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RESEARCH NOTES

Behaviour of India's Horticultural Exports: Does Price Competitiveness Play a Determining Role?

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I

INTRODUCTION

The paper investigates the factors that determine the exports of horticultural products from India during 1961 to 2005. Horticultural exports have witnessed a rising trend from 1997-98 onwards, even though the pattern varies across individual commodities. With growing horticulture trade, the share of the group in India's agricultural exports approximately stands at 52 per cent. India accounts for 1.7 per cent of the global trade in vegetables and 0.5 per cent in fruits (World Bank, 2007). The major horticultural items being exported from India include fruits, vegetables, spices, plantation crops and flowers, while some of the major destinations are Bangladesh, Malaysia, Nepal, UAE, and UK. Such observed growth pattern in exports has significant linkages with the rest of the economy in terms of employment and livelihood. This study further draws its importance from the fact that, since the 1980s, the Government of India did identify horticulture as a means of diversification for making agriculture more profitable.

India has been able to expand its horticulture exports during the period when significant policy initiatives were taken towards horticulture development and liberalising agricultural trade unilaterally as well as part of regional and multilateral commitments. However, it is not only the shifts in policy initiatives on the supply side, but also a large number of other factors that explain the behaviour of exports of horticulture products from India. Horticultural exports are mainly affected by two set of factors. While it is the relative prices which hold key to horticultural exports like that of any other traditional products, other domestic and external factors are no less important.

There is a large literature analysing the factors determining agricultural exports from developing countries, but the critical mass is not large in case of horticulture exports from India. Apart from low price responsiveness of horticultural exports (Nanda *et al*., 2008), other constraints towards export of horticultural products from India identified by different studies are inefficient production practices, post-harvest

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technologies, issues related to supply chain, market access, non-tariff restrictions and governmental policies (Chandra and Kar, 2006) and high delivery cost (World Bank, 2007).

The study is organised as follows. Section II delineates the conceptual framework in terms of a model analysing the export behaviour. Section III discusses in detail the methodology used in the econometric estimation as well as provides a description of the variables used in the econometric exercise. The estimation results are reported and analysed in Section IV. Finally Section V concludes with some policy implications.

II

ANALYTICAL FRAMEWORK

The empirical analysis of understanding the export behaviour is carried out in a perfect substitutes framework following Goldstein and Khan (1985). The rationale behind using this model is that in spite of existence of different trade restrictions like tariff, quota and special preferential trading relationships there is no denying that there are homogeneous commodities which are traded in international commodity market at a common price. Also, international differences in methodology of constructing price indices can lead to observed international price differences for a particular commodity which may not reveal the true degree of substitutability. The insights about price and income elasticities of exports that emerge from a perfect substitute model may be at variance from that of an imperfect substitutes model.

The perfect substitute model is described briefly in Equations (1) to (7).

$$D_i = l(P_i, Y_i) \qquad l_1<0, \quad l_2>0 \qquad \ldots(1)$$

$$S_i = n(P_i, F_i) \qquad n_1>0, \quad n_2<0 \qquad \ldots(2)$$

$$X_i = S_i - D_i \qquad \ldots(3)$$

$$P_i = PX_i = e.Pw \qquad \ldots(4)$$

$$D_w = \sum_{i=1}^{m} D_i \qquad \ldots(5)$$

$$S_w = \sum_{i=1}^{m} S_i \qquad \ldots(6)$$

$$D_w = S_w \qquad \ldots(7)$$

D_i is the total quantity of the traded good demanded in country 'i'; S_i is supply of traded good produced in country 'i'; X_i are exports of country 'i'; PX_i, P_i, P_w are the export, domestic and world prices of the traded goods; D_w and S_w are the world demand and supply of the traded goods and Y_i and F_i are money income and factor costs in country 'i'. This model differentiates itself from imperfect substitute model

in a way that instead of using separate export and import functions this model uses excess demand and excess supply functions as import demand and export supply functions respectively. Another distinguishing feature of the model is that it considers all prices in a common currency and therefore there is only one traded good price in this model (i.e., $P_i = PX_i = e.P_w$).

