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Farm Size, Tenancy and Productivity: An Overview

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ABSTRACT

The present study intends to investigate the relationship between farm size and productivity. The objectives of the study are: to investigate the relationship between farm size and productivity, to suggest some policy implications. The study is based on secondary data. Data were collected from different published and un-published documents. The main findings of the study are: the small farms have the higher productivity of land than the larger ones, there exists the inverse farm size productivity relationship, few studies showed that although there exists an inverse relationship between these two this inverse relationship got weakened or even disappeared in the regions adopting new technology, some cases there also exists the positive relationship between farm size and productivity, the output level of owner cultivator is likely to be higher than the share-cropper. Few researchers pointed out the higher productivity of sharecroppers than the owner cultivators. In view of the above findings, the following policy measures are suggested: emphasis should be given to farm-related research, the assistance of small farmers in order to form associations for enhancing production, absorbing credit, and adopting farm technologies.

Keywords: Farm size, Tenancy, Overview, Investigate, Relationship, Policy implications, and Productivity.

INTRODUCTION:

Land remains the most important asset in Bangladesh. Land not only provides income and employment but it also represents the vital source of security. In the country land is finite and scarce and largely competitive, "in which violence, speculation, grapping and many other" (Barkat *et al.,* 2017). Excessive pressure of population on limited land is a major constraint to promote agricultural development. Due to high pressure of population on land sub- division and fragmentation of land has occurred. It creates a barrier to efficient farm management. Due to high pressure of population most of the Landholdings are very small. Ownership of land has become more and more concentrated in the hands of a few people in rural Bangladesh since the mid 1960s. Ferdous *et al.* (2020) explained that small farmers have marginalized by liberalization and globalization for their low bargaining power. Large numbers of households are caught in a process of where those households gradually sell-off their assets including cultivable land in order to finance their debts. Numbers of landless households have doubled during the last four decades (Barkat *et al.,* 2001).

Meanwhile, tenancy is another constraint to agricultural development. The existing farm size distribution and tenancy arrangement creates obstacles to the irrigation technology in Bangladesh (Alam, 1982; Georgescu Roegen, 1969; Bhaduri, 1973) explained

that the systems of sharecropping were considered to the barrier of new technology and means of exploittation of tenants by landlords. But (Bardhan, 1976; Pearse, 1980) did not think tenancy as an impediment to modern technology. They also noted that the share tenancy have not conducive to agricultural development. The last decades witnessed a major transformation in agriculture, including changes in technology, resource base, and structure and production process. In fact, modern technology has opened up opportunities for increasing food production, employment. New technology had brought about significant improvement of the yield rate of some major crops like rice and wheat crops. Now in Bangladesh, the agricultural sector is more diversified than few decades ago. Agricultural output grew rapidly by 4.7 percent during 1996-2000. But agricultural out-put was about 2.8 percent during 2001-2008 (Shahabuddin, 2010). Output grew by 2.51 percent at agriculture and forestry sector in 2016-2017 (GOB, 2017).

This growth rate in this sector has been heralded as a success made possible by the adoption of the new technology (Islam, 2013). Still this success is not satisfactory in our country. Meanwhile farm size and productivity is yet a problematic matter. Agricultural development is essential for our survival. No detailed research has, yet been conducted on this issue. Only a few studies have been conducted in Bangladesh on farm size and land productivity relationship. Keeping this in mind, the present study is, therefore, undertaken to analyze the relationship between farm size and productivity (Islam, 2020).

The Objectives of the Study

The specific objectives of the study were as follows:

1) To examine the farm size - productivity relationship.
2) To suggest some policy implications.

Importance of the Study

The findings of the study may help the extension workers and the policy makers in making decision regarding farm size and productivity relations. The study will be helpful to the researchers for further studies of similar nature. The results of the study have also academic importance to the teachers and the students of economics (Sultana *et al*., 2021).

METHOLODOGY:

The study is based on secondary data. Secondary data were collected from different published and unpublished documents.

Plan of the Study

The study has five sections. Section1 describes the statement of the problem. Objectives of the study are presented in section 2. Section 3 explains the importance of the study. The methodology of the study is presented in section 4. Results and interpretations are given in section 5. Conclusion is presented in section 6.

