



A Synchronization of India's Trade and Agriculture in Pre and Post-WTO Regime

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The Bretton Woods institution of the General Agreement on Tariffs and Trade (GATT) was converted into the World Trade Organisation (WTO) after The Eighth Uruguay Round of the GATT that started with 105 member countries in 1986 and ended with 117 countries on December 15, 1993 whereas the negotiations were scheduled to be concluded on December, 1990 but got bogged down in controversial issues particularly trade and agriculture. It was a marathon discourse among developed and developing countries that went on seventh years. What distinguished the Round from earlier GATT Round of Talks was the scope of negotiations. The result was that the treaty had been signed at the Ministerial Meet in April, 1994 and the Agreement became effective from January 1, 1995, i.e. , the WTO came into existence at this time. The negotiations encompassed the areas of market access, agriculture, textiles and clothing, TRIPS and TRIMS, trade in services, GATT rules making and institutional matters. Broadly these areas may be summed up in the three categories of trade, agriculture and TRIPS & TRIMS. A peep into the WTO provisions, one may find that the whole discussion revolves around these three issues. More specifically, the WTO is such a multilateral institution that is directly working for expansion of global trade. At the same time India is primarily an agricultural economy where agriculture has become a culture. Keeping in view the total two-third population approximately engaged in agricultural pursuits directly or indirectly, the present study will look into the current status of trade and agriculture in both pre and post-WTO periods.

Objectives of the Study –

The following are the specific objectives of the present study –

1. To study the effect of the provisions of the WTO related with trade and agriculture.
2. To analyse the status of India's global trade during the Pre and Post-WTO periods.
3. To analyse the status of Indian agriculture during the Pre and Post-WTO periods.
4. To suggest policy implications for Indian global trade and agriculture.

Sources of Data –

Keeping in view the objective of the present study, the data have been collected from the secondary sources, i.e., various issues of Economic Survey, Government of India, Handbook of Statistics on Indian Economy, Annual Reports and Bulletins of the Reserve Bank of India (RBI). The data for the pre-WTO period have been taken from 1980-81 to 1994-95 whereas the data for the post-WTO period have been taken from 1995-96 to 2011-12. The data have been taken on various variables like India's total exports, imports, agricultural exports, Gross Value Added (GVA) at factor cost and the share of agriculture in the total GVA at factor cost.



Research Methodology –

The Annual Compound Growth Rates (ACGR) have been calculated for Gross Value Added (GVA) at Factor Cost, Contribution of agriculture sector in the GVA at Factor Cost, Total Exports, Agricultural Exports and Total Imports. The ACGR for these variables have been calculated for the Pre and Post-WTO periods separately with the following formula:

$$Y = ab^t \cdot e^u \quad (1)$$

Where Y = Dependent variable
a = Intercept
b = Regression Coefficients
t = Time variable
e = Form of Stochastic terms

The compound growth rate was estimated by the logarithmic form of the equation

(1):

$$\text{Log } Y = \text{Log } a + t \text{ log } b + u$$

Then the Annual Compound Growth Rate (G) was estimated using:

$$G = [\text{Antilog of } \log(b) - 1] \times 100$$

The value of R^2 and t-values has also been calculated. The Net Terms of Trade have also been computed by taking the Unit Value Index (UVI) of India Total exports and imports by the following formula:

$$\text{Unit Value Index} = \frac{\text{Current Year Value}}{\text{Base Year Value}} \times 100$$

All the values are taken at the 2004–05 series to maintain the uniformity. Moreover, the values of different variables are taken in terms of crores of rupees to avoid the effect of fluctuations in exchange rate.

Results, Discussion and Analyses –

The results, discussions and analyses for both, i.e., the Pre and Post-WTO periods will be studied separately.