However, the law of one price as assumed in the above model often does not hold good. The model to be estimated is thus improvised based on the perfect substitutes model. The export function of horticultural products to be estimated can be thus specified as follows:

X_t = f (total production$_t$, relative export price$_t$, producer price$_t$, world demand$_t$, dummy variable) ….(8)

The export behaviour of horticulture products thus depend on production, export price, world unit price, world demand and producer price. The dummy variable incorporated in the model indicates the structural break in the export behaviour most often following changes in policies in the horticultural sector.

Equation (8) can be re-written as

$$\ln X_t = \alpha_0 + \alpha_1 \ln Pdn + \alpha_2 \ln RelExpPr + \alpha_3 \ln ProdPr + \alpha_4 \ln WrDd + \alpha_5 D \quad ....(9)$$

where,

lnPdn = log(total production in quantity)
lnRelExpPrice = log(relative export price)
lnProdPr = log(producer price)
lnWrDd = log(world demand in quantity)
Dummy(D) $\begin{cases} = 0 \text{ till the break year} \\ = 1 \text{ thereafter} \end{cases}$

Equation (9) is used for estimating the export behaviour of a selected commodity set of eleven horticultural products which account for a significant per cent of total horticultural exports for the period 1961 to 2005. The use of the same equation for estimating export behaviour will make comparison across commodities easier. The econometric results across commodities will help identify the factors that determine the exports of individual products. In the estimation, the breakpoint for individual products is found to vary. The breakpoints for individual products are identified based on the time behaviour of the residuals of estimation of Equation (9) without the dummy variable. By incorporating this break, we take into account any major change that has taken place with regard to the exports of individual products. The econometric method is discussed briefly in the following section.

III

METHODOLOGY

3(A) *Estimation Method*

As the period under study is long, it is appropriate to look into the time series properties of the variables used in the estimation and use the method of estimation based on the time series properties of the variables. We have used the Engle and Granger (1987) two-step procedure. The first stage involves finding the order of integration of the data series followed by ordinary least squares regression estimation for those economic aggregates, where cointegration can be found (Engle and Granger, 1987). These are the stationarity test and cointegration test, respectively. In the second stage, the residuals obtained in the long-run co-integration regression are used as explanatory variables to specify a dynamic error correction model, which is estimated via ordinary least squares regression again.

To carry out the unit root test for stationarity of the variables used in the equation, the Augmented Dickey-Fuller (ADF) test is used. This test is used to correct the inherent bias in the Dickey-Fuller (DF) test, which assumes that the data generating process is an AR(1) process. The ADF equation is as follows:

$$\Delta y_t = \alpha + \rho y_{t-1} + \Sigma \gamma_j \Delta y_{t-j} + \mu_t \qquad \ldots(10)$$

where the lag length j chosen for ADF ensures that μ_t is empirically white noise and the significance of ρ against the null that $\rho = 0$ is a test for stationarity.

Table 1 presents the results of the test for stationarity for each variable used in the export function of horticultural products. None of the variables are found to be stationary in levels. The results indicate that the variables are stationary in the first difference and hence, integrated of order 1, that is, I (1). It needs to be mentioned here that some of the variables are stationary in the first difference by incorporating an intercept term, or both trend and intercept. Structural breaks are incorporated and the test for stationarity is carried out as in Perron (1989). With all the variables having the same order of integration, i.e., I(1), following Engle and Granger (1987), the variables are expected to be cointegrated. Further, given cointegration, there can be error correction representation of the model. While cointegration necessarily illustrates a long run relationship, error correction represents the short run adjustments. In an earlier study, Niemi (2003) has used the concepts of cointegration and error correction to analyse agricultural trade flows and found that the error correction mechanism explains the data generating process well.

TABLE 1. TEST FOR STATIONARITY

Products (1)	(2)	Production (3)	Export (4)	Relative export price (5)	Producer price (6)	World demand (7)
Chilli and pepper	ADF test-statistics	-9.17	-5.53	-6.62	-9.49	-5.04
Banana	ADF test-statistics	-5.65	-6.77	-5.17	-5.65	-4.25
Mangoes, guavas and mangostern	ADF test-statistics	-4.60	-3.75	-4.05	-5.18	-4.58
Coffee	ADF test-statistics	-7.79	-6.98	-2.68	-7.79	-7.24
Fresh fruits, Nes	ADF test-statistics	-6.09	-7.26	-5.82	-4.80	-4.54
Pepper	ADF test-statistics	-5.75	-8.15	-3.68	-4.87	-7.34
Grapes	ADF test-statistics	-4.46	-6.47	-6.51	-7.58	-6.66
Spices	ADF test-statistics	-6.69	-5.48	-8.60	-5.19	-5.60
Tea	ADF test-statistics	-7.01	-7.59	-4.66	-6.89	-7.02
Walnuts	ADF test-statistics	-6.55	-5.49	-5.17	-5.54	-5.98

Note: The presented results pertain to ADF tests results for variables in first difference. The critical value at 1 per cent is -4.19.

