

IMPACTS OF AGRICULTURAL COMMERCIALIZATION ON SMALLHOLDER FARMERS IN SOUTH-WESTERN REGION OF BANGLADESH

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ABSTRACT

This paper investigates the potential impacts of commercialization on smallholder farmers' welfare in Bangladesh. The study consists of Primary data collected from 100 randomly selected respondents of Terokhada upazila under Khulna district. The study uses Pearson's correlation analysis to find out the casual relationship between commercialization of agriculture and household welfare, and Regression analysis conforms the impacts of commercialization on household welfare. The results of the analysis reveal a significant positive relationship between commercialization and household welfare, with key variables like market access and internal farming activities positively and significantly contributing to improved household income and farm outputs. The regression result further predicts a 16.9% improvement in household welfare if farmers actively work on commercialized farms with better market access and internal farm activities. Therefore, the study suggests that government can equip the farmers with necessary technical knowledge and appliances to commercialize their firms and thereby, farmers will obtain better welfare outcomes.

KEYWORDS: Bangladesh, Market Access, Commercialization, Smallholder Farmers & Welfare Effects

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INTRODUCTION

Commercialization of smallholder farming is widely considered as one of the most effective means of dealing with poverty in the developing countries like Bangladesh. And, it is undoubted that commercialized farming contributes significantly to the livelihoods of rural households in Bangladesh (IFAD, 2012; World Bank, 2014). In Bangladesh, the average size of the actual area cultivated is only .5 hectares and small farms account for 96 per cent of operational holdings with a share of 69 per cent of cultivated area (Thapa and Gaiha, 2011). Most importantly, improved agricultural productivity can do magic to appease poverty from grass root level (Asfaw et al, 2012). Agriculture is an essential sector in Bangladesh, accounting for 17 percent of the GDP and 45 percent of the working population (BBS, 2014). The main agricultural producers are small-scale and marginal farmers who comprise approximately 80 percent of all farming households and own about 50 percent of the total cultivated land (BBS, 2012). Arable land accounts for 50 percent of country's land with an annual utilization rate of 190 percent (BBS, 2011), and the country has accomplished 100 percent rice self-sufficiency (Bangladesh Bank, 2015). With increased output of the Smallholder farmers, poverty can be reduced, food prices pushed down, food security and nutritional gap of people improved. At the same token, market participation and transition from subsistence to market oriented farming can bring revolutionary changes in economic growth and eventual improved standards of living and welfare (Osmani, 2015). In Bangladesh, market access of smallholder farmer, being one of the predominant sources of livelihood, can work as efficiently as larger farms when supported

by parallel services and credit facilities from government (World Bank 2007). Government of Bangladesh has taken multidimensional initiatives to eradicate poverty such programmes covered Social Safety Net Programmes (SSNPs) which address basic needs of the people namely food, shelter, education and health. The prime programs covered under SSNPs are: Food for Works (FFW), Vulnerable Group Development (VGD), Vulnerable Group Feeding (VGF), old-age allowances, allowances for retarded people, allowances for widow and distressed women, grants for orphanages which require higher market participation of smallholder farmers (Centre for Research and Information, 2015). Again, government has also embarked on plans to commercialize smallholder agriculture with a number of broad based policies ranging from Poverty Alleviation Action Plan (PEAP), Plan for Modernization of Agriculture (PMA), and the National Agricultural Technology Project (NATP) with a view to improving effectiveness of the technology used in agriculture to increase productivity and farm income, with a particular focus on smallholders and marginal farms (World Bank, 2014). National Agriculture Policy (NAP) with recent being the creation of the National Agricultural Advisory Service (NAADS) an agricultural advisory secretariat and Actionable Policy Brief (APB) to avail farmers with broad knowledge in improving farm outputs, marketing of farm outputs, provision of farm inputs and technological advancement.

According to Muriithi and Matz (2014), widespread positive reputation and recognition of smallholder farming as a means to alleviate poverty brings optimism of establishing sustainable growth and increasing farmer's welfare. Furthermore, it is usually believed that welfare is not observable but there are different ways which represent standards of living proxies like household expenditure on food and education are usual indicators of welfare (Quarley, 2005). Actually, improvement of socio-economic welfare will largely depend upon higher affordability of farm inputs such as fertilizers, pesticides and improved seeds, which would eventually bring about increase in productivity and eventual growth (Ukoha et al, 2005). According to Gebreselassie, and Sharp (2007), smallholder farmers' commercialization can bring better household welfare, promoting living standards through consumption of high valued foods, purchase of home durables better education for their children and totally improved health standards. Therefore, the study tries to find out the relationship between commercialization and household welfare, and the effects of smallholder commercialization on household welfare.