A. Analysis for Pre-WTO Period:

The analysis for the period may be based on Tables 1, 3, 5 and 7. India's National Income, i.e., GVA at Factor cost has been increased throughout the period 1980-81 to 1994-95 in absolute terms from Rs. 7,98,506 crores to Rs. 16,19,694 crores. Similarly, the contribution from agriculture in GVA has also been increased in absolute terms continuously throughout the period from Rs. 3,05,906 crores to Rs. 5,04,477 crores. However, the GVA from Agriculture in percentage terms has consistently been decreased from 38.31 per cent to 31.15 per cent. In the same way, Total Exports and Agricultural Exports have increased in absolute terms continuously from Rs. 6,711 crores to Rs. 82,673 crores and Rs. 2,057 crores to Rs. 13,223 crores respectively. However, Agricultural Exports as a percentage of Total Exports have decreased throughout the period, i.e. from 30.65 per cent to 15.99 per cent. The share of agriculture in National Income in percentage terms and share of agricultural commodities in India's Total



Exports in percentage terms both declined which is a very healthy feature for the economy. The less dependence on agricultural sector for the National Income and total exports is a healthy characteristic for any economy. The Table-3 shows that exports and imports both have been increasing continuously in absolute terms whereas the Trade Balance along with rates of change of exports and imports has been quite fluctuating annually. An exact inference could not be drawn from the Table-3, therefore, the Unit Value Index (UVI) have been calculated for both exports and imports by keeping 1995-96 as the base year to know the Net Terms of Trade. The year 1995-96 may be considered appropriate being the mid-year of the total period of the study. Moreover, this is the year when the WTO came into existence. The Net Terms of Trade for the period 1980-81 to 1994-95 has been revealing quite important and interesting facts for the Indian economy. The Net Terms of Trade have been improving continuously with minor fluctuations that

Table – 1
India's Agriculture in the Pre-WTO Period

(Constant Prices) (2004-05 Series) (Rs. Crores)

Year	Gross Value Added (GVA) at Factor Cost	GVA from Agriculture	GVA from Agriculture (% of Total GVA)	Total Exports	Agricultural Exports	Agricultural Exports (% of Total Exports)
1	2	3	4	5	6	7
1980-81	7,98,506	3,05,906	38.31	6,711	2,057	30.65
1981-82	8,43,426	3,21,876	38.16	7,806	2,221	28.45
1982-83	8,68,092	3,23,862	37.31	8,803	2,450	27.83
1983-84	9,36,270	3,54,720	37.89	9,771	2,622	26.83
1984-85	9,73,357	3,60,230	37.01	11,744	2,997	25.52
1985-86	10,13,866	3,62,783	35.78	10,895	3,018	27.70
1986-87	10,57,612	3,64,989	34.51	12,452	3,422	27.48
1987-88	10,94,993	3,60,949	32.96	15,674	3,504	22.36



1988-89	12,06,243	4,17,581	34.62	20,232	3,723	18.40
1989-90	12,80,228	4,25,075	33.20	27,681	4,879	17.63
1990-91	13,47,889	4,44,880	33.01	32,553	6,317	19.41
1991-92	13,67,171	4,38,685	32.09	44,042	7,838	17.80
1992-93	14,40,504	4,65,084	32.29	53,688	9,040	16.84
1993-94	15,22,344	4,79,592	31.50	69,749	12,587	18.05
1994-95	16,19,694	5,04,477	31.15	82,673	13,223	15.99

Source: Economic Survey, Government of India, Various Issues.

Notes: (i) Columns 4 and 7 are author's own calculations.

(ii) Total Exports also include re-exports.

Table – 2

India's Agriculture in the Post-WTO Period

(At Constant Prices) (2004-05 Series) (Rs. Crores)

Year	Gross Value Added (GVA) at Factor Cost	GVA from Agriculture	GVA from Agriculture (% of Total GVA)	Total Exports	Agricultural Exports	Agricultural Exports (% of Total Exports)
1	2	3	4	5	6	7
1995-96	17,37,741	5,04,527	29.03	1,06,353	20,398	19.18
1996-97	18,76,319	5,49,202	29.27	1,18,817	24,161	20.33
1997-98	19,57,032	5,42,313	27.71	1,30,100	24,832	19.09
1998-99	20,87,828	5,74,374	27.51	1,39,751	25,511	18.25
1999-00	22,54,942	5,90,696	26.20	1,59,095	25,314	15.91
2000-01	23,48,481	5,92,227	25.22	2,01,356	28,657	14.23
2001-02	24,74,962	6,24,923	25.25	2,09,018	29,729	14.22
2002-03	25,70,935	5,94,280	23.12	2,55,137	34,654	13.58
2003-04	27,75,749	6,43,183	23.17	2,93,367	36,415	12.41
2004-05	29,71,464	6,50,454	21.89	3,75,340	41,602	11.08
2005-06	32,53,073	6,80,628	20.92	4,56,418	45,711	10.02
2006-07	35,64,364	7,11,768	19.97	5,71,779	57,768	10.10
2007-08	38,96,636	7,51,077	19.28	6,55,864	74,673	11.39
2008-09	41,58,676	7,53,744	18.12	8,40,755	81,065	9.64
2009-10	45,16,071	7,64,817	16.94	8,45,534	84,444	9.99
2010-11	49,18,533	8,28,431	16.84	11,36,964	1,13,047	9.94
2011-12	52,47,530	8,64,557	16.48	14,65,959	1,82,801	12.47

