fact that there is a lack of consensus about the impact that contract farming has on the income of farmers and the effectiveness of their production methods, further study has to be conducted on the welfare effect of contract farming. This study investigates contract farming from the perspective of agricultural production technical efficiency and how it enhances farmers' income. The purpose of this research is to assist policymakers in the creation of instruments that will promote the integrated and coordinated growth of agribusiness enterprises and farmers. By using these policy tools, it is feasible to achieve a number of different goals, including increased agricultural performance, guaranteed food security, and sustainable rural development. The purpose of this study is to investigate the relationship between contract farming and farm family income by analysing data collected from 610 rural households living in rural areas who produce beef cattle.

THE FORMATION BETWEEN MECHANISM OF CONTRACT FARMING AND THE DEVELOPMENT IN FARMERS' EARNINGS

In particular, we investigated the diverse influence that contract farming has on farmers' revenue in connection to cohort variations in breeding years, farm size, and training time. Furthermore, we differentiated between

different forms of contract farming based on the impact that each type had on farmers' income. We also present further evidence that technical efficiency in agricultural production functions as a mediator between the formation mechanism of contract farming and the development in farmers' earnings. This is further supported by the fact that we provide this data. Within the current body of knowledge, we would want to contribute three new things. To begin, the present study does not do a very good job of distinguishing between the various types of contract farming and how they influence the income of farmers. Instead, it focuses mostly on comparing contract farming with non-participating contract farming. First, we evaluated the impacts of contract farming on the entire sample, and then we looked at the disaggregated effects by breeding year, farm size, and training time.

Finally, we evaluated the effects of contract farming on the overall sample. As a result, we gained more profound understanding and enhanced our knowledge. In the third point, we assess the indirect effects of contract farming on farm family income via the mediating channel of agricultural production technical efficiency. This is in addition to the analysis of the direct influence that contract farming has on farm household income. When it comes to activities related to agricultural production, the impact of contract farming on the income of farmers may vary substantially depending on the degree of diversity that exists among the participants in the farming community. The degree to which beef cattle farmers profit from contract farming is contingent upon their endowments, which include the number of breeding years they have, the size of their farms, and the amount of time they spend training their cattle.

There will be a rise in the amount of money that beef cattle farmers get as a result of their increased experience in breeding, which will occur as the number of breeding years grows. There are variances in the amount of specialisation, marketization, and commercialization across producers, which causes income increases from the scale effect to vary from one beef cow farm size to another. A farmer's investment in technical training is an investment in the future success of the farmer, and it provides returns in the form of higher operating revenue, less operational risk, and updated knowledge and skills in areas such as beef cattle breeding and modern production and management. There are a number of aspects that may influence the impact that contract farming has on the operating income of farmers. These factors include the approach, the quality, and the training content.

Contract farming, which is the predominant form of industrial agriculture in India, has the potential to reduce transaction costs and correct inefficiencies in the market by facilitating the connection between smallholder farmers and markets. Contract farming is beneficial to the agricultural sector since it brings about advancements in technology, which in turn leads to an increase in crop output and yield development. A number of factors contribute to the expansion of agriculture, including modifications to the conventional

decentralised family production techniques and enhancements to the technical efficiency of the products produced by farmers. argued that the technical efficiency of production increases in a manner that is directly proportional to the increase in the number of factor inputs. However, the substantial dependence on human labour that contract farming has results in a decrease in the technical efficiency of operation. When resources such as land and money are used more effectively, the consequence is an increase in the technical efficiency of the system.

THE FORMAL AND COMPREHENSIVE CONTRACT FARMING

Although this is not always the case, grill farms that employ formal and comprehensive contract farming tend to have higher levels of technical efficiency within their operations. There are a variety of ways in which the formality and intensity of contract farming might affect the efficiency of output. The use of contract farming is an excellent method for increasing the amount of rice produced per acre. There are a number of advantages associated with contract farming, including reduced transaction costs, reduced production risk, and increased technical efficiency in the output of food growers. Contract farming, in general, provides realistic solutions to the issues that smallholders and family farms confront in terms of production inputs, finance, technology, information, and market access. This, in turn, leads to a rise in both income and productivity.