If two time series y_t and x_t are both integrated of the order d (i.e., I(d)), then, in general, any linear combination of the two series will also be I(d); that is, the residuals obtained on regressing y_t on x_t are I(d). If, however, there exists a vector b, such that the disturbance term from the regression ($u_t = y_t - bx_t$) is of a lower order of integration I(d-b), where b>0, then Engle and Granger (1987) define y_t and x_t as cointegrated of order (d,b).

Following Engle and Granger (1987), the cointegration regression between Y_t and Z_t can be specified as:

$$Y_t = \alpha_0 + \alpha_1 Z_t + \varepsilon_t \qquad \text{.... (11)}$$

The residuals of the equation (11), $\varepsilon_t = Y_t - \alpha_0 - \alpha_1 Z_t$, is a linear difference of the two non-stationary series (i.e., $Y_t - Z_t$).

The ADF test equation based on the residuals is given as:

$$\Delta\hat{\varepsilon}_t = \varphi + \beta\hat{\varepsilon}_{t-1} + \Sigma\lambda\Delta\hat{\varepsilon}_{t-j} + \nu_t \qquad \text{....(12)}$$

The test statistic, as indicated earlier, is a t-ratio for $\beta = 0$. If this null hypothesis is rejected against the alternative that $\beta < 0$, then the estimated ε_t is stationary and the non-stationary variables Y_t and Z_t are cointegrated. In this exercise, multivariate regressions are carried out between the exports and the price variables, production and world demand to establish the existence of a long-run cointegrating relationship. In order to estimate the long run relationship between y_t and x_t it is necessary to estimate the static model: $y_t = bx_t + u_t$. Although the long run equilibrium relationship can be estimated directly using this equation, it is also important to consider the short run dynamics of the variables under consideration since the system may not always be in equilibrium. The deviations from the long run path are captured at the second stage of this method. When the coefficients of the lagged residual term from the first stage is negative, it suggests that the system comes back to the long run

path or adjusts. Therefore, there exists an error correction mechanism. The error correction term provides an estimate of the speed of adjustment of the variable y_t. Engle and Granger have shown that two or more variables are cointegrated of the order I (1,1) if and only if an error correction mechanism (ECM) exists.

In the ECM representation, the residuals of the multivariate co-integrating regressions were included in the model as explanatory variable. From the example in equation (11), the error correction mechanism (ECM) representation can be specified as:

$$\Delta Y_t = \alpha_0 + \alpha_1 \Delta Z^* - \alpha_2 (Y_t - Z_t)_{t-1} + \mu_t \quad \text{.... (13)}$$

where,

Z^* = the vector of explanatory variables

Y_t and Z_t are the co-integrating variables

α_2 = coefficient of the lagged error term representing error correction mechanism (ECM)

α_1 = coefficient of the vector of parameters.

3(B) *Variable Description and Database*

The annual time series data for 45 years from 1961 to 2005 are used for the econometric exercise looking into the determinants of selected horticultural exports from India. For the selection of commodities, the export shares of all horticultural commodities in total horticultural exports from India for the last 10 years have been calculated and those commodities having an average share of 0.9 per cent and above are included in the set. On the basis of the above criterion, 10 commodities including tea, coffee, banana, chilli and pepper, spices, guava, mango and mangosterns, grapes, walnuts, fresh fruits and pepper have been selected from the entire range of horticulture exports.

Producer price data are available in FAOSTAT. For some years when the data are not available, unit price is calculated from production value and production quantity. [1]

The export data are available for all horticultural commodities since 1961 and are collected from FAO database (see http://faostat.fao.org/site/535/default.aspx#ancor). Data on quantity and value of exports, quantity of production, area, yield and producer price are collected from FAO (www.faostat.org). The export unit price and world unit price of the products are calculated from the value and quantity of exports available from FAO. While export unit price is arrived at dividing the value of exports by their quantity, the calculation of world price needs some elaboration. World price is calculated based on the unit values of each commodity for some major export destinations of India. It is the weighted average of the unit values for each destination county, the weights being individual country's share in India's total horticultural exports.