Source: Economic Survey, Government of India, Various Issues.



- Notes:** (i) Columns 4 and 7 are author's own calculations.
(ii) Total Exports also include Re-exports.

Table – 3
India's Exports, Imports and Trade Balance in Pre-WTO Period

(Rs. Crores)

Years	Exports	Imports	Trade Balance	Rate of Change	
				Exports (per cent)	Imports (Per cent)
1	2	3	4	5	6
1980-81	6,711	12,549	- 5,838	4.6	37.3
1981-82	7,806	13,608	- 5,802	16.3	8.4
1982-83	8,803	14,293	- 5,490	12.8	5.0
1983-84	9,771	15,831	- 6,060	11.0	10.8
1984-85	11,744	17,134	- 5,390	20.2	8.2
1985-86	10,895	19,658	- 8,763	- 7.2	14.7
1986-87	12,452	20,096	- 7,644	14.3	2.2
1987-88	15,674	22,244	- 6,570	25.9	10.7
1988-89	20,232	28,235	- 8,003	29.1	26.9
1989-90	27,681	35,328	- 7,670	36.7	25.1
1990-91	32,553	43,198	- 10,645	17.7	22.3
1991-92	44,042	47,851	- 3,810	35.3	10.8
1992-93	53,688	63,375	- 9,687	21.9	32.4
1993-94	69,749	73,101	- 3,350	29.9	15.3
1994-95	82,673	89,971	- 7,297	18.5	23.1

Source: Economic Survey, Government of India, Various Issues.

Note: Exports also include re-exports.

Table – 4
India’s Exports, Imports and Trade Balance in Post-WTO Period

(Rs. Crores)

Years	Exports	Imports	Trade Balance	Rate of Change	
				Exports (per cent)	Imports (Per cent)
1	2	3	4	5	6
1995-96	1,06,353	1,22,678	- 16,325	28.6	36.4
1996-97	1,18,817	1,38,920	- 20,103	11.7	13.2
1997-98	1,30,100	1,54,176	- 24,076	9.5	11.0
1998-99	1,39,751	1,78,332	- 38,580	7.4	15.7
1999-00	1,59,095	2,15,529	- 56,434	13.8	20.9
2000-01	2,01,356	2,28,307	- 26,950	26.6	5.9
2001-02	2,09,018	2,45,200	- 36,182	3.8	7.4
2002-03	2,55,137	2,96,360	- 41,446	22.0	20.9
2003-04	2,93,367	3,59,108	- 65,741	15.1	21.2
2004-05	3,75,340	5,01,065	- 1,25,725	27.9	39.5
2005-06	4,56,418	6,60,409	- 2,03,991	21.6	31.8
2006-07	5,71,779	8,81,515	- 3,09,736	25.3	27.3
2007-08	6,55,864	10,12,312	- 3,56,448	14.7	14.8
2008-09	8,40,755	13,74,436	- 5,33,680	28.2	35.8
2009-10	8,45,534	13,63,736	- 5,18,202	0.6	- 0.8
2010-11	11,36,964	16,83,467	- 5,46,503	34.6	23.4
2011-12	14,65,959	23,45,463	- 8,79,504	28.9	39.3

Source: Economic Survey, Government of India, Various Issues.

Note: Exports also include re-exports.