Rice that is grown using organic methods is swiftly gaining popularity as a means of reducing the negative effects that traditional farming techniques have on the environment while yet assuring a supply of nutritious food grains. The price of organic rice is higher than that of conventional rice since it is now in great demand and has the potential to alleviate poverty among smallholder farmers. Therefore, in light of these conditions, it is of the utmost need to increase the production of organic rice, enhance its technical efficiency (TE) and grain quality, and raise the responsibilities of smallholder organic rice farmers within modern value chains. A significant rise in TE might result in a significant boost in income for smallholder organic rice growers. For organic rice farmers that are primarily concerned with exports, however, there is still a dearth of clarity about whether or not contract farming has an effect on TE and for what reason. There is a lack of consensus in the research that has been done so far about the potential role that contract farming might play in the economic development of smallholder farmers.

There have been a number of studies that have shown that contract farming has the potential to assist smallholder farmers in gaining access to markets by providing them with agricultural raw materials. Research indicates that smallholder farmers participate in contract farming in order to reduce the risk associated with production. This is accomplished by having processors and exporters share the cost of seed, insecticides, and fertiliser so that they may reduce the risk. The results of recent study indicate that contract farming enables

farmers to increase their productivity and reach a greater number of clients. Contract farming has the ability to remove limits on production and marketing, assure that farmers have access to agricultural supplies, expertise, and money, and overall improve total economic output (TE). However, ultimately, farmers will encounter significant challenges owing to a lack of access to proper crop varieties, organic additives, and weed-control technologies. Although contract farming enhances the probability of a good harvest, it will also present farmers with significant challenges.

At the same time, there is a paucity of information on the services that are provided to contract farmers. These services include the creation and distribution of organic rice varieties, which might potentially assist reduce the chance of crop failure. India, which is one of the major rice producers in the world, is responsible for making 'Basmati' rice popular all over the world. This rice is renowned for its huge grain size, unique aroma, fine texture, and scrumptious flavour. Additionally, nine specialized-geographically designated rice producer zones in the country are known for their exceptional cultivation of fragrant Basmati rice, which has an average grain length of more than 7.40 millimetres. Increasing numbers of rice farmers are increasingly choosing to cultivate their crops using organic methods, which include using traditional cultivation practices from the beginning of the production process all the way through to the market.

THE IMPACT OF CONTRACT FARMING ON THE TOTAL ECONOMIC OUTPUT (TE)

This particular group of farmers has undergone a significant change in order to become professional organic rice producers. This was done in order to capitalise on the large demand, premium pricing (almost 42 percent more than conventional rice), and new market opportunities. In light of this, it is possible that an increased use of contract farming to increase the production of organic rice might be beneficial to both the export earnings of the nation and the incomes of the farmers. One of the most important suppliers of organic rice is India, along with other emerging and rising nations. There have only been a few of studies that have investigated the impact that contract farming has on the total economic output (TE) and export-oriented production of organic rice. These research have paid particular attention to the smallholder farmers in developing countries such as Pakistan. Inadequate knowledge, technical assistance, and the appropriate utilisation of crop inputs are the primary reasons why farmers are not even close to fulfilling their full potential in terms of rice output.

Therefore, it is of utmost importance to investigate the ways in which contract farming might assist smallholder rice farmers who are primarily concerned with exporting to optimise their technical efficiency and enhance their income. In this study, a clear understanding of the engagement of smallholders in contract farming is produced. This research contributes to the existing body of literature on contract farming and

transfer economics. This research fills a gap in the literature by addressing the socioeconomic position of smallholder contract farmers who participate in the study. In addition, a stochastic frontier analysis (SFA) and a propensity score matching (PSM) have been established for the purpose of their use in the analysis of primary data gathered from individual farms by Pakistani rice farmers with the intention of exporting the data. According to the findings of the study, clear policy suggestions are provided for boosting rice production that is focused on exports and contract farming.

In addition, it suggests legislative options for farmers, agricultural entrepreneurs, and other individuals connected with agri-food supply chains in order to increase the amount of organic rice that is produced and the income of those who have an interest in the matter.

