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THE IMPACT OF AGRICULTURAL TRADE ON FARMERS LIVELIHOOD

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Abstract

Trade in agricultural commodities is an important tool in balancing the gap between the surplus and deficit regions in term of production. Being highly perishable trade of vegetables is advantageous for farmers and consumers. This study was undertaken to capture the effect of bitter gourd export on local farmers' livelihood. Data was collected through purposive and random sampling from 120 farmers in district Charsadda of Khyber Pakhtunkhwa divided into two groups' i.e selling their entire produce in local markets and those selling some of their produce to exporters. Simple descriptive statistics were used to analyze the data. Exporting group farmers sold almost 31 % of their produce to exporters for average price of Rs. 25/Kg as compared to price of Rs.12/Kg of local market sellers. The proportionate use of inputs and higher yield enabled the exporting farmers to cut down the unit cost to Rs. 4/Kg as compared to Rs. 5/kg of local market selling farmers. Export of vegetables benefited the farmers in three way; higher prices, better yield and lower cost.

Key words: trade, vegetables, livelihood, Khyber Pakhtunkhwa, higher yield

INTRODUCTION

Trade, in well managed form, can be a great tool for economic development and poverty alleviation, besides an instrument to correct the imbalances between regions of surplus and deficit, based on the comparative and competitive advantages. Therefore, by enhancing opportunities and expanding markets, trade can directly affect competitiveness, productivity and livelihoods. This impact is particularly relevant for the agriculture sector in developing countries that is the main provider of employment, livelihoods, and food security (CUTS international, 2011). No single asset is sufficient for rural households to develop sustainable

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livelihood strategies; it will most likely depend on an interrelation between assets from the five capitals: natural, financial, physical, human and social. Altogether, access to these assets determines the vulnerability of the individual household to shocks, trends and seasonality (DFID 1999). Similarly Pakistan being an agricultural based country where agriculture is not only a provider of employment but also a way of life. Its one of the important sector and a major source of livelihood for about 60% of the rural population and 38.5% of the country's labor force while contributing 19.2% to Pakistan's GDP (Economic Survey of Pakistan 2020-21).

A lot of diversity exists in the ecological condition which enables the country to produce a variety of crops. Pakistan produces more than 28 types of fruits and 30 types of vegetables in the country throughout the year. Vegetables produced in different zones by using different technologies during different production seasons are traded across different regional markets in the country to meet consumer demand across the country. Besides local trade of vegetables some of the surplus vegetables are exported to various countries. Vegetable being labor intensive has a wider scope for exporting to labor deficient European countries. This needs a focus on quality improvement and increasing the use of organic technologies. Most of the horticultural export consignments are rejected on the basis of pesticides residues. Due to poor quality and not meeting the sanitary and phytosanitory rules Pakistan has earned the reputation of poor quality supplier and focus on few ethnic based markets (TRTA II, 2013). The world horticulture market is estimated to be $ 80 billion where in Pakistan contributed only a meager amount – $ 671 million in 2014-15. The reasons for this are quite obvious. In Pakistan, only about 16% of fruits are being processed. The potential markets for Pakistani exporters have been identified in Europe and the Middle East. However, the fruits and vegetables exported in fresh form attracted discount prices due to the exporters' inability to provide adequate grading and packing. On one hand Surplus vegetables exported may ensure profitable prices for the farmers while on the other hand it may help to overcome foreign exchange reserve deficit in the country. Vegetables are short duration crops and throughout their life they require different nutrients for good yield. Good prices availed by farmers have two way of benefits. First it ensure greater financial resources, one of the important livelihood asset and second the farmers are enabled to apply judicious quantity of complementary inputs for a higher yield. Most of the horticultural produces are highly perishable and seasonal. In the local markets they are over supplied which results in very low prices, affecting farmers well being. If diversified markets are searched and exports promotion policies are adopted by the government, the fate of poor farmers can be improved to a great extent. Among the different vegetables bitter gourd has evolved to be one of the important and major commercial vegetable having numerous uses from kitchen to herbal medicines. Also it is in great demand in the foreign countries due to change in the food patterns. Having medicinal value for sugar and blood pressure problems bitter gourd production and export can ensure the benefits of world herbal medicine $ 5 trillion estimated market. Pakistan ranks third after India and China with a share of about 9% of world's bitter gourd production (Ryes, 2014). Difference in the ecological condition in different parts of the country provides a great opportunity to reap

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the maximum benefits of word market. The current study is undertaken with the objective to estimate the impact of bitter gourd export on farming communities.