Table – 5
India’s Commodity Terms of Trade in Pre-WTO Period

(Rs. Crores)

Year	Total Exports	Total Imports	Unit Value Index Base = 1995-96		Net Terms of Trade
			Exports	Imports	
1	2	3	4	5	6
1980-81	6,711	12,549	6.31	10.23	61.68
1981-82	7,806	13,608	7.34	11.09	66.19
1982-83	8,803	14,293	8.28	11.65	71.07
1983-84	9,771	15,831	9.19	12.90	71.24
1984-85	11,744	17,134	11.04	13.97	79.03
1985-86	10,895	19,658	10.24	16.02	63.92
1986-87	12,452	20,096	11.71	16.38	71.49
1987-88	15,674	22,244	14.74	18.13	81.30
1988-89	20,232	28,235	19.02	23.01	82.66
1989-90	27,681	35,328	26.03	28.80	90.38
1990-91	32,553	43,198	30.61	35.21	86.94
1991-92	44,042	47,851	41.41	39.01	106.15
1992-93	53,688	63,375	50.48	51.66	97.72
1993-94	69,749	73,101	65.58	59.59	110.05
1994-95	82,673	89,971	77.73	73.34	105.99

Source: *ibid*, Table – 3.

- Notes:** (i) Exports also include re-exports.
(ii) Columns 4, 5 and 6 are author’s calculations

Table – 6
India’s Commodity Terms of Trade in Post-WTO Period

(Rs. Crores)

Year	Total Exports	Total Imports	Unit Value Index Base = 1995-96		Net Terms of Trade
			Exports	Imports	
1	2	3	4	5	6
1995-96	1,06,353	1,22,678	100.0	100.0	100.0
1996-97	1,18,817	1,38,920	111.72	113.24	98.66
1997-98	1,30,100	1,54,176	122.33	125.68	97.33
1998-99	1,39,751	1,78,332	131.40	145.37	90.39
1999-00	1,59,095	2,15,529	149.59	175.69	85.14
2000-01	2,01,356	2,28,307	189.33	186.10	101.74
2001-02	2,09,018	2,45,200	196.53	199.87	98.33
2002-03	2,55,137	2,96,360	239.90	241.58	99.30
2003-04	2,93,367	3,59,108	275.84	292.72	94.23
2004-05	3,75,340	5,01,065	352.92	408.44	86.41
2005-06	4,56,418	6,60,409	429.15	538.33	79.72
2006-07	5,71,779	8,81,515	537.62	718.56	74.82
2007-08	6,55,864	10,12,312	616.69	825.18	74.73
2008-09	8,40,755	13,74,436	790.53	1,120.36	70.56
2009-10	8,45,534	13,63,736	795.03	1,111.64	71.52
2010-11	11,36,964	16,83,467	1,069.05	1,372.26	77.90
2011-12	14,65,959	23,45,463	1,378.39	1,911.89	72.10

Source: *ibid*, Table – 4

- Notes:** (i) Exports also include re-exports.
(ii) Columns 4, 5 and 6 are author’s calculations

Table – 7
Annual Compound Growth Rates (ACGR) for Pre and Post-WTO Periods

Sr. No.	Particulars of Variable	1980-81 to 1994-95			1995-96 to 2011-12		
		ACGR (%)	t-value	R ²	ACGR (%)	t-value	R ²
1	2	3	4	5	6	7	8
1.	Total Exports	20.06	18.49	0.96	18.06	33.42	0.98
2.	Total Imports	15.37	18.08	0.96	20.74	27.00	0.97
3.	Agricultural Exports	14.38	13.85	0.93	12.74	13.08	0.91
4.	Gross Value Added (GVA) at Factor Cost	5.15	56.63	0.99	7.15	41.27	0.99
5.	GVA from Agriculture	3.50	18.42	0.96	3.08	21.62	0.96

Note: Author’s calculations on the basis of the data given in Table 1 to Table 4.



increased from 61.68 per cent to 105.99 per cent. In the year 1991-92, the Net Terms of Trade became favourable for the Indian economy. The Table-7 shows the ACGR of total exports, imports, agricultural exports, GVA at Factor Cost and GVA from Agriculture. The ACGR of Total Exports has been 20.06 per cent in comparison of the ACGR Total Imports which is 15.37 per cent. The ACGR of Agricultural Exports has also been quite impressive, i.e., 14.38 per cent. Lastly the ACGR of GVA at Factor Cost and the contribution of Agriculture in GVA has been 5.15 and 3.5 per cents respectively which may be termed as good performance in comparison with the growth rates of the developed economies of the world during this period.