The world demand for individual commodities is calculated as total world imports less India's import for that particular commodity (measured in quantity). Relative export price, is calculated by taking the ratio between export unit value and world unit price.

Some clarifications are needed to be mentioned here regarding the grouping of commodities. This grouping of product groups is taken from FAO. The grouping is internationally accepted and has been generated from individual products and hence is genuine in nature. The groups may be of related products and hence aggregative in nature. For example, chillies green(*Capsicum annuum*) and pepper green (*pimenta officinalis*) belong to the group of the vegetables. They are not sufficiently relevant to be separated. The other pepper (black,white or long) belongs to the group of spices. Black pepper is produced from partially ripe berries while white pepper is from fully ripe berries which have had the outer hull removed. Pepper is not included in spices nes (not elsewhere specified) group. Spices nes include bay leaves, dill seed, fenugreek seed, saffron, thyme, turmeric. [2]

IV

ESTIMATION RESULTS

Using Engle Granger's two step procedure, an attempt is made to establish both the long run and short run determinants of select horticulture exports from India. While cointegration establishes the long run relationship between variables, error correction results represent the short adjustment in attaining the long-run equilibrium. The coefficient of the lagged residual in the ECM regression shows the speed of adjustment in the short run to attain long run equilibrium. Table 2 shows the ADF test results of the Engle-Granger co-integration exercise. The results of the multivariate cointegration regression between individual horticultural exports and their various price and non-price determinants show the presence of cointegration. The ADF statistic showing the existence of cointegration is found to be significant at 1 per cent level for every individual product. These results do establish that production, world

TABLE 2. RESULTS OF ADF TESTS ON RESIDUALS OF COINTEGRATING REGRESSIONS

Commodities (1)	ADF-test statistic (2)	Critical value (3)
Chilli and pepper	-4.54	-4.19 (1 per cent)
Banana	-6.15	-4.18 (1 per cent)
Coffee	-3.58	-3.51 (5 per cent)
Grapes	-3.89	-2.62 [P.P (1 per cent)]
Pepper	-3.38	-2.61 (1 per cent)
Spices	-2.74	-2.61 (1 per cent)
Tea	-5.32	-4.18 (1 per cent)
Walnut	-4.01	-2.61 (1 per cent)
Mangoes and guavas	-2.80	-2.61 (1 per cent)
Fresh fruits	-6.14	-4.20 (1 per cent)

demand, relative export price and producer price together determine horticulture exports of individual products over the long run. As a long run relationship between these variables exists it can be said, following Engle and Granger (1987), that there is an error correction representation which would necessarily show the short run responsiveness of all the underlying factors. The negative value and significance of the lagged error term in the case of each individual product (shown in Table 3) indicate the existence of the error correction process, except in the case of grapes. In case, where the adjusted R^2 is lower in the ECM representation than in the cointegrating regression, the d.w. statistic is significantly higher. These diagnostic results of both cointegration regression and error correction representation are as expected. The results show that the model fits the data well for individual commodities.

The estimated coefficients in the cointegrating regression, as shown in Table 3, indicate long run elasticities of various price and non-price factors. Exports of chilli and pepper have responded significantly to producer prices, relative export price and world demand in the long run. Chilli and pepper exports are found to be price elastic at 1 per cent level of significance in the long run, while the relationship is weaker at 5 per cent level of significance with producer prices. The exports of most other horticultural commodities are found to be responsive to relative export price; the results are counterintuitive for spices, tea and walnut. Perhaps, these latter exports respond to other non-price factors over the long run. Like chilli and pepper, exports of banana and walnuts are inversely related to producer prices in the long run. It is imperative that rising producer prices for these commodities do create a disincentive to export over the long run. On the contrary, exports of most other products have a positive relationship with producer prices, which is indicative of domestic prices inducing exports to grow in the long run. It is of importance to note that exports of horticulture products do respond to supply price changes over the long run. Significant response to prices, however, does not reduce the importance of non-price factors that might underlie the long run behaviour of India's horticulture exports.