LITERATURE REVIEW

Farming is considered as the primary livelihood of most households in the region, agricultural cash income contributed the least to household total cash income, at approximately 12% (Mahapatra and Shackleton, 2012). The global market of agricultural products increased by many folds in the last few decades and reached 59 billion US$ in 2010 0 (Willer & Kilcher, 2019). Its trade is also growing rapidly with sales of around 6.6 billion US$ in 2012. The existing literature has many welfare impact studies that analyze multiple ecological and social standards and certification systems (e.g., Bacon, 2010; ITC (International Trade Center), 2011; Valkila, 2009), most of them use cross-section data. Also, in general many of these impact assessments suffer from selection bias (e.g., Bacon, Mendez, Gomez, Stuart, & Flores, 2008; Mendez et al., 2010; Valkila & Nygren, 2010). Agricultural trade plays an important role in global food security and resource sustainability (MacDonald et al., 2015). Methodologically most welfare impact studies assessing multiple standards that account for self-selection bias use a binary PSM approach (e.g., Ruben & Fort, 2012; Ruben & Zuniga, 2011). The impact of major crops trade on farmers livelihood has been analyzed by the researcher and plenty of research work is available but no single study is available to assess the impact of bitter guard trade on farmers' and livelihoods.

MATERIALS AND METHODS

The study was based on primary data collected through purposive random sampling from two groups of bitter gourd farmers in district Charsadda of Khyber Pakhtunkhwa province of Pakistan. In the first group 60 farmers were selected who sold to exporters and in the second group were also 60 farmers who sold their produce in the local markets. A well structured questionnaire in English was used but the interviews was conducted in the local language" Pashto". The data was entered into excel sheet and simple descriptive statistics was applied for the analysis of data.

RESULTS AND DISCUSSION

This section describes the results of the study. This is comprised of the socio economic aspects of farmers, the inputs application and the output side with a comparison of exporting and farmers selling in local markets.

Socio Economic Characteristics of Farmers

Socio economic status of the farmers plays a vital role in decision making of farmers. Farming has evolved to be complex phenomena of decision making at various stages. Every stage of the

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farming practices requires proper decisions at the proper time. Any mismatch in decision timings can decrease the output many fold. The study inquired about various aspects of socio economic status like age, education, experience, farm size, Experience, farm size, number of family workers and non- farm income of the farmers. The description of the above mentioned characteristics is necessary because these are important in the rational decision making process. The findings are in conformity with the theory. One type of farmers sold some of their production to exporters besides the local market. Others sold their entire production in the local market. The comparison was checked through *t*-test which revealed a significance difference in the education, farm size and number of family workers. The findings revealed that farmers who sold some of their production to exporters were relatively young, significantly more educated, more experienced, having large farm sizes and higher non arm income than those who sold their entire produce in local markets. As people learn by doing which is revealed by the experience of the farmers who produced good quality of vegetables. Exporters collect good quality of vegetables and pay a premium price which requires careful calculation where education can help farmers to act in the profitable way. Similarly large farm size enables the farmers to produce in bulk which helps the exporters to reduce roaming and transport cost, and happily focus on large farmers. On the other side large farmers have good reputation in the input markets also and they can acquire the necessary inputs easily. Table 1 presents the comparison of farmer's characteristics.

Table 1. Socio Economic Characteristics of Farmers

Characteristics	Unit	Mean value of Farmers		difference	*t*-value
		Exporting	Local market		
Age	Years	32.1	32.6	- 0.5	0.24
Education	Years	8.25	6.40	1.85	2.11*
Experience	Years	4.55	3.84	0.71	1.13
Farm size	Jerib	3.36	2.34	1.02	3.38*
Family workers	No.	2.67	3.35	-0.68	2.44*
Non- Farm Income	Rs./month	34000	10000	24000	1.03

Source: Field survey, 2013

Inputs Application Side of the Farmers

Agriculture has evolved to be a commercial venture in modern times. Farmers have diverse needs of the modern times as compared to the objective of subsistence in the past. The means of communication have connected the people throughout the world which has changed the outlook of people. Farmers are also influenced by different social values and adopt the modern living style in one way or other. This has necessitated for commercialized farming to earn money for financing the modern gadgets. Achieving higher yields can enable the farmers to realize their

