

Changing Phase of Welfare Gains from Trade from pre-WTO to post WTO: A Case Study of India's Machinery Equipment including Parts

