Horticultural Exports of Developing Countries:
Issues under WTO Regime

Deepak Shah[*]

Abstract

This paper seeks to evaluate the present and future prospects of developing and developed countries in agricultural exports in general and in horticultural exports in particular. The study also evaluates the behaviour of international export prices for agricultural commodities, both for developing and developed nations. In general, this study provides an insight into the direction in which various developed and developing countries are heading for insofar as their agricultural and horticultural exports are concerned in the changed market conditions. The study has made a few major observations. First, the study shows decline in market share of developing countries' in world agricultural exports in the face of marginal increase in their market share in world fruits and vegetable (F&V) exports during the period between 1981 and 1997. Second, although the study shows lower market share of developing countries' in world F&V exports during the period between 1981 and 1997, the growth in F&V exports as proportion of total agricultural exports is noticed to be much faster for developing countries' as against the developed countries' during the same period. Third, though agricultural exports of Least Developed Countries (LDC) have grown only marginally between 1981 and 1997, the growth in their F&V exports is seen to have been tremendous, especially after the late eighties period. Similarly, Socialist Countries of Asia (SCA) and developing countries of Oceania have also shown sharp increases in their F&V exports after the late eighties period. Fourth, while except America, other Africa and Oceania, all the developing countries have shown decline in their market share in total F&V exports of Developing Market Economies (DME), Asia shows rise in its market share not only in agriculture but also in F&V exports of DME. Another major observation of this study is in terms of instabilities in export prices. The instabilities in export prices of agricultural commodities, including horticultural ones, are noticed to be more sharp for developing world as compared to developed world. The study, therefore, has categorically emphasized upon the fact that the future growth in horticulture production and trade, especially of developing world, will mainly depend on future price mechanism and also on the import demand of these high value crops in various regions of the world.

Introduction:

Of late, there has been much speculation about what the implications may be for developing countries of agricultural liberalization resulting from the GATT Uruguay Round negotiations. It was expected that the successful GATT negotiations would provide developing countries opportunities to compete on a more equal footing in global agricultural trade. But, at the same time, it also raised concerns on how international food prices and trade will react to free trade regime. Who will gain and who will loose from the possible outcome of trade liberalization is again a central point of discussion. In particular, it is necessary to

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[*] Faculty Member, Gokhale Institute of Politics and Economics (Deemed to be a University), Deccan Gymkhana, Pune – 411 004 (Maharashtra)

consider what the price and trade effect of a successful resolution of the liberalization will be and what will be the implication of agricultural trade liberalization for the developing countries.

In recent years, faced with rapidly shifting international market conditions, horticultural products among various agricultural products have acquired much attention in international trade. The prospects for the liberalization of trade in horticulture may be linked with the success of the Uruguay Round of the Multilateral Trade negotiations. The inherent importance of horticultural products in world agricultural trade and in developing countries' agricultural exports was stressed by many writers. Due to changing pattern of food consumption and expenditure and the reduction of official barriers, developing countries were observed to increase their share in world horticultural trade, with fruit and fruit products constituting a large proportion of their horticultural exports (Islam, 1990).

In the light of the above background, this paper seeks to evaluate the present and future prospects of developing and developed countries in agricultural exports and also to evaluate the relative potential of exports of horticultural commodities as against the total agricultural exports. The paper also evaluates the international export price behaviour/mechanism for agricultural commodities, both for developed and developing market economies.

Data Base and Methodology:

Data used for this study were collected from various secondary sources. Time series data for seventeen years (1981 –1997) on the export trade (value terms) of various agricultural commodities for different developed and developing countries were collected from various issues of the annual publications of Food and Agricultural Organization of the United Nations (FAO), "Trade Yearbook", FAO; International Trade Statistics Yearbook, Volume II Trade by Commodity ; UNCTAD Commodity Yearbook and FAO Commodity Review and Outlook.

In this study, exponential trend equations have been fitted to the time series data obtained for various parameters in order to compute compound rates of growth that were also tested for their significance by the student 't' statistics. Further, with a view to understand export growth performance better and in order to capture year to year fluctuation in the same, an index of export instability as suggested by Coppock (1962) has also been incorporated in the analysis, which appeared to have taken care of trend component in the time series data.

