

Determinants of India's Agricultural Trade after World Trade Organization: Policy Dilemma

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ABSTRACT :

Present paper uses OLS regression methodology for understanding the impact of joining WTO by India as member on Indian agricultural trade, For this task, we divide present study into two distinct periods: pre membership period of WTO (1987-88 to 1994-95) and post membership period of WTO (1995-96 to 2005-06). We run Cobb Douglas production function for the period 1995-96 to 2005-06 to track down the impact. This exercise allows us to understand the structure and direction of Indian agricultural trade for the period under the study. The conclusion of the present paper suggests for undertaking pro-active steps to promote our agricultural export in abroad market along with not bargain with subsidy given to farm sector in India. Otherwise we may lose our competitiveness of export in the foreign market. India's stand on negotiations of WTO should be protective for saving competitiveness of Indian farm sector.

Key words : India, Trade, WTO, OLS model, policy

INTRODUCTION :

India's trade relation with several countries has a long legacy. India's basket of export is dominated by agro based commodities. However, from the year 1991 the composition of trade basket has changed slightly. The rise of ICT firms in the decade 1990's in India has altered the export basket. The formation of WTO and its working since 1992 has changed the trends in export and import composition of various countries. Since that, researchers and policy makers are curious to know whether WTO has been fostering world export in general and total trade of developing countries as special are the focal issues of the study across the globe.

India was in forefront in the formation process of WTO and joined WTO in 1992. It is therefore, inevitable to know the impact of WTO membership on agricultural trade in general and textile product export as special case for the period 1993-2008. This kind of

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INTRODUCTION :

India's trade relation with several countries has a long legacy. India's basket of export is dominated by agro based commodities. However, from the year 1991 the composition of trade basket has changed slightly. The rise of ICT firms in the decade 1990's in India has altered the export basket. The formation of WTO and its working since 1992 has changed the trends in export and import composition of various countries. Since that, researchers and policy makers are curious to know whether WTO has been fostering world export in general and total trade of developing countries as special are the focal issues of the study across the globe.

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study has not been documented in the previous studies devoted to trends in agro export and import because the talk regarding export subsidies, domestic support, agriculture tariff, Non-Agriculture Market Access (NAMA) and access to agriculture sector are underway at the conference level and agreed and acceptable consensus are not yet emerged to reach at conclusive stage.

To understand the impact of joining WTO as member on Indian agricultural trade, present paper uses OLS regression methodology. For that, we divide present study into two distinct periods: pre membership period of WTO (1987-88 to 1994-95) and post membership period of WTO (1995-96 to 2005-06). We run Cobb Douglas production function for the period 1995-96 to 2005-06 to track down the impact of India's membership of WTO viz viz on the export of agro product and its import.. This exercise allows us to understand the structure and direction of India's agricultural trade for the period under the study.

LITERATURE REVIEW :

Pattnayak and Nayak (2012) found that in Orissa, benefits of economic reforms did not reach to all the classes of the society and inter-district variation in the agricultural productivity is observed due to institutional factors and inputs use variations. Center for Trade and Development (2008) concluded that surge in food prices in the developing countries was transmitted from developed countries; hence many countries are witnessing rising price level of food articles. For example prices of Maize in Tanzania was increased by 81 percent during the period 2003-2008, in Philippines price of rice increased by 50 percent and in China and in India, inflation rate of food article was observed as 90 percent and 20 percent in 2007-08 receptively.

Mathur and Das (2006) concluded that growth rate of Indian agriculture has declined consistently after 1990 compared to 1980. Growth rate of Indian agriculture was 4 percent in 1980, which felled to 3.2 percent in 1990 and recently it went down to below 2 percent. The real value of food grain production declined from -3 percent to -5 percent during the period 1999-2003. Kumar and Muraleedharan (2007) pointed out that India's share in the world spices market declined from 18.9 in 1995 to 12.8 percent in 2002 due to loosing of competitiveness in the world market.

Mittal (2007) concluded that reduction in the subsidies by OECD countries and rising food prices in the world, would decline production of food crops in the OECD countries. However, its impact on production of India's major crops rice and wheat would be minor and marginal increase in the production of cash crops cotton and sugar is possible. The adverse impact would be seen on the welfare level of the farmers of developing countries. NAAS (2006) reported that since WTO inception in 1995, the price level of cereals, fish, shrimp, sugar, cotton and beverages have declined by 15 to 44 percent during the period 1995-2005, which were lower than the prices prevailing before the WTO, due to this decline, the farmers of developing countries like India were severally affected in terms of income, employment, and livelihood security.

