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COMPARATIVE ADVANTAGE OF VEGETABLES PRODUCTION IN BANGLADESH

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Abstract

The study was undertaken to assess the comparative advantage of production and export of vegetables from Bangladesh. Fifty four kinds of different vegetables were exported from Bangladesh. The importing countries were mostly in the Middle East. The demand for summer vegetables was found higher than those of winter vegetables. Total export quantity was found 6046 metric tons of vegetables and earned foreign exchange of Tk. 1120 million, which was only 1.18 percent of total value of vegetable production in Bangladesh. Among the export marketing cost items, air freights charges was found highest. For all the vegetables, DRCs were observed to be less than unity implying that Bangladesh had comparative advantage in vegetable production.

Keywords: Export potential, vegetables, foreign exchange earnings.

Introduction

As many as 54 different kinds of vegetables were exported from Bangladesh (UNCTAD, 2008). It is an important sector in the total agricultural exports of Bangladesh (Karim, 2008). After independence, vegetables were started to export in a very limited scale. Vegetables and fruits are being exported from Bangladesh since 1980s. Bangladesh has achieved a remarkable progress in export of agricultural products. Export earning from agricultural products have increased 12.9 % during 2003-04 in comparison with previous year (Quasem, 2003). The vegetable sector, occupying a more or less significant position in our export sector, helps meet our need of foreign currency as well as ensure our economic development. Bangladesh earns Tk. 1456.33 million (US\$ 24.70 million) in the year 2003-04 by exporting vegetables, which constitutes 60.08 percent of the earnings from agricultural products (Karim *et al.*, 2005).

The quantity of export is not big, but sizeable enough to create market for the large ethnic population of the South Asian sub-continent residing in the UK and Gulf region. They have proved to be the largest consumer of Bangladeshi vegetables. But, they demanded more summer vegetables than those of winter vegetables. A large portion of all vegetables were exported, especially to the South

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Asian sub-continent and Gulf region. The demand for Bangladeshi vegetables is increasing in the South Asian sub-continent and Gulf region day by day. It is important to mention here that relatively low marketing cost was incurred for exporting vegetables in the Middle East. So the exporters could be able to earn more foreign exchange by exporting vegetables. In order to formulate an appropriate policy for exporting vegetables, it is needed to estimate the efficiency of production in relation to comparative advantage of vegetables. So, the present study has been undertaken to highlight the economic performance of vegetables.

Methodology

In order to evaluate the efficiency of production in relation to comparative advantage, cost of both domestic resource and non-traded inputs and traded inputs for production of vegetables are needed. Domestic resource and non-traded inputs include human labour, animal labour, seed, manure, irrigation, land rent, interest on operating capital, etc. while traded inputs include Urea, TSP, MP, and Gypsum. Using the above information, domestic resource cost (DRC) was estimated for different vegetables. The domestic resource cost (DRC) provides a measure of efficiency with implications for the level of incentives offered to producers. Whether the vegetable growers are efficient to produce a commodity as opposed to importing it, depends on the opportunity cost of domestic production relative to the value added. The DRC is the ratio of cost of domestic resources and non-traded inputs (valued at their shadow prices) of producing the commodity to the net foreign exchange earned or saved by producing the good domestically. Formally DRC is defined as:

$$\text{DRC} = \frac{\text{Cost of domestic resource and non - traded inputs for producing vegetable/metric ton}}{\text{Value of tradable vegetable/metric ton - Value of tradable inputs/metric ton}}$$

Mathematically

$$\text{DRC} = \frac{\sum D_{ij} V_j}{B_i - \sum T_{ik} V_k} \quad (j = 1 \text{ -----} m, k = 1 \text{ -----} n)$$

Where,

D_{ij} = domestic resource and non-traded inputs j used for producing vegetable i /metric ton,

V_j = Price of domestic resource and non-traded inputs j ,

B_i = Border price of vegetable i /metric ton,

T_{ik} = Quantity of tradable inputs k for producing vegetable i /metric ton and

V_k = Border price of tradable inputs k /metric ton.