RESULTS:

The relationship between farm size and productivity in agriculture is one of the most debated and controversial issues. Here we have analyzed the relationship between farm size and productivity. Most of the researchers found that the inverse relationship between farm size and productivity existed. The inverse relationship between farm size and productivity has been considerable implications for development strategy. The major implication is that it may provide justification for redistribution of land reforms “as policies to correct the inverse relation imply both allocations of efficiency and equity at the same time” (Jana Ladvenicova and Silva Miklovicova, 2015).

Most of the researchers (Sen 1962; Hossain1977; 1989, Bimol, 1993; Ahmed, 1989) pointed out that, size of land and agricultural productivity were inversely related. In the context of Indian agriculture Sen, (1962) observed that the inverse relationship between farm size and productivity existed. He stated that small farms are more productive compared to large farms. This inverse relationship between farm size and productivity can be explained by the relative advantage of using additional family labor by the small farms which may reduce the monitoring and supervising cost of hired labor. Barrett, (1996) found that small farmers produce more output than rich farmers. (Hossain, 1977) stated that the small farms have the higher agricultural productivity than the larger farms. The researcher suggested that small farms have comparative advantage over large ones, because, the small farms have the opportunity to employ more household labors for their land. He also stated that due to low

opportunity cost of household labor small farmers are likely to employ household labor more intensively. As such small farmers received more output than the large ones. Taslim, (1989) suggests that owing to the larger cost of monitoring and supervising labor, large farm households are use labor less intensively to their land. On the other hand (Hossain, 1989) observed that the negative farm size - productivity relationship is existed in both technologically developed villages and technologically undeveloped villages and for both traditional and modern varieties of paddy also. In the technologically developed villages, he stated that the productivity of small farms is more higher compared to the large ones. On the other hand, the productivity difference between small farms and large farms is statistically significant. Ahmed, (1880) found that with the higher use of labor, modern irrigation facilities, modern varieties of seeds etc. the small farms can also achieve higher yield in their irrigated land. In the context of Indian agriculture (Ghose, 1979) stated that the overall productivities of crops decline as firm size increases. Some researcher (Dasgupta 1997; Shaha, 1978; Roy, 1983) observed that small farms have larger productivity than large farms. The higher productivity for small farms in rural Bangladesh is attributed to the more intensive use of farm by the small farmers (Hossain, 1981) found that the land productivity is negatively related with farm size in rural Bangladesh. He also suggests that small farms can perform better even when modern technologies as being introduced and adopted. He found that, HYV rice which requires intensive use of chemical fertilizers and pesticides, adequate supply of water. He concluded that the small farms have the larger agricultural productivity than the bigger ones (Krishna & Bharadwaj, 1974) observed that the inverse farm size productivity relationship is existed. The result is statistically insignificant. It is worthwhile to mention that, the inverse farm size productivity relationship in Bangladesh, India and some other countries were undertaken mainly in the sixties and seventies, when modern technologies at the early stages of adoption and introduction (Bimol, 1993).

Available data suggest that the negative size productivity relationship has weakened in some cases but in many cases been reversed at the different places since the adoption of modern agricultural technology in the late sixties (Bimol, 1993) and (Benjamin & Brandt, 2002) investigated that a weak inverse relationship between farm size and productivity in China in the 1990s "which they attribute to local administrative and distribution polices and uneven off farm employment opportunities" (Rudra, 1983) observed that, there is no opportunity for recognizing a general law for an inverse relationship or even for a positive relationship between farm size and productivity. A recent study by (Chattopadhyay` & Sengupta, 1997) found that inverse relationship between farm size and productivity became stronger in the agriculturally developed areas of West Bengal compared to the relatively less developed areas. They also mentioned that, in spite of good number of village studies supporting the inverse farm size and agricultural productivity relationship, but this negative relationship has not reach to a general consensus (Toufique, 2005; Bharadwaj, 1974) shows that the inverse farm size and productivity relationship, but the results are not statistically significant (Jana Ladvenicova & Silva Miklovicova, 2015) also found the negative size productivity relationship. They also state that there exists positive credits and farm productivity relationship in Slovakian agriculture and the results are statistically significant (Jha *et al.,* 2011) and Haudral *et al.,* 2017) observed that production of different crops has increased to a large extent in Bihar in spite of continuous increase of small farms.