METHODOLOGY :

Introduction of New economic regime and joining of WTO as member to India made obligatory for Indian government to slash the tariffs rates on non- agricultural product to a certain extent. However, the tariff reduction issue of agricultural products is still hanging and remains at discussion level at various forum of WTO secretariat and ministerial conferences. Since then, the pattern of total export and import and in the total export, agricultural export from and import to India might have been changed.

Hence, this paper tries to seek answer of these questions. We use dummy variable to find out the impact of India's WTO membership on total export and import in general and agricultural export as a special case. In the present paper, we compiled data from on line Handbook of Statistics on Indian Economy for 2006-07. We design the following variable to examine the relationship between agricultural gross domestic product (AGDP) and its sub set and total export earning of India.

1. Agriculture product export earnings (PAEXGDP): This variable is constructed as ratio of agricultural export earning to AGDP. This ratio shows contribution agricultural export in total AGDP of India.
2. Textile product export earning (PTEXAGDP): the share of textile product export in total AGDP is represented as ratio of textile product export to AGDP.
3. Total export earnings to gross domestic product (PTEXGDP): the contribution of export earning is depicted by this ratio. This shows the direction of export and policy impact of export promotion strategy.
4. Total import spending to gross domestic product (PTIMGDP): the openness of the economy is depicted by this ratio. Large the value of this ratio shows less the restrictions on import and vice versa. This ratio points out the leakage from the flow of GDP.
5. Agriculture product export earning to total export (AEXTTEX): this ratio is constructed to find the contribution of agricultural product export in the total export. This enables us to check the importance of agriculture sector.
6. Textile product export to totals export (TEXTX): this ratio is framed to know the contribution of textile export in the total export. Multi fiber agreement provisions lift the restriction on export of textile product to developed countries from developing countries from 2005.in the light of this provisions it is necessary to take the stock of the status of textile export in the regime of new economic policy and WTO membership.
7. Dummy variable (dummy)is used to know the structural break in the trading pattern of India after 1995 in export and import is captured by using dummy variable. This is represented in binary value 1 and 0. India has joined WTO is denoted by value 1 and otherwise 0.

8. Agricultural Gross domestic product (AGDP): this variable is used as dependant variable in the Model II. We used old price series of 1993 of AGDP at constant prices in rupee crore available at the source of data.
9. Gross domestic product (GDP): this variable is used as dependant variable in the Model III. We use old price series of 1993 of GDP at constant prices in rupee crore available at the source of data.
10. Total export earning (TEX) this variable is used as dependant variable in the Model IV.

Model is also framed to find out the relationship of agricultural gross domestic product (AGDP) with total export earning of country, export earnings of agricultural products, export of textile products. Generally, OLS regression is used to see the impact of new economic policy on the behavioral pattern of trade. Present study uses OLS methodology for finding out the impact of India's membership of WTO from the year 1995 on the direction of export of agricultural trade.

To explore the impact of policy regime, analysis has been carried out for pre membership period and after the membership of WTO. For that we introduce dummy variable to see structural change occurred if any in the trade direction form the year 1995. Log values of the variables covered in the present study are taken to minimize the noise in the regression.

$$Y_t = \alpha + \beta_t + \mu_t \quad \text{-----I}$$

$$\text{Log (AGDP}_t) = \alpha + \beta_1 \log (\text{PAEXADGP}_t) + \alpha + \beta_2 \log (\text{PTEXAGDP}_t) + \text{Dummy} + \mu_t \quad \text{-----II}$$

AGDP = Agricultural GDP at 1993 old price series at constant prices in rupees, PAEXAGDP = proportion of agricultural produce export earnings to the agricultural gross domestic product in Indian rupees, PTEXAGDP= proportion of textile product export earnings to agricultural gross domestic product in Indian rupees.

$$\text{Log(GDP}_t) = \alpha + \beta_1 \log (\text{PEXGDP}_t) + \alpha + \beta_2 \log (\text{PIMGDP}_t) + \text{Dummy} + \mu_t \quad \text{-----III}$$