If $\text{DRC} < 1$, the economy saves foreign exchange by producing the vegetables domestically either for export or import substitution. This is because

the opportunity cost of domestic resources and non-traded inputs used in producing the vegetable is less than the foreign exchange earned or saved. In contrast, if $DRC > I$, domestic costs are in excess of foreign costs or savings indicating that the vegetable should not be produced domestically and should be imported instead.

Results and Discussion

Exportable vegetables from Bangladesh

Appendix 1 shows the number of vegetables exported from Bangladesh to abroad. Vegetables were exported to those countries where Bangladeshis and other ethnic Asians live. Export of vegetables are confined mostly in those countries where Bangladeshis are also living. Though the number of exported items is large, the quantities are small. Position of Bangladesh as an exporter of vegetables is almost unsatisfactory to the world export particularly if compared with our neighboring country India. Bangladesh vegetables being exported to about 25 countries including KSA, UAE, Qatar, Oman, etc. and United Kingdom.

Annual trend of export of vegetables

Table 1 shows the annual quantity of vegetables export from Bangladesh during the period 1992-93 to 2006-07 (BBS 2005, Krishi Diary 2008) with their average prices shown in Table 3. The table exhibits the present status of vegetables export. It was observed that the vegetables export from Bangladesh is declining since 2001. In 1997-98, annual vegetable export was 23,597 tons but in 2006-07, it was only 4361 tons. This situation caused by many of reasons, such as reduced outflow of migrant workers, higher air freight charge and quality deterioration of vegetables.

Table 1. Total export quantity (MT) of vegetables.

Year	Quantity (MT)
1992-93	8042.00
1993-94	7415.00
1994-95	8270.00
1995-96	12932.00
1996-97	20449.00
1997-98	23597.00
1998-99	13106.00
1999-00	10270.00
2000-01	9509.00
2001-02	12799.00
2002-03	7007.00
2003-04	7777.00
2004-05	12302.00
2005-06	6046.00
2006-07	4361.00

Source: BBS 2005, Krishi Diary 2008, DD (Plant protection Wing), Quarantine Office, DAE. Khamarbari, Dhaka.

Export earning from vegetables in 2005-06

Table 2 represents the foreign exchange earnings from export of vegetables. Highest export earning was found by exporting potato followed by brinjal, pointed gourd, latiraj, etc. In the year 2005-06, the total export earning from vegetables was estimated to be Tk. 1120 million (Table 2). Total export earning from vegetables was found to be 1.18 percent of the value of total vegetables production.

Table 2. Foreign exchange earnings from exporting (Million Tk.) vegetable in 2005-06.

Name of vegetables	Total export (Million Tk.)	Total consumption at home (Million Tk.)	Total production (Million Tk.)	Export earning as % of total value of vegetable production
Pumpkin	11	1227	1238	0.9
Brinjal	101	11262	11362	0.9
Pointed gourd	78	1378	1457	5.4
Okra	67	434	501	13.4
Ridge gourd	11	422	433	2.6
Bitter gourd	45	1261	1306	0.4
Eddoe	56	2359	2415	0.3
White gourd	34	587	620	5.4
Cucumber	22	3594	3616	0.6
Yardlong bean	45	404	449	10.0
1.spinach	11	849	860	1.3
Snake gourd	22	451	474	4.7
Stem Amaran.	56	592	648	8.6
Teasle gourd	45	1165	1210	3.7
Sponge gourd	22	663	686	3.3
Latiraj	78	1585	1664	4.7
C.flower	-	2640	2640	-
Cabbage	11	5023	5034	0.2
Bottle gourd	22	1100	1122	2.0
Tomato	-	11542	11542	-
Radish	-	6837	6837	-
C. bean	22	556	578	3.9
Red Amarnth	22	650	672	3.3
Potato	123	36584	36708	0.3
Sub-total	907	93164	94071	1.0
Export other veg.	213	-	-	-
Total export	1120	-	-	-
Grand total	-	-	95191	-
Total export earning (%) from total vegetable production				1.18

Source: Own Estimation.

Table 3. Average selling price (Tk/MT) of vegetables in abroad in 2005-06.