LITERATURE REVIEW

In spite of some important successes in reducing poverty, achieving lower-middle income status and increasing agricultural productivity, roughly 25% of the population in Bangladesh is considered food insecure. Agriculture employs about 47% of the labor forces (with about 60% of the farming population classified as landless), but contributes to about 18% of the gross domestic product (World Bank 2013). Farming is generally believed to have a higher potential to create jobs, increase returns to the asset that the poor people possess, i.e. labor and land, and it pushes down the price of most food stuffs and raise their welfare (Hazell et al, 2007). The government of Bangladesh has a broader goal of raising export income by aggregating small and marginal farmers who produce rice, maize, fruits, vegetables, livestock, fisheries etc. (MoA, 2014). Literature from earlier studies defended the concept of commercialization with varying definitions but all emphasized on having higher market access (Govereh, 1999). Generally, commercialization is looked at the proportion of agricultural production that is brought to the market for sale (Immink and Alarcon, 2009). Similarly Sokoni (2007) and Hazell et al, (2007) looked at agricultural commercialization as a move away from subsistence production to market oriented production. While Von Braun (1994) has more extensive argument about commercialization that it involves increased market transactions to capture the benefits from higher market participation, commercialization should be about

proper decision making as regards, input and output decisions, market concentrations and production techniques as well. Rising market participation can affect smallholder farmers' welfare in two ways-by improving the welfare of most household directly through income effects and indirectly through different linkages (Randela, 2005). Agricultural commercialization means more than the marketing of agricultural output; it means the product choice and input use decisions are based on the principles of profit maximization (Leavy *et al.*, 2007). Commercialization is known to have comparative advantages over subsistence agriculture; it generates income for rural households, expansion in the use of hired labor than it was in subsistence production (Von Braun, 1994, Dorsey, 1999). Improved market access encourages the rural farmer as increased wages and employment from commercialization of agriculture facilitates the ways towards a broad spectrum of development in the entire rural economy (Randela *et al.*, 2008). A number of debates about commercialization of farming as means to better welfare and alleviate poverty have been paramount in most economists. In most of the related literature, a farm household is generally defined to be commercialized if that particular firm produces a considerable amount of cash crops, keeps a proportion of its production to market or sells a significant proportion of its agricultural outputs (Immink and Alarcon, 1993; Strasberg *et al.*, 1999). The core rationale behind agricultural commercialization is that increasing income from the ability of small holder farmers to produce high valued crops which gives them higher access towards household consumption items—(Bernard, and Spielman, 2008, Jaleta, 2009). Again, according to Kawagoe (1994), processing and marketing of commercial products at a village level contribute to total household labor income and employment in a bigger margin.

MATERIALS AND METHODS

Selection of Respondents

The sample comprises 100 households from *Terokhada* upazila which are engaged in agricultural production. The farm households of this area produce different kinds of crops like rice, wheat, potato, vegetables, jute, maize, oilseeds, pulse, onion, garlic etc. The study focuses on the 2014 production year and therefore relied on recalled information. Multistage random sampling technique is adopted to choose sample farmers from the study area. The present study has been carried out in three unions, chosen randomly, from *Terokhada* upazila of *Khulna* district namely, *Sagladah*, *Barasat* and *Madhupur*. The randomly selected villages, two from each union, are *Pahardanga*, *kumirdanga*, *Barasat*, *Harikhali*, *Madhupur*, *kakhi*. Finally, we select 100 respondents from the six villages of three sample unions using the simple random sampling method.

Empirical Model

In order to find out the effects of smallholder commercialization on household welfare, the present study tries to estimate the following functional relationship. From literature review, it is clear that there exists an obvious relationship between household welfare and commercialization of agriculture

$$Y = f(X) \tag{1}$$

Where, Y represents the farm households' welfare and X represents the commercialization of agriculture. This functional relationship outlined in equation (1) can be transformed into a simple regression model as follows.

$$Y_i = \beta_0 + \beta_1 X_i + u_i \tag{2}$$

Where, u_i is the stochastic disturbance term. The present study uses ordinary least squares method to estimate the model specified in equation (2).

RESULTS AND FINDINGS

This segment presents findings of the study generated from data analysis and its interpretation. It includes Pearson's correlation analysis and regression analysis.

Correlation Analysis

Correlations are useful because they can indicate a predictive relationship that can be exploited in practice. For example, an electrical utility may produce less power on a mild day based on the correlation between electricity demand and weather. In this example there is a causal relationship, because extreme weather causes people to use more electricity for heating or cooling; however, statistical dependence is not sufficient to demonstrate the presence of such a causal relationship (i.e., correlation does not imply causation). The Pearson correlation coefficient is a very helpful statistical formula that measures the strength between variables and relationships. In the field of statistics, this formula is often referred to as the Pearson R test. When conducting a statistical test between two variables, it is a good idea to conduct a Pearson correlation coefficient value to determine just how strong that relationship is between those two variables. In order to determine how strong the relationship is between two variables, a formula must be followed to produce what is referred to as the coefficient value. The coefficient value can range between -1.00 and 1.00. If the coefficient value is in the negative range, then that means the relationship between the variables is negatively correlated, or as one value increases, the other decreases. If the value is in the positive range, then that means the relationship between the variables is positively correlated, or both values increase or decrease together.