Liu *et al.* (2013) observed the opposite farm size- productivity relationship. They also stated that the inverse relationship was "likely to be lessened or even reversed when machinery had been widely used." Chattapadhay and Rudra, (1976) were not rejecting this negative relationship, but they raised caution against its general validity. Some literature has challenged the existence of the negative size productivity relationship. In this context debates have re-emerged as an important rural development strategy. Some literature on agricultural economics has emphasized on positive size - productivity relationship. Muktada, (1975); Saha, (1978); Hamid *et al.* (1978) has drawn a reverse conclusion. They observed that large farmers did not use labor less intensively than the small farmers. In fact, with the application of higher dose of chemical ferti-

lizers and pesticides, better irrigation facilities and sufficient labor supply the large farms may expect higher amount of productivity in their irrigated land. Singh *et al.* (2018) suggested the positive farm size productivity relationship for small landholders. They also stated that the small land holders did not received the fruits of technological advancement because the small farmers had little access to get modern technology and agricultural credit. Moreover, their scarce landholdings also hindered to the little access of modern technologies (Gollon, 2018) observed across the countries, positive farm size productivity relationship existed but this positive relationship was weak. But within countries, the size productivity relationship neither positive nor negative (Ghosh, 1973) argued that farm size productivity relationship is neither positive nor negative. He also stated that medium sized farms are most efficient in productivities (Bimol, 1993) pointed out that at the present stage of technological adoption in West Bengal the negative farm size and productivity relationship still exists, when cultivation without power tiller and modern technology and their dominance is not very much strong. Whereas the positive relationship is existed in case of cultivation with power tiller and modern technology and their prominence is not strong. The dispute on farm size productivity relationship also centers on the tendril arrangements of farms (Adam Smith, 1776) considered that the sharecropping would disappear. Some researchers presume that the amount of output of the sharecroppers is lower than the owner operators. They assured that here the root cause is the incentive problems. Since sharecroppers have to share only half of "incremental output, they loss the interest in producing additional output." A farmer could not be interested to intensively cultivate" other's land, as he is for owned farm" (Hossain and Bayes, 2009) and (Za-man, 1973) found that sharecroppers produce more output than the owner cultivators. A good number of studies (Hossain, 1977 and Jabbar, 1977) observed that owner cultivators are more productive than the tenant cultivators. Mandal and Ghosh, (1976), Abhijit, (1981) suggest that per acre output is higher on owned land than the sharecropped land. They also found that on the sharecropped land no significant negative size productivity relationship existed (Bimol, 1993) stated that the yield rate of agriculture on owner cultivated land is "significantly larger than that of rented land." He also stated that "if tenants get ownership rights on their rented land, they would produce more in both Bangladesh and West Bengal" (Bimol, 1993).

Suggestions for Policy Implications

The present study attempts to suggest some policy measures –

a) The small farmers can be increased their production through improving their access to institutional credit systems, technology centers and improving cultural practices.
b) Appropriate measures should be taken to increase the non-farm employment facilities. Promotion of non-farm employment facilities seems to the proper option for improving livelihoods for the rural people.
c) Formation of farmers association is essential for enhancing production, absorbing credit and adopting farm technologies. This association would adopt cultural practices and would make more appropriate production plan in time of need.
d) Steps should be taken to agriculture related research. Research program should be under taken to evaluate long term effects of irrigation oriented agriculture.

CONCLUSION:

The firm size productivity relationship in agriculture is the controversial issue. Some researchers (Sen, 1962; Barrett, 1996; Dasgupta, 1977; Hossain, 1977) stated that the inverse size productivity relationship in agriculture is existed. Few studies (Bimol 1993; Liu and Barrett, 2013) suggested that the inverse farm size productivity relationship got weakened or even disappeared in the regions adopting a new technology. Some studies (Hamid *et al.* 1978, Muktada, 1975) had found the positive size land productivity relationship. The dispute on farm size productivity relationship also centers on the tenurial arrangement of farms. Some village studies (Hossain, 1977; Jabbar, 1977) observed that output levels of the owner cultivators are much larger than the sharecroppers. Raquibzzaman, (1973) pointed out that the sharecroppers produced higher amount of agricultural output than the owner cultivators. In fact, agriculture related research should be

encouraged. Farmers association should be formed. This association would adopt cultural practices and would make more appropriate production plan.

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CONFLICTS OF INTEREST:

There is no conflict of interest from the authors end.

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