Name of country	Tk./MT
Middle East	1,85,247.00
UK	2,25,135.00

Source: Different Exporters of Sham Bazar, Dhaka.

Export cost of vegetables in 2005-06

As many as 23 items of costs were involved in case of vegetables export. Of these, air freights charges was found to be Tk. 111250/MT for Middle East countries, while it was Tk. 160000/MT for UK. Among the cost items, air freights charges were found highest. In spite of the highest air freights charges, the exporters earned profit Tk. 31983/MT and it was found to be Tk. 32/kg (Table 4) in the Middle East countries. The lion share of vegetables was exported to the Middle East countries.

Table 4. Export cost of vegetables in 2005-06.

Cost items	Middle East	UK
Packaging	3020.00	3184.00
Packaging materials	3488.00	3730.00
Grading & loading	960.00	1064.00
Transport cost (Go-down to airport)	1700.00	1870.00
Unloading	176.00	186.00
Air freights charges	111250.00	160000.00
Airway bill charges (documentation)	216.00	238.00
Terminal & Handling	2440.00	2440.00
Export performa (EXP) charges	500.00	500.00
GSP certificate charges	0.00	300.00
Phyto-sanitary certificate	0.00	200.00
Bank services	50.00	50.00
Quarantine	100.00	100.00
Metropolitan chamber offices charges	500.00	500.00
Dhaka Chamber of Commerce Office Charges	1500.00	1500.00
Clearing & forwarding charges	1000.00	1000.00
Miscellaneous	150.00	150.00
Exporters' office expenses	2200.00	2272.00
Salary & Wages	920.00	1020.00
Office & go-down rent	910.00	1020.00
Tele. fax, Email, Photocopy etc.	252.00	276.00
Entertainment	334.00	368.00
Commission Agent	500.00	500.00
Total Cost	132166.00	182468.00
Total Cost except air Fare	20916.00	22468.00
Price in abroad	153082.00	204936.00
Selling price in abroad	185247.00	225135.00
Profit (Tk./MT)	32165.00	20199.00
Profit (Tk./kg)	32.17	20.20

Source: Different Exporters of Sham Bazar, Dhaka

Comparative advantages of vegetables

As mentioned earlier, DRC indicates whether the domestic economy has a comparative advantage in vegetables crops relative to other countries. If the DRC is greater than one, it implies that the economy loses foreign exchange through domestic production of the vegetables (in the sense that it uses more domestic resources than it generates net value added to tradable goods and services), while DRC is less than one implies that the production is efficient and make positive contribution to domestic value addition. The estimates of DRCs for different vegetables for the year 2005-06 are presented in Table 5. Among vegetables, the lowest DRC was found in snake gourd, while it was found highest in bitter gourd. Besides, the DRCs were found far below the one. The DRCs for all the vegetables were observed to be less than unity implying that Bangladesh had comparative advantage in vegetables production. On an average, DRC was found far below i.e. 0.35 (Table 5). It is, therefore, concluded here that exporting vegetables to Middle East countries has the higher comparative advantage in vegetables production to a greater extent.

Table 5. Domestic resource cost (DRC) of different vegetables in the year 2005-06.

Name of vegetables	Non-traded input cost	Traded input cost	f.o.b. price at airport	DRC ratio
	Tk./MT	Tk./MT	Tk./MT	
Snake gourd	2379.00	293.00	15600.00	0.16
Brinjal	4177.00	1045.00	25250.00	0.17
Yardlong bean	3359.00	1233.00	20500.00	0.17
Okra	4085.00	1661.00	17950.00	0.25
Potato	4692.00	913.00	18000.00	0.27
Red amaranth	4808.00	922.00	17500.00	0.29
Cucumber	5502.00	329.00	17900.00	0.31
Eddoe	5797.00	760.00	18800.00	0.32
Country bean	8638.00	455.00	24100.00	0.37
Teasle gourd	16460.00	1422.00	35400.00	0.48
White gourd	9524.00	455.00	17640.00	0.55
Pointed gourd	11292.00	2039.00	20850.00	0.60
Bitter gourd	14695.00	1451.00	24780.00	0.63
Average	7339.08	998.31	21097.69	0.35

Source: Authors' own estimation.