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objectives, so they try to have a optimum complimentary input combination. With the passage of time the input mix of farmers has greatly diversified as in the past only a few inputs were applied for production. Optimum combination of inputs has a positive impact on productivity. There are various factors which affect the input application decision of farmers. As vegetables are highly labor intensive so farmers tries their best to arrange for labor at the right time. For labor services they depend on both sources i.e domestic (family labor) and market (hired labor). Farmers who sold some of their produce to exporters depended on hired labors. On the average 98 more hired labor man days were used with a significant t-value of 4.7. Farmers selling entire of their produce in local markets mostly used family labor. Communication technology is playing a vital role in the coordination activities. Mobile phone has greatly helped in the arrangement of labor services, reducing transportation cost for acquiring various inputs, contacting market agents, exporters and many more ways. The current study revealed that exporting farmers applied 161 more minutes with a significant t- value of 3.58. Modern agriculture is greatly affected by the use of fertilizer. By the excessive and intensive cropping to provide for the increasing population nutrient supplements has become the basic necessity for soil fertility. The current study revealed that farmers availing export facility applied 6.6 bags as compared 5.87 bags (50 Kg) to other farmers but the t-test showed the difference to be insignificant. Higher export prices enabled the farmers to earn higher income which in turn increased their purchasing power of inputs. Bitter gourd is a crop which gives yield for about four months. On the average 5 picking are performed in a month. Higher income enabled the farmers to apply more fertilizer, manure, irrigation and insect ides for better yield. The difference between the manure, irrigation number and insect ides spray was positive and significant for exporting farmers. The discussion is summarized in table 2.

Table 2. Inputs Application and comparison

Inputs	Units	Average qty		Difference between means	t-value
		Export Farmers	Local markets		
Family labor	Man days	85	96	-11	1.1
Hired labor	Man days	158	60	98	4.7
Cell used	Minutes	564	403	161	3.58
Fertilizer	Bags/jerib	6.60	5.87	0.73	1.10
Manure	Trolleys	3.92	2.03	1.89	3.8
Irrigation	No.	45.3	39.9	5.4	3.5
Insecticide sprays	No.	15.1	13.3	1.8	3.5

Source: Field Survey 2013

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Output side factors

Output side factors play crucial rule in farmers' livelihood. Yield and price level are important determinant in livelihood achievement. In case of the bitter gourd profitable price can enhance the yield level because farmers can finance the various inputs and apply them in the right proportion. Searching export markets can greatly help in obtaining good prices for the produce and hence yield level. Vegetables are highly perishable and its seasonal nature causes over supply in the local markets that result in lower prices for the farmers. Lower prices adversely affects the farmers in two ways i.e lower income due to lower prices and lower income due to lower yields because of discouragement. Due to market discouraging behavior farmers don't take care of the crops as inputs are expensive. The findings of the study are in conformity with the theoretical prediction. Average yield of the farmers who sold to exporters was almost double of those relied on local mandies only. Exporting farmers obtained average price of 15.3 rupees per kilogram of their vegetables whereas in the local markets farmers availed price of 11.7 rupees per kilogram. Like yield difference price difference was also significant. The yield difference and price difference enabled the exporting farmers to achieve almost 2.5 time more revenue with a highly significance level. Annexure 2 shows that in the initial phase of exporting prices difference is high between local and export sale. Trend line show upward movement in the price in local markets and fall in the export prices confirming the supply demand adage. This is also indicates for the equality in prices of local and export markets. Similarly average cost in term of jeribs of exporting farmers was higher but the cost incurred on one kilogram of bitter was Rs.4/kg where as it was Rs.5/kg for farmers selling in local mandies. Marginal cost of local famers is rising steeply as compared to exporting farmers (Annexure 1). It revealed that good price were beneficial for farmers in 3 ways to increase their income level; an important component of livelihood. One way is the higher revenue due to higher prices, other is higher revenue due to increase in yield and third is the thinning of cost level on unit bases. Ensuring good farm prices can enhance the livelihood capabilities of more than 45 percent of our population involved in agriculture. Output side factors are summarized in table 3.

Table 3 Output Side Factors Comparison

Factors	units	Average values		Difference	t-values
		Exporter	Local market		
Average yield	Kg/ jerib	12192	6899	5293	6.46*
Average price	Rs./Kg	15.3	11.7	3.6	8.87*
Average Revenue	Rs./jerib	99064	39763	59301	6.48*
Average cost	Rs./jerib	48768	34495	14273	-
Net Revenue	Rs./jerib	50296	5268	45028	-

Source: Field Survey 2013

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How export affects livelihood

As livelihood is ensured by almost 5 factors where in financial condition is an important component. Farmers can enhance their income level by two ways from production. They earn profit (net revenue) by the difference of total revenue and total cost. Second they earn wage income by working in their fields. Output side factors revealed that exporting of vegetables enabled the farmers to increase their profit level. The increase in profit came from three sources; higher prices, higher yield and lower per unit cost. Profit and wage income was almost Rs. 56000/ jerib as compared to Rs.16000/ jerib for local selling farmers.