In order to strengthen their argument in favour of contract farming, they investigated the ways in which it impacted the dairy business in India as well as the ways in which it impacted the link between farmers and customers. One may draw the conclusion that contract farming helps improve milk production while simultaneously lowering production costs. This conclusion is based on the fact that small families gain from the use of family labourers and the management of milk disposal. Contract farming and rice contracts have contributed to rural poverty and the income of farm families in the Lao People's Democratic Republic during the last several decades.

The contract farmers are superior than independent farmers in terms of productivity and are able to incorporate superior varieties of rice into their operations. It is important to investigate the ways in which contract farming influences the revenue and productivity of tea producers. The findings of their study indicate that farmers who are employed are able to reach higher levels of technological efficiency than their independent counterparts. Examine the effectiveness of contract chicken farmers in a manner that is analogous to this. The results of their research indicate that contract farming, which is characterised by the transfer of technology from integrators to farmers, is a feasible alternative for enhancing the efficiency of farms. The utilisation of particular resources may be improved via the use of contract farming, which allows farmers to increase their output to its maximum potential. How India's rice production has been impacted by the use of contract farming. Rice is produced by contracted households at a higher rate than their independent counterparts because of the increased planting area and cultivation intensity among contracted families.

The findings of their study suggest that the participation of farmers in contract farming might potentially increase the amount of production. In comparison to previous studies, the data supporting contract farming is not as compelling. What effect does contract farming have on the revenues of farmers in the apple and green

onion producing industries? Their research on the effects of contract farming on the yields of apples and green onions has generated a lot of controversy. A higher yield is achieved by contracted apple farmers compared to non-contracted households. This is because packers provide them with the technical assistance and specific inputs that they need. When it comes to yield, independent green onion farmers do better than those that are contractually bound.Effectiveness in the production of tea by farmers who are either contractual or independent. Their findings indicate that the technical coefficients of farmers who are contractually as well as those who are not contractually are statistically equal.

OBJECTIVES

1. To study about technical efficiency in agricultural production
2. To study about contracts with farmers in agricultural production

CONCLUSION

The practice of contract farming, which is an essential component of smallholder agriculture, has a substantial impact on the income and well-being of smallholder farmers in developing countries. The impacts of contract farming on income, productivity, and yield have been the subject of a significant amount of study; however, the quantity of research conducted on the technical efficiency and export-oriented production of smallholder organic rice farmers in developing countries has been much less. The purpose of this research is to investigate the impact that contract farming participation has on technical efficiency and export-oriented production by using a cross-sectional data set consisting of 650 rice farmers in the province of Punjab in Pakistan. The study is based on a robust theoretical foundation as well as the stochastic frontier approach. PSM is used in this study in order to effectively address the many econometric difficulties, confounding factors, and sample self-selection bias. The goal of this research is to give stakeholders and policymakers with data that are consistent and robust. This study contributes to the current body of research on technical efficiency and contract farming by providing additional information.

The findings of the research might be used to influence policies and practices that are aimed at enhancing the income and well-being of farmers, as well as agricultural methods that are export-oriented, organic farming, and contract farming. The findings of the research have led to the formulation of the following suggestions for public policy. The first thing that needs to be done in order to make organic rice export from India more technically effective is to assess and extend the many contract farming projects that are already in place. The vast majority of agricultural businesses that are now in operation are privately owned and operated.

Collaborations between the public sector and the private sector should be enhanced and increased in order to improve the welfare of smallholder farmers and boost their participation in contract farming.

In addition, it would be intriguing to see contract farming become more widespread by lobbying for it as an objective of economic policy and as a method to solve the difficulties that are associated with the contract regimes that are already in place. If we accomplish this, we will be able to expand the number of individuals who are participating in contract farming, which will, in turn, enhance the income of smallholder farmers, improve the efficiency of technical processes, increase the production of high-quality rice that is available for sale, and increase the amount of money that the nation earns from exports. Additionally, the provision of interest-free loans and/or livestock head might be of assistance to farmers in the process of constructing their resource base. As a result of their limited financial resources, the majority of smallholder farmers are forced to depend on informal merchants to meet their financial needs. This situation has a negative impact on their well-being, technical efficiency, and participation in contract farming. Therefore, it is essential to promote awareness and educate people about the practice of contract farming and the benefits that it provides. This is because more educated farmers are using contract farming. It is possible to achieve the aim via the use of great methods such as farmer field schools, field excursions and seminars.

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