GDP = GDP of India at 1993 old price series at constant prices in Indian rupees, PEXGDP = Proportion of total export earnings by way of exporting all kind of commodities to GDP, PIMGDP = Proportion of total import spending made on importing all types of commodities to GDP.

$$\text{Log (EXE}_t) = \alpha + \beta_1 \text{Log (PAGEXEXP}_t) + \alpha + \beta_2 \text{Log (PTEXEX}_t) + \text{Dummy} + \mu_t \quad \text{-----IV}$$

TEX = Total export earning in Indian rupees, PAGEXEX = Proportion of agricultural export to total export earning, PTEXEX = proportion of textile export earning to total export earnings.

RESULTS AND DISCUSSIONS :

It can be seen in the Table 1 that model 1 shows that agricultural GDP of India is the function of agricultural export earning, textile export earning and dummy variable. We used OLS methodology in the present model. Results appeared from the model can be concluded as proportion of agricultural export into total export is significant factor that determines the size of AGDP of India. However, the role of textile export earnings in the AGDP of India does not find significant. India's joining as member of WTO does not make any difference with AGDP of India as represented by Dummy variable which is insignificant.

Table 1
Determinates of Trade and its Direction

Dependant	LAGDP		LGDP		LEXE	
Period	1987-88 to 2005-2006		1987-88 to 2005-06		1987-88 to 2005-06	
Model	II		III		IV	
Independent var.	Coefficient	t	Coefficient	t	Coefficient	t
Constant	12.15	260.46	13.29	177.97	10.9	56.23
PAGEXAGDP	4.29	3.74**				
PTEXAGDP	2.66	0.11				
PEXGDP			1.5	2.01**		
PIMGDP			0.99	1.7***		
PAGEXEX					-1.95	-4.21**
PTEXEX					-6.71	-0.74
dummy	-4.2	-.50	0.32	3.45**	1.66	6.9*
AR2	0.84		0.81		0.76	
F	27.87		25.07		20.81	
D/W	2.29		1.24		0.76	
VIF	5.70		2.0		1.14	
N	19		17		19	

Model II explores the relationship between India's GDP and proportion of total export earning, proportion of import spending, and dummy variable. The results of model II are reported in the same Table 1. These results can be understood as proportion of export earning is significant determinant of GDP of India and not only that dummy variable is

also significant that shows that WTO membership of India made significant change in the determination of GDP of India.

The proportion of import to GDP is significant at 10 percent level of significance. The model results can be concluded as the export earning and Import spending to total GDP has increased and this change is supported by the dummy variable. Since the joining of WTO by India, structural break has been seen in international trade of India.

Model III find out the relationship in total export earning of India to proportion of agricultural export to GDP and proportion of textile export earnings into to total export earning of India and dummy variable. The results are interesting: one percent rise in proportion of agricultural export; total export is declined by 1.95 percent. It means the agricultural export lost its importance in the regime of WTO membership of India. Same is explained by dummy variable which is negative and significant that point out the adverse impact on agricultural export of India. In the same period, textile export from India has also declined but regression value of this variable is not significant but sign is indicative.

CONCLUSIONS AND POLICY IMPLICATIONS :

Results appeared from the model I can be concluded as proportion of agricultural export into total export is significant factor that determines the size of AGDP of India. However, the role of textile export earnings in the AGDP of India does not find significant. Joining of India as member of WTO does not make any difference with AGDP of India. Model II shows that Proportion of export earning is significant determinant of GDP of India and not only that dummy variable is also significant that shows that WTO membership of India made significant change in the determination of GDP of India.

One percent rise in proportion of agricultural export, total export declined by 1.95 percent. It means the agricultural export lost its importance in the regime of WTO membership of India. Same is explained by dummy variable which is negative and significant, that point out the adverse impact on agricultural export of India. In the same period, textile export from India has also declined but regression value of this variable is not significant but sign is indicative.

The conclusion of the present paper suggests for undertaking pro-active steps to promote our agricultural export in abroad market and at the same time not to bargain with subsidy given to farm sector in India. Otherwise we may lose our competitiveness in export and ultimately the foreign market for our goods. Our stand at negotiations of WTO should be protective for saving Indian farm sector

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