Conclusion

The exporters will be able to earn a sizeable amount of foreign exchange through exporting vegetable, especially in the Middle East countries if the bottlenecks to the export can be minimized through different government actions. So the Government should liberalize our vegetables exporting policy by any means. In order to do so, it may be concluded here that the downward trend of vegetable export is to be changed to upward trend of vegetable export.

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Appendix 1. List of exportable vegetables from Bangladesh.

SI. No.	English name of vegetables	Local name of vegetables
1	Bitter gourd	Karala
2	Yard long bean	Barbati
3	Okra	Dherosh
4	Bottle gourd/Dudhi	Bottle gourd
5	Ash/wax gourd	Jali Kumra
6	Snake gourd	Chickingal Kohi
7	Sponge gourd	Dundul
8	Green chilli	Kacha Marich
9	Ridge gourd	Jhinga/Tury
10	Pumpkin//Sweet gourd	Misti Kumra
11	Pointed gourd	Patal/Palwal
12	Teasle gourd	Kakrol/Kantola
13	Cucumber	Shasa
14	Broccoli	Sabuj Phulkopi
15	Hyacinth bean/Lablab bean	Deshi seem
16	French bean	French bean

Appendix 1. Cont'd

SI. No.	English name of vegetables	Local name of vegetables
17	Small cucumber	Khira
18	Potato	GoolAlu
19	Egg plant/brinjal	Kalo Begun
20	Taro	Pani Kachu
21	Eddoe	Mukhi Kachu
22	Coco Yam	Dood Kachu
23	Yautia	Moulavi Kachu
24	Giant Taro	Mankachu
25	Aroid	Kachu
26	Stolon of Taro	Kachur Lati
27	White Yam	Mattay Alu
28	Air potato	PestaAlu
29	Elephant foot yam	Olkachu
30	Green Papaya	Kacha Papay
31	Drumstick	Shajna
32	Plantain	Kacha Kola
33	Banaba Flower	Kolar Thor/Mocha
34	Water Lily	Shapla
35	Pea seed	Motor Shuti
36	Stem Amaranth	Danta
37	Red amaranth	Lalshk
38	Indian Spinach	Puishak
39	Spinach	Palong Shak
40	Kangkong	Gimakalmi Shak
41	Sweet potato	Misti alu
42	Jute leaf	Patshak
43	Rajatpata	Rajatpata
44	Belet leaf	Pan
45	Stem Amaranth leaf	Danta Shak
46	Leaves of Aroid	Kachur pata
47	Stem of Aroid	Kachur Doga
48	Naga hot chilli	Naga Marich
49	Onion leaf	Piaj Pata
50	Matured Wax gourd	Chuna Jali Kumra
51	Stem of Banana	Kolar Anaj
52	Hyacinth bean seed	Seemer Bichi
53	Bottle gourd leaf	Lau Shak
54	Cabbage	BadhaKopi
55	Coriander leaf	Dhaney Pata

Source: Different Exporters of Sham bazar, Dhaka.

Appendix 2. Farm-gate prices of different vegetables (Tk/MT) in 2005-06.

Name of vegetables	Tk./MT
Pumpkin	5529
Brinjal	6079
Pointed gourd	7650
Okra	6059
Ridge gourd	7568
Bitter gourd	8925
Eddoe	5661
White gourd	4865
Cucumber	5 110
Yardlong bean	9000
l.spinach	3590
Snake gourd	6630
Stem Amaran.	8500
Teasle gourd	17500
Sponge gourd	6550
Latiraj	15040
C.flower	7568
Cabbage	5488
Bottle gourd	4702
Tomato	9160
Radish	3825
C. bean	6946
Red Amarn.	8500
Potato	8045

Source: Sonali Bank, Foreign Exchange Branch, Dhaka.

Appendix 3. Conversion rate of foreign currency in 2005-06.

Foreign currency	In-terms of Tk.	In-terms of US dollar
US dollar	67.07	1.00
Uro	81.40	1.21
Pound	118.78	1.77
Average	89.08	1.33

Source: DAM and BBS.