The results in Table 3 also show that most horticulture exports are not significantly determined by world demand in the long run, the exceptions being exports of chilli and pepper, mangoe, etc., and walnuts. It needs to be mentioned that with regard to the impact of world demand in the long run, a large number of horticultural commodities indeed show counterintuitive long run results. Even the impact of domestic supply, i.e., production, is not significant for long run behaviour of most horticulture exports. However, there are some exceptions.

Exports of banana, coffee and spices have a significant and positive impact on production in the long run, implying that an increase in production can boost up export for these commodities. The insignificant impact of supply factors like

production on the long-run export behaviour of most horticultural commodities is not as expected. It might be largely due to inappropriate trade policies which created a bias against horticulture exports. It is also possible that the insignificance of supply factors in the determination of long run export bevaviour is largely on account of the absence of quality as a determining factor in the regression. Nonetheless, as it follows from the above analysis, the relative export prices do hold a key to horticulture exports from India over the long run.

TABLE 3. EXPORTS OF SELECTED HORTICULTURAL PRODUCTS FROM INDIA: LONG-RUN AND SHORT-RUN REGRESSION RESULTS

Commodity (1)		Production (2)	Producer Price (3)	Relative Export Price (4)	World Demand (5)	Dummy (6)	Lagged Error (7)	Adj. R^2 (8)	d.w. (9)
Chilli and pepper	Coeffs of CR	0.39	-0.56**	-2.54***	1.88**	-0.002		0.71	1.05
		(.38)	(-2.17)	(-3.94)	(2.39)	(-0.04)			
	Coeffs of ECM regr	0.24	0.46	-1.93***	1.61**		-0.445**	0.41	1.87
		(0.40)	(0.93)	(-4.63)	(2.23)		(-3.02)		
Banana	Coeffs of CR	5.49***	-3.52***	-1.99***	-1.63	0.43***		0.72	1.66
		(3.82)	(-3.84)	(-6.32)	(-0.76)	(6.17)			
	Coeffof ECM regr	5.68**	-5.08**	-1.62***	0.28	0.04	-0.80***	0.47	1.69
		(2.97)	(--2.77)	(-4.19)	(0.08)	(1.35)	(-4.84)		
Mangoe, guava and mangostern	Coeffs of CR	1.87	-0.12	-0.18	0.72***	0.75		0.93	1.05
		(1.60)	(-0.43)	(-0.48)	(4.62)	(1.67)			
	Coeffs of ECM regr	1.33	-0.10	-0.63*	0.39		-0.42**	0.29	1.70
		(1.48)	(-0.38)	(-2.10)	(1.59)		(.0027)		
Coffee	Coeffs of CR	0.46***	0.18*	-0.94***	0.46			0.95	1.16
		(3.84)	(2.51)	(-3.84)	(1.26)				
	Coeffs of ECM regr	0.39***	0.07	-0.80***	0.02		-0.52**	0.68	1.70
		(5.49)	(0.48)	(-5.10)	(0.08)		(-3.48)		
Fresh fruits	Coeffs of CR	0.05	2.12***	-0.79***	-1.4**			0.91	1.87
		(0.08)	(4.71)	(-3.67)	(-2.79)				
	Coeffs of ECM regr	-0.91	1.33	-0.91***	-0.83		-0.86***	0.50	1.87
		(-1.51)	(1.56)	(-4.24)	(-1.34)		(-5.31)		
Pepper	Coeffs of CR	-0.12	0.24*	-1.43*	-0.54	-0.01		0.29	1.53
		(-0.70)	(2.22)	(-2.67)	(-1.44)	(-1.14)			
	Coeffs of ECM regr	0.43*	0.45*	-1.16*	-0.36		-0.76***	0.46	2.09
		(1.81)	(2.42)	(-2.53)	(-0.90)		(-5.05)		
Grapes	Coeffs of CR	-0.63	1.55	-1.83**	0.69	0.23*		0.89	0.94
		(-0.53)	(0.99)	(-3.11)	(0.28)	(2.65)			
	Coeffs of ECM regr	0.20	-0.60	-0.58*	2.44	0.007	-0.21	0.06	2.00
		(0.21)	(-0.39)	(-1.85)	(1.71)	(0.49)	(-1.66)		
Spices	Coeffs of CR	0.36*	0.08	0.04	-0.05	0.05***		0.87	1.59
		(2.07)	(0.70)	(0.23)	(-0.21)	(5.07)			
	Coeffs of ECM regr	0.07	-0.26	-0.26	0.40	0.004	-0.85***	0.47	1.88
		(0.41)	(-1.33)	(-1.65)	(1.72)	(1.07)	(-5.92)		
Tea	Coeffs of CR	0.02	0.07*	0.35	-0.37			0.28	1.58
		(0.07)	(1.89)	(1.24)	(0.32)				
	Coeffs of ECM regr	0.40	-0.04	0.56*	-0.02		-0.71***	.041	1.69
		(1.10)	(-0.67)	(2.57)	(-0.09)		(-4.49)		
Walnuts	Coeffs of CR	-0.56	-1.07**	0.64	1.30**	-0.005		0.70	0.75
		(-0.85)	(-3.38)	(1.61)	(2.04)	(-0.12)			