B. Analyses for Post-WTO Period –

The analysis for the period may be analysed on the basis of the Table-2, 4, 6 and 7. Table-2 has shown that the National Income at Factor cost counted through Gross Value Added (GVA) has increased from 17,37,741 crores of rupees in 1995-96 to 52,47,530 crores of rupees in absolute terms. Likewise the share of agriculture in National Income increased from 5,04,527 crores of rupees in 1995-96 to 8,64,557 crores of rupees in 2011-12 in absolute terms. However, the share of agriculture in National Income in percentage terms decreased from 29.03 per cent in 1995-96 to 68.48 per cent in 2011-12. The decrease of the share of agriculture in National Income in relative terms is considered a healthy feature for the economy. The more the dependence on agriculture and its allied sector for National Income, the more unsound it is for an economy. Similarly Total Exports and Agricultural Exports increased in absolute terms from Rs. 1,06,353 and Rs.20,398 crores respectively in 1995-96 to Rs. 14,65,959 and Rs. 1,82,801 crores respectively in absolute terms in 2011-12. However, Agricultural Exports as per cent of Total Exports decreased from 19.18 per cent in 1995-96 to 12.47 per cent in 2011-12. Again the decrease in Agricultural Exports in percentage terms is quite sound and stable feature of Indian Economy.

Table-4 depicts that the Trade Balance increased very significantly from Rs. - 16,325 crores in 1995-96 to Rs. - 8,79,504 crores in 2011-12. Such an increase in unfavourable Balance of Trade during the period is quite unprecedented in Indian Economy. The rate of change in exports and imports has been quite fluctuating during the period. Table-6 shows that Net Terms of Trade turned from favourable in 1995-96 to unfavourable in 2011-12 leaving the exceptional year of 2000-01 when the Net Terms of Trade remained favourable. The analysis show that India's Net Term of Trade has deteriorated during the WTO period. It reflects that the WTO has not given a positive sign for the developing economy like India. Such an indication is also received from the Table-7 that shows the ACGR in Post-WTO period decreased to 18.06 per cent from 20.06 per cent in Pre-WTO period regarding Total Exports of India. Contrarily, Indian Imports increased to 20.74 per cent ACGR in Post-WTO period from 15.37 per cent ACGR during the Pre-WTO period. Again, India's total imports increased at a rapid rate than exports during the Post-WTO period, an unhealthy feature for Indian economy. However, the ACGR in national income has remained 7.15 per cent during the Post-WTO period in comparison with the ACGR of 5.15 per cent during the Pre-WTO period.



Conclusion and Policy Implications –

The analysis reveals that the ACGR of the National Income has remained 7.15 per cent during the Post-WTO period in comparison with 5.15 per cent during the Pre-WTO. Despite the increase in the growth rate in National Income, India's terms of trade which were becoming favourable during the Pre-WTO period took a U-turn and started becoming unfavourable more and more as the time passed away. Likewise, there has been more rapid increase in imports rather than exports during the Post-WTO period. An inference may be drawn that the scenario of international trade has become quite dismal during the Post-WTO period. Regarding the share of agriculture in National Income, it has been decreasing in relative terms consistently during the Pre-WTO and Post-WTO periods both that is definitely remarkable positive sign for Indian Economy. The performance of agriculture has remained stable during the Post-WTO period. However, foreign trade that increased in absolute terms also showed unfavourable relative performance for the developing economy of India.

The WTO has revolutionalised the process of globalisation. It seems that globalization cannot be followed blindly as envisaged in the above analysis. The policy of protectionism has also its great relevance. The policy-makers have to maintain a fine balance between globalization on the one hand and nationalization or protectionism on the other. It is hoped that different countries will also recognize the importance of protectionist policies along with the concept of globalization in essence, such economics of the world which have been experiencing like India, may try to go in favour of protectionism instead of globalization.

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