CONCLUSION AND RECOMMENDATIONS

Horticulture export is one of the potential source of alleviating poverty in Pakistan. Export of horticultural commodities may ensure profitable prices for the farmers. Due to seasonal nature of vegetables local markets have over supply due to which farmers may not get good prices and are discouraged. The farmers reported that in the local markets there is premium for quality. Farmers who sold premium quality vegetables to exporters got the same prices for their remaining produce left by exporters. Exporting farmers sold 31 percent of their produce to exporters and sold the remaining 69 percent in the local markets. The average price for the exported vegetables was Rs. 25/kg and their average price for the remaining portion was Rs.11/kg. On the other hand farmers selling their entire produce in the local market sold at the rate of Rs. 12/kg. the difference between local market and export markets is almost more than double which provide a great incentive for quality improvement and better productivity. Profitable prices may increase the employment opportunity for landless rural people. This may also reduce the pressure on urban migration. Exporting farmers incurred cost of Rs.4/kg of vegetable whereas, the cost was Rs. 5/kg for the other farmers. Average yield difference between two types of farmers was 5293 kg per jerib. The export of some of the vegetables may have reduced the pressure of quantity on local markets, otherwise the prices would have further declined. There is a beneficial effect from three aspects on the livelihood of farming community.

There is need of reducing the residue element due to excessive use of pesticides which may be the cause of export consignment rejection. Researchers should find out the ways of tackling pest problem in horticulture. Bacha Khan Airport Peshawar should be functional all the times so that exporters may face no difficulty and avoid the extra transport cost and time in shifting their consignment to Islamabad or Lahore airports. Pakistan horticulture development board should search new markets to reduce dependency on Middle East and European markets. Besides exporting vegetables, value added processing facilities should be provided in the country. Poverty of farmers is also a major cause of dependency on local markets middlemen. These middle men provide credit facility to farmers on the condition of selling their produce at their

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hands to earn huge commissions. Restructuring of agriculture credit may enable them independent to take rational and profitable decision. Trade Development Authority of Pakistan (TADP) and Pakistan Horticulture Development and Export Company (PHDEC) should prove their worth in the development of quality of vegetable and search new markets to get fair prices for the export consignments. It also hints for conducting future studies on this issue in other vegetables, since vegetable consumption in Pakistan is increasing with the passage of time.

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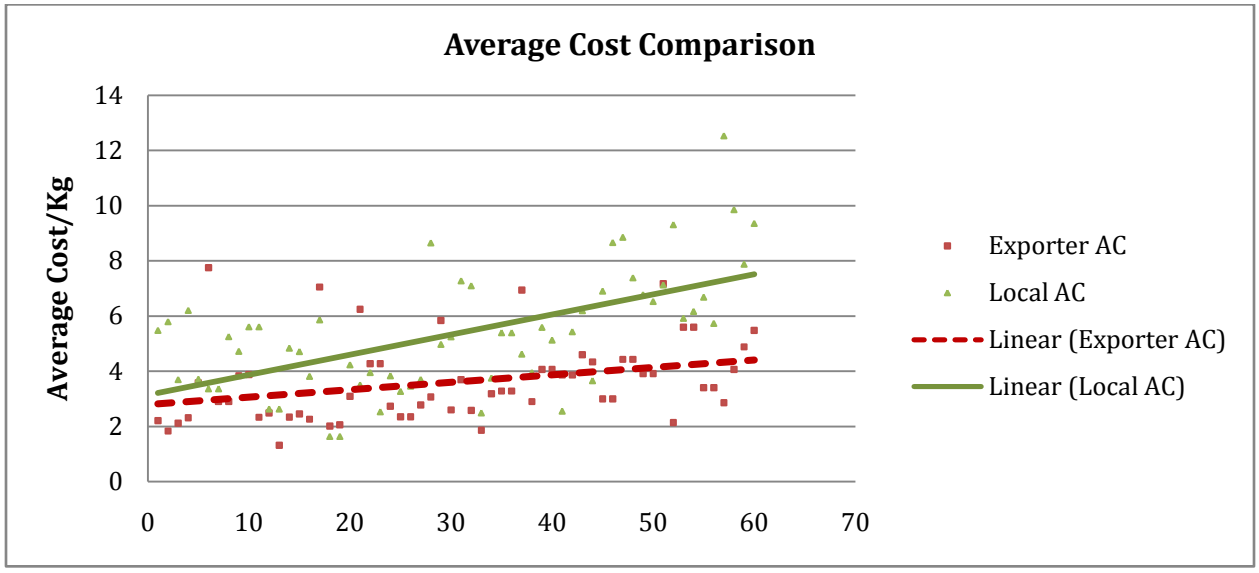
Annexure 1



Annexure 2 average price comparison

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