Table 1: Degree and Nature of the Relationship

| | | | | |
|---|------------|------------|------------|---|
| Commercialization | 1 | | | |
| Market access | . 8 0 1 ** | 1 | | |
| Internal farming activities | . 7 2 7 ** | . 1 7 1 ** | 1 | |
| Household welfare | . 2 6 6 ** | . 1 9 8 ** | . 2 1 0 ** | 1 |
| Correlation is significant at the 0.01 level (2-tailed) | | | | |

Source: Primary Data

Empirical evidence suggests the ultimate objective of commercialization of agriculture is the attainment of better welfare outcomes for the smallholder farmers. Correlation results in table 1 above are also consistent with the finding of Samuel and Sharp (2007), results show that there has a significant positive relationship between commercialization of agriculture and Household welfare ($r = .266^{**}$, $p < .01$). This relationship is also evidenced in the dimensions that measure commercialization of agriculture, Market access ($r = 0.198^{**}$, $P < 1$), Internal farming activities ($r = 0.210^{**}$, $P < 1$). These results are a clear indication that when small holder farmers wholesomely embrace commercialization and are enthusiastic about the future improvements, it will bring about improvement in their household welfare, these welfare effects will be symbolized by increase in consumption of non-grain consumables (including sugar, coffee, salt and cooking oil); kerosene consumption; and expenditure on shoes and clothes, education, health care, durable goods (bed, mattress, radio, TV, mobile, etc), housing (iron sheets, buildings, etc) and farm implements (ox ploughs and fertilizers, water pumps etc).

Regressions Analysis

Findings from regression analysis for commercialization of agricultural are shown in table 2. Actually, the results portray the extent to which the elements of smallholder commercialization predict the changes in smallholder farmer welfare. Results showed that commercialization of smallholder farming predicted 16.9% of the variance in Household

welfare (Adjusted R Square = .169). Analysis of commercialized farming indicates that it has positive and significant (Beta = .266, sig. < .000) impacts on smallholder farmer welfare with constructs of market access, internal farming activities as predictors of Household welfare. The regression model was also valid (sig. < .01)

Table 2: Regression Analysis of Household Welfare

| | Beta | Std. Error | t | Sig. |
|--|-------------|-------------------|----------|-------------|
| Constant | 2.737 | 0.188 | 14.540 | 0.00 |
| Commercialization | 0.288 | 0.055 | 5.259 | 0.00 |
| R Square = 0.187, Adjusted R Square = 0.169, F statistics =27.660 , Sig. = 0.00 | | | | |

Source: Primary Data

Results in Table 1 showed that commercialization of smaller holder famers influences Household welfare in a positive and significant manner ($r = .266^{**}$, $p < .01$). And, similar to our expectation, these results support the study proposition that commercialization and household welfare are positively related. The results also advocated the finding of Samuel and Sharp (2007), Govereh (1999), Leavy and Poulton (2007), Muriithi and Matz (2014), which stated that there exists a positive relationship between small holder farmers commercialization and increase of other household welfare. It is evident from the findings that smallholder farmers really need to find out appropriate firming techniques regarding input quality, competence and quality of labor, adoption of modern farming tools, knowledge of the use of fertilizers and insecticides. Implementation of modern farming techniques requires a number of things such as nature and type of soil, required expertise of the farmers and use of appropriate farming methods are very important. Different types of cultivation systems and land tenure systems should be re-visited with a view to reducing land fragmentation and ensuring food security and poverty alleviation (Jayanta et al, 2015, Jaleta et al, 2009). According to Sebatta (2014), most of the smallholder farmers find it very difficult to operate their individual farming activities thus fail to raise their output under different types of regional land policies in different regions and this situation deteriorates due to lack of their agricultural proficiency.

Results in Table 1 further revealed that market access and household welfare are positively related. This results clearly suggest that if government wants to raise market participation of the smallholder farmers to raise their welfare, more importance should be given on ensuring symmetric market information, feasible transportation towards markets, market globalization and liberalization of agricultural commodities should be introduced (Randela,2005). Different types of regional blocks can really be productive in this regard and various preferential trading arrangements should be negotiated. Most importantly, there is no alternative to improved financial knowledge and business expertise. Value chain and logistical challenges should also be addressed. Road networks, warehouses, cooperative movements, and extension services into farmers should be prioritized.

CONCLUSIONS

This study analyzed the effects of different levels of commercialization on smallholder farmers' welfare. And, the findings clearly help us to reach a conclusion that higher market participation among smallholder farmers should involve making broad production decisions based on producing not only to satisfy basic community needs but also to produce an extra amount for the market. Achieving drastic improvement of household welfare and attaining inclusive growth depends upon making clear strategic decisions about their farm inputs, embracing modern technology, and market oriented production as there is a positive significant correlation between welfare and commercialization of smallholder farming. Producing an extra amount of product for the market will not only generate welfare effects to farmers, but it has a

multiplier effect on income growth, economic growth, employment generation and total alleviation of poverty. With all that attained it will lead to reduction in consumption of cereals and a move towards a consumption of high value commodities like eggs, meat, milk, fish and fruits. Other changes like economic growth and rising incomes and urbanization are all due to commercialization of farming (Joshi, 2007). In today's globalized world filled in by many changes, the agriculture sector in the developing countries like Bangladesh needs to make some productive changes to face the modern development challenges. In response to these challenges, smallholder farmers in Bangladesh should improve their ability in expanding their market accessibility.

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