Coeffs of	-0.41	-0.40	0.24	0.53	-0.33**	0.09	1.51
ECM regr	(-1.18)	(-0.86)	(0.70)	(0.91)	(-2.72)		

Notes: Figures in parentheses are t-values.
*, ** and *** denote significance at 10, 5 and 1 per cent level, respectively.

In the short run, the results do not change very significantly. Relative export prices continue to be the significant determinant of short run behaviour of exports of horticulture products, with the only exception of spices and walnuts. While the level of significance is at 1 per cent for most of these products, it is at 5 per cent for grapes and pepper. However, the relative export price is found to have a positive and significant impact on tea exports from India. Such a counterintuitive result is perhaps indicative of the importance of non-price factors including the quality of tea exports. It is also interesting to note that the short run export behaviour of most horticultural commodities is neither determined by world demand nor supply-side scale factor like production.

On the whole, the results showed that the relative export prices are the key to horticulture exports behaviour. The result is as expected as exports of traditional products including agricultural commodities are often found to depend on price factors. Even though non-price factors including supply chain factors like infrastructural facilities, plantation age, seed and planting material, high transport and distribution costs play an important role in the case of horticulture exports, it is difficult to include them in a time series analysis of horticulture exports. To that extent, the estimates thus arrived at are biased. The study also does not take into account the impact of policy related variables, tariff and non-tariff barriers in specific. This, however, does not demean the importance of relative export prices in the determination of India's horticulture export performance in the short as well as in the long run.

V

CONCLUSION AND POLICY IMPLICATIONS

The study examined the factors underlying the export performance of some horticultural products in India during 1961 to 2005. The specific objectives of the study were to estimate the impact of price factors as against other non-price determinants including production and world demand in understanding the short and long run behaviour of agricultural exports. The analysis is carried out using time series econometric techniques of cointegration and error correction, as the variables were found to be non-stationary in levels. The model fits the data well and results thus arrived at were, by and large, as expected. The error correction mechanism (ECM) shows that the speed of adjustment in the short run varies across commodities in the case of any movement away from the observed long run equilibrium established through cointegration.

It is found that exports of most horticulture commodities have responded to relative export prices in the long as well as in the short run. The importance of relative prices in determining horticulture export performance surpasses that of other non-price factors including production and world demand. This shows that price competitiveness of India's horticulture commodities, like that of any other traditional commodities, has determined their export performance over time. Given the price advantage that India's horticulture products have in the world market, the favourable trade policies have induced horticulture exports to grow. India can retain its price competitiveness in horticulture products with a depreciating currency in addition to India's low cost conditions.

In order to retain this advantage, the overbearing importance of non-price factors however cannot be denied. Lowering of transactions costs in trade by reducing procedural complexities is a major step as it would minimise time to undertake cross-border transactions in perishable horticultural products. However, the procedural simplifications are in general within the ambit of trade policy making. The other non-price initiatives would include, among others, the setting up of infrastructural facilities like cold storages, replacing older varieties of plants with new high-yielding varieties, introduction of modern technology, seed and planting material, and improvements in marketing infrastructure in order to reduce high transportation and distribution costs.

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NOTES

1. Related sites are *http://faostat.fao.org/site/634/default.aspx#ancor*, *http://faostat.fao.org/site/613/default.aspx#ancor*, *http://faostat.fao.org/site/570/default.aspx#ancor*).

2. Onion has initially been included in the study. However, for the econometric exercise, data for prices and imports were not available for onion. As a result, it had to be excluded. Inclusion of banana also has reasons in favour of availability of data.

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