According to Coppock (1962), the annual export instability index equals the anti-log of the square root of the logarithmic vaiance. The series is given in algebraic form as follows:

$$V \log = \frac{1}{N-1} \Sigma \left[\log X_{t+1} - \log X_t - \frac{1}{N-1} \Sigma (\log X_{t+1} - \log X_t) \right]^2$$

OR

$$V \log = \frac{\left[\log \dfrac{X_{t+1}}{X_t} \right]^2}{N-1} - m$$

Where, N = Number of Years; X = Value of the perimeter
M = Mean value of the logarithmic first difference.

The paper initially briefly examines the instability in international prices of agricultural commodities and their implications for developing countries. Subsequently, it evaluates the changing structure of agricultural exports of developed and developing nations of the world with major focus on analysing the changes in the export trade of fruits and vegetables in relation to total agricultural exports. This exercise in general provides an insight into the direction in which various developed and developing countries are heading for insofar as their agricultural export trade are concerned in the changed market conditions.

International Price Instability:

Although fluctuations in climate have always made agricultural markets comparatively volatile, this volatility, however, has increased as more governments have come to use international food markets as possible outlet for the residual supply and also for dumping grounds for unplanned surpluses. Exchange rate fluctuations have also affected prices directly (Rod Tyers, 1990). The depressed world prices together with government policies that tax agriculture relative to industry in developing countries have discouraged realization of true farm output and consequently have been instrumental for lower rural incomes. In addition, prolonged protection of producers in the industrialized market economies coupled with slower income growth in the developing countries have combined to result in global glut in the market for many farm products. Export subsidies designed to dispose of the surplus have vitiated the world prices (Thomas W. Hartel, 1990).

The trend relating to fluctuations in international export prices for food and non-food items encompassing the period between 1981 and 1993 is brought out in Table 1.

A critical analysis drawn from Table 1 revealed two distinct features as regards international export prices for food and non-food items. While period 1981-1987 turned out to be marked with a continuous decline in international export prices for food and non-food items, a sharp increase in such prices was also noticed from 1988 and onwards. A part of the

explanation for this price surge lied in the economic recovery that was being witnessed in most of the developed regions and which had benefited agricultural commodity prices also in general. However, the export prices of food and non-food items of developed countries showed continuously a declining trend, with the exception of 1988 when the developed countries' export prices of food and non-food items rose by 18 percent from the level of 1987.

As for export prices, Table 2 provides a detailed analysis in terms of index of nominal export prices of major agricultural commodities for developed and developing world encompassing the period from 1991 and 1998.

Table 1 : Trend in Food and Non-Food Export Price Indices

Year	Total Agril. (World)	Food			Non-Food		
		World	Developed	Developing	World	Developed	Developing
(indices 1980 = 100)							
1981-83 (Average)	83	81	85	73	87	90	83
1984	80	74	75	70	91	93	90
1985	71	66	98	63	74	75	73
1986	74	74	73	77	75	77	70
1987	78	75	79	66	86	89	82
1988	92	87	93	75	100	105	93
(indices 1979-81 = 100)							
1989	97	95	82	101	102	93	108
1990	99	96	78	105	104	94	109
1991	94	93	73	102	97	89	101
1992	95	95	71	107	94	89	97
1993	89	90	70	98	88	84	91

Source : FAO Commodity Review and Outlook (Various Years)

Table 2 : Index of Nominal Export Prices of Major Agricultural Commodities[1]
(Current Values, 1990 = 100)

Item	World					Developed			Developing		
	Average 1991-93	Average 1994-97	1996	1997	1998	1996	1997	1998	1996	1997	1998
Cereals	100	122	146	114	99	135	113	108	150	115	96
Beverage crops	87	156	129	165	142	130	166	142	122	154	135
Meats	88	73	84	73	65	86	71	62	83	74	66
Dairy products	112	126	122	125	122	123	126	124	122	125	122
Bananas	91	88	86	89	90	86	89	90	86	89	90
Sugar	74	97	95	91	71	95	91	71	95	91	71
Oilseeds, Oils & Cakes	105	133	137	137	129	148	148	144	125	125	112
Oilseeds	99	115	125	121	101	123	120	98	125	122	102
Oils	111	159	148	148	168	161	160	182	122	124	141
Cakes	101	116	133	136	84	133	136	83	134	137	85
Agricultural raw material	79	105	103	93	74	118	103	81	89	84	67
All food [2]	91	111	109	113	100	119	135	118	100	92	84
All major commodities	89	109	108	109	95	119	128	110	98	90	80
In real terms [3]											
All food	87	98	102	104	96	111	135	118	93	92	84
All major Commodities	85	97	101	101	91	111	128	110	91	90	80

Notes : 1. The index is based on 1986-88 value of exports as weights

2. Food includes all commodities represented in the table except agricultural raw materials

3. Deflated by the export unit value of manufactures of industrialized countries

Source : FAO Commodity Market Review, 1997-98 and 1998-99

It is to be noted that the instabilities in export prices were more sharp for developing world as compared to developed world. This was well against the notion of the Uruguay Round which anticipated international food prices to be more stable in the aftermath of globalization. In fact, the policy reforms, often associated with the Uruguay Round, undertaken in the late eighties and the early nineties, had led to sharp fall in carry-over stocks which tended to increase the fluctuations in prices.

As regards the outlook for price instability following the Uruguay Round, the latest relevant analysis available is that of the FAO Expert Consultation in June 1996 on Price Instability which basically found that in the next few years, when policies adjust to the new trading environment, prices will be more unstable than afterwards when the system is expected to settle down.[1]

Changing World Agricultural Exports:

Agricultural exports constituted about 11 per cent of the total value of all-merchandise exports of the world during 1981-83 period. This share of agricultural exports was found to gradually decline to nearly 9.5 per cent in the late eighties and in the mid-nineties, a fall of about 1.3 per cent was further noticed (Table 3). The decline in the ratio of agricultural exports to all-merchandise exports of the world in the late-eighties was mainly due to considerable fall in the developed countries' ratio of agricultural exports to their all-merchandise exports, since this ratio showed only marginal decline in the case of developing nations between early- and the late eighties. However, a further decline in the ratio in the mid-nineties from the level of late-eighties was chiefly because of a marked decline of developing countries' ratio of agricultural exports to their all-merchandise exports. In absolute terms, the value of agricultural exports has grown over a period of time and a relatively higher increase in the total value of agricultural exports was noticed between late eighties and the mid-nineties, that is, in the face of more liberal market environment.

An examination of Table 3 on break-up of total value of agricultural exports into various commodity groups revealed that in certain groups of commodities such as tropical products (coffee, tea, cocoa, banana, sugar, pepper, etc.), oilseed products (oilseed, fats and oilcakes) and cereals there was a steady and sharp decline in their share in total world agricultural exports all through the period between early eighties and the mid-nineties. In fact, developing countries contributed more to the declining share of tropical products in world agricultural exports. However, in the case of oilseed products and cereals, various developed nations showed relatively faster decline in their share in world agricultural exports as compared to developing nations. On the other hand, the share of livestock products in world agricultural exports increased perceptibly between early- and the late eighties. The

period between late eighties and mid-nineties also saw a gradual decline in share of export trade of raw material as well as citrus, wine and tobacco in world agricultural exports. Both developed and developing countries contributed to this decline in share of raw material and citrus, wine and tobacco in world agricultural exports.

Table 3: Commodity Composition and Changing World Agricultural Export Scenario

(in US $ '000' million)

Exports	TE 1983			TE 1990			TE 1997		
	World	Deve-loped	Deve-loping	World	Deve-loped	Deve-loping	World	Deve-loped	Deve-loping
I. All-Merchandise	1894.33	1375.67	518.67	3213.00	252.00	691.67	5314.67	3624.65	1690.02
II. Agril. Products	217.87	146.06	71.81	305.43	212.83	92.60	437.17	301.46	135.71
Share (%)									
- Tropical Products [a]	12.75	3.87	31.07	9.97	3.04	25.78	5.93	2.27	14.42
- Oilseed, Fats and Oilcakes	11.63	11.19	12.52	9.94	7.95	14.50	7.25	5.72	10.71
- Cereals [b]	17.64	22.13	8.50	11.83	14.53	5.63	8.12	9.63	7.22
- Livestock Products	17.83	23.17	7.14	18.93	24.25	6.78	15.28	19.72	6.30
- Raw Materials [c]	5.78	4.15	9.08	5.78	4.26	9.26	3.61	2.85	7.81
- Citrus, Wine & Tobacco	5.07	5.43	4.35	5.05	5.77	3.46	4.11	4.67	2.82
- Other Agril. Products [d]	29.30	30.06	27.34	38.50	40.20	34.59	55.70	55.14	50.72
III. Agril. To Merchandise Products (%)	10.98	10.62	13.84	9.51	8.44	13.39	8.23	8.32	8.03

Source: Compiled from various issues of 'FAO Commodity Review and Outlook'

Notes: 1) TE = Triennium Ending
2) a – Tropical products include coffee, cocoa, tea, sugar, banana, and pepper
b – Cereals include rice, wheat and coarse grain
c – Raw material include cotton lint, jute, allied fibers, hard fibers, natural rubber, hides and skins
d – Other Agricultural Products: About one third of these products are derived from agricultural commodities itemised in this table. The remaining two-thirds include a variety of commodities not itemised in this table, which mainly include horticultural products such as fruits other than citrus, vegetables, roots and rubber, etc.

On the other end of the spectrum, the export trade of other agricultural products that mainly included horticultural products and agriculture-derived processed products expanded rapidly in world agricultural exports (Table 3). The export trade of other agricultural products stood at nearly 30 per cent of the world agricultural exports in the early eighties. This share of other agricultural products was found to increase rapidly to 40 per cent in the late eighties and in the mid-nineties, it expanded to as high as 56 per cent of the world agricultural exports. Both developed and developing nations contributed to this sharp increase in export trade of these products. The processed products are, therefore, acquiring larger significance in the rapidly changing market conditions. A further analysis will reveal the status of developed and developing nations in the world horticultural exports.

World Horticultural Exports:

The growing importance of horticultural trade is evident from Table 4 which shows how the structure of fruits and vegetable exports vis-à-vis total world agricultural exports changed over the 1981-1997 period. The increase in fruits and vegetable exports was found to

be much faster than total world agricultural exports. Not only the fruits and vegetable exports grew faster than agricultural exports but the export growth instabilities were also higher for fruits and vegetable products as compared to agricultural products (Appendix 1a).

Table 4. Changing Structure of Value of Agricultural Exports in Relation to Fruits and Vegetable Exports

Exports	TE 1983			TE 1990			TE 1997		
	World	Deve-loped	Deve-loping	World	Deve-Loped	Deve-loping	World	Deve-loped	Deve-loping
I. Agril. Products (US $ million)	217869	146061	71808	305434	212834	92600	437171	301456	135716
II. Fruits and Vegetables (US $ million)	23622	14952	8670	43099	26535	16564	68690	43137	25553
Market Share (%)									
- Agril. Products	100	67.04	32.96	100	69.68	30.32	100	68.96	31.04
- Fruits and Vegetables	100	63.30	36.70	100	61.57	38.43	100	62.80	37.20
III. Fruits and Vegetables to Agricultural (%)	10.84	10.24	12.07	14.11	12.47	17.89	15.71	14.31	18.83

Source: Computations are based on figures obtained from various issues of Food and Agricultural Organization of the United Nations (FAO), " Trade Yearbook", and Developed and Developing countries are identified from UNCTAD Commodity Yearbook.

Notes: 1) Only those countries were included which were exporters of fruits and vegetables during the period between 1981 and 1997.

2) China was included in the computations only from 1986 onwards since fruits and vegetable export figures before 1986 were not available for china.

3) The following countries were considered as Developed Countries and the remaining fruits vegetable exporting countries were treated as developing : South Africa, Canada, United States, Israel, Japan, Austria, Belgium-Luxembourg, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Australia and New Zealand.

4) CGR = Compound Growth Rate; CII = Coppock Export Instability Index.

In terms of market share, developed countries showed much higher share than developing countries in both agricultural and fruits and vegetable exports. Further, when the shares of developed countries' in total world agricultural exports and total world fruits and vegetable exports were brought in comparison, it was noticed that this share was of a little higher order for agricultural exports compared to fruits and vegetable exports. Contrary to this, the share of developing countries' in world fruits and vegetable exports was higher than their share in world agricultural exports all through the period between early eighties and the mid-nineties (Table 4). The difference between these two is widening in recent years. This is mainly because of decline in developing countries' market share in world agricultural exports in the face of marginal increase in their market share in world fruits and vegetable exports during the period between early eighties and the mid-nineties.

In fact, Table 4 provides only an overall insight into the growing importance of horticultural exports of developing nations and it does not indicate as to which are those groups of nations that mainly contribute to the total horticultural exports of developing world. In the subsequent section, therefore, an attempt is made to further probe into the horticultural exports of developing world.

Horticultural Exports of Developing Countries:

The developing world have been categorized into various groups of countries such as Least Developed Countries (LDC),[2] Countries of Eastern Europe (CEE),[3] Socialist Countries of Asia (SCA),[4] and Developing Market Economies (DME).[5] The DME have been further classified into developing countries of America, Asia, Europe and Oceania. The estimates of agricultural exports and fruits and vegetable exports encompassing the period between 1981 and 1997 for different regions of developing world are brought out in Table 5.

Table 5: Changing Structure of Agricultural and Horticultural Exports of Developing Countries

(In US $ million)

Exports	TE 1983			TE 1990			TE 1997			Market Share Growth (81-97)	
	Agril. Exports (AE)	F &V Exports	F & V to AE	Agril. Exports	F &V Exports	F & V to AE	Agril. Exports	F &V Exports	F & V to AE	Agril. Exports	F & V Exports
All – Developing (A+B+C+D)	71808	8670	12.07	92600	16564	17.89	135716	25553	18.83	-0.92*	-0.12
A – LDC	3420	143	4.18	3182	185	5.81	3898	454	11.65	-4.00*	0.44
B – CEE	6182	694	11.23	7292	1024	14.04	10566	1652	15.64	-0.65	-1.23*
C – SCA	5019	114	2.27	11920	2582	21.66	17446	3839	22.01	4.78*	19.73*
D – DME (a+b+c+d+e)	57187	7719	13.50	70206	12773	18.19	103806	19608	18.89	-0.35*	-1.11*
a. America	29428	3280	11.15	32695	6220	19.02	49247	10571	21.47	-0.73*	1.39*
b. Africa	5707	654	11.46	6495	836	12.87	8708	1435	16.48	-1.46	-1.04
i. North Africa	1340	525	39.18	1342	685	51.04	1920	957	49.84	-1.34*	-2.64*
ii. Other Africa	4367	129	2.95	5153	151	2.93	6788	478	7.04	-1.49	4.31*
c. Asia	20371	3543	17.39	29357	5446	18.55	43859	7430	16.94	1.45*	-1.01*
i. West Asia	3616	1327	36.70	4663	2101	45.06	8094	3130	38.67	2.46*	-0.38
ii. South & South East Asia	16755	2217	13.23	24694	3345	13.55	35765	4300	12.02	1.23*	-1.45*
d. Europe	1244	240	19.29	1169	266	22.75	1298	161	12.40	-5.22*	-8.95*
e. Oceania	437	2	0.46	490	5	1.02	694	11	1.59	-1.61*	2.96

Source: As in Table 4

Notes : 1 to 3 as in Table 4

* - implies significance of growth market share growth rates at 1 % level of probability

During the period between 1981 and 1997, the much faster rate of increase in fruits and vegetable exports in relation to total agricultural exports has led the share of fruits and vegetables in total agricultural exports to increase significantly for all the countries of developing world with developing countries of Europe (DCE) being an exception in this phenomenon (Appendix 1b). In the case of DCE, not only the export trade of fruits and vegetables has declined but their total agricultural exports have also shown a fall during the given period of time with fruits and vegetables showing faster rate of decline as compared to their total agricultural exports.

Among various group of countries, SCA have shown tremendous increase not only in their agricultural and fruits and vegetable exports but also in terms of share of fruits and

vegetables in total agricultural exports (Table 5). This is mainly because of inclusion of China in estimation from 1986 and onwards.[6] As for DME, the share of fruits and vegetables in total agricultural exports is seen to have been the highest for north Africa, followed by west Asia and America in that order. However, other Africa have also shown relatively higher growth not only in the export trade of their fruits and vegetables but also in terms of share of fruits and vegetables in their total agricultural exports (Appendix 1b).

A few points need to be emphasized. First, the share of developing countries in world agriculture and fruits and vegetable exports declined in the face of increase in share of developed countries' in world agriculture and fruits and vegetable exports. However, while decline in developing countries' market share in world fruits and vegetable exports turned out to be marginal, the increase in developed countries' market share in world fruits and vegetable exports was also very marginal and insignificant. Second, although market share of developing countries' in world fruits and vegetable exports was lower than developed countries', the growth in fruits and vegetable exports as proportion of total agricultural exports turned out to be much faster for developing countries' as compared to developed countries'. Third, though agricultural exports of LDC grew only marginally between 1981 and 1997, the growth in their fruits and vegetable exports was tremendous during this period. Similarly, SCA and developing countries of Oceania also showed very sharp increase in their fruits and vegetable exports as compared to their agricultural exports during the given period of time. Fourth, except America, other Africa and Oceania, all the developing countries have shown a decline in their market share in total fruits and vegetable exports of DME. On the other hand, Asia has shown an increase in its market share in total agricultural exports of DME in the face of a steady decline in market share of other developing countries' in total agricultural exports of DME. However, despite these disquieting trends, the share of developing countries' fruits and vegetable exports has increased perceptibly in their total agricultural exports during the given period of time. This is a reflection of the growing importance of these countries in the overall world horticultural exports. However, the future prospects for their growth in exports of these high value exportable commodities would depend on the growth of demand in other developing and developed countries and also on the possibility of these countries maintaining or increasing their competitive strength in world markets.

Towards Conclusion:

It has been argued that under new market environment, various developing countries are expected to face different situation and challenges in their agricultural sector, which may well result in different group of developing countries emphasizing upon different issues. First, there is a number of developing countries with relatively low protection of agriculture who

are major exporters of agricultural commodities. These countries might face two major challenges in exporting their agricultural products : (a) the continued presence of high tariffs and substantial Aggregate Measure of Support (AMS) by developed countries which restrict market access, (b) developed countries export subsidies which make it difficult for them to compete in third country market. Second, there is another group of countries which includes the traditional net food importing developing countries (NFIDCs) and other with substantial protection of agriculture which, are concerned that export subsidy reduction by the developed countries will increase their import bills (Michalopoulos, Constantine, 1999). These countries, therefore, have been seeking to obtain an increased amount of food aid through the recently renegotiated Food Aid Convention (International Grains Council, 1999).

As for the export trade of horticultural products in particular, the growth prospects for their exports are likely to be favourable for developing countries since developing countries with abundant labour in relation to capital or land enjoy a comparative advantage in labour-intensive horticultural products, as against for cereal products. A rise in non-traditional agricultural exports, such as horticultural exports, in developing countries will not only lead to expansion of foreign exchange earnings which can be used to meet rising import requirements of other commodities but also to meet mounting debt service payments. Thus, developing countries should find potentiality in non-traditional exports at a time when growth in the traditional ones is foundering. At the same time, it deserves mention that the future growth in horticultural production in developing world will mainly depend on future price mechanism and also on the import demand of these high value crops in various regions of the world. The production deficit of various regions in fruits and vegetables will act as engine of export growth of the same for developing nations. Further, it is to be noted that earlier Nurul Islam (1990) had predicted the world import demand to grow at the rate of 3.1 per cent a year for fruits and 3.9 per cent a year for vegetables during 1984-2000 period. He had categorically emphasized upon the fact that the quantum of projected import demand will exceed export supplies by the year 2003. This will lead to rise in export prices, especially for fruits. Production deficit of other countries and regions and a likelihood of rise in export prices of these high value crops may serve as a catalyst for significant expansion in the production of horticultural crops, particularly in developing world.

End Notes:

1. For details see: Report of a meeting of experts on Agricultural Price Instability, Rome, 10-11 June, 1996, ESCP No. 2.

2. Least Developed Countries: Burkina Faso, Chad, Ethiopia, Gambia, Liberia, Madagascar, Malawi, Mali, Somalia, Sudan, Tanzania, Togo, Uganda, Zaire, Zambia, Haiti, French Guinea, Bangladesh, Burma, Yemen and Samoa.

3. Countries of Eastern Europe: Czechoslovakia, Hungary, Poland and USSR.

4. Socialist Countries of Asia: Korea Republic, China and Vietnam.

5. Developing Market Economies: *America*: Bahamas, Barbados, Costa Rica, Cuba, Dominican Republic, El Salvador, Guadeloupe, Guatemala, Honduras, Jamaica, Martinique, Mexico, Nicaragua, Panama, Trinidad & Tobago, Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay and Venezuela. *North Africa*: Algeria, Egypt, Libya, Morocco and Tunisia. *Other Africa:* Cameroon, Central African Republic, Congo, Gabon, Ghana, Ivory Coast, Kenya, Mauritius, Nigeria, Reunion, Senegal, Sierra Leone, Seychelles, and Zimbabwe. *West Asia:* Bahrain, Cyprus, Jordan, Kuwait, Oman, Qatar, Saudi Arab Kingdom, Syria, Turkey, United Arab Emirates. *South and South East Asia:* Brunei Darussalam, Hong Kong, India, Indonesia, Macao, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka and Thailand. Europe: Malta and Yugoslavia. *Oceania:* Fiji, French Polynesia, New Caledonia, Papua New Guinea and Solomon Islands.

6. Before 1986, various data sources did not contain estimates of agricultural and fruits and vegetable exports of China.

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Appendix 1a : Export Growth Instabilities for Agricultural Products in relation to F & V Products : 1981-1997

Exports	CGR (%)			CII (%)		
	World	Developed	Developing	World	Developed	Developing
I. Agricultural Products	5.22*	5.68*	4.25*	7.15	8.33	7.13
II. Fruits and Vegetables (F&V)	8.40*	8.49*	8.27*	9.41	9.41	10.44
Market Share						
(a) Agricultural Products	-	0.44*	-0.92*	-	2.33	5.05
(b) Fruits and Vegetables	-	0.07	-0.12	-	2.10	3.38
III. F& V to Agriculture	3.02*	2.66*	3.86*	6.13	6.27	8.94

Note : CGR = Compound Growth Rate ; CII = Coppock Export Instability Index

  *- indicate significance of growth rates at 1 per cent level of probability.

Appendix 1b : Export Growth Instabilities for Agricultural Products in Relation to F & V Products : 1981-1997

Exports	CGR (%)			CII (%)		
	Agril. Exports	F&V Exports	F&V to Agril Exports	Agril. Exports	F&V Exports	F&V to Agril Exports
All - Developing (A+B+C+D)	4.25*	8.27*	3.86*	7.13	10.44	8.94
A - LDC	0.08	8.74*	8.66*	12.16	24.81	26.84
B - CEE	3.57*	6.93*	3.25*	9.79	10.13	12.13
C - SCA	9.23*	29.62*	18.69*	8.62	93.11	86.70
D - DME (a+b+c+d+e)	3.88*	7.07*	3.06*	8.05	9.16	8.43
a. America	3.13*	8.55*	5.26*	9.75	12.35	12.53
b. Africa	2.37*	5.97*	3.50*	19.06	13.44	19.91
i. North Africa	2.50*	4.24*	1.70*	10.82	13.78	13.33
ii. Other Africa	2.34*	11.71*	9.15*	22.11	34.27	44.70
c. Asia	5.39*	5.98*	0.55	10.38	8.35	9.03
i. West Asia	6.43*	6.66*	0.21	8.35	12.17	10.73
ii. South & South East Asia	5.16*	5.51*	0.33	11.66	10.71	10.81
d. Europe	-1.50	-2.33	-1.03	11.50	19.88	235.59
e. Oceania	2.21	11.61*	8.16*	14.10	40.49	31.44

Note: As in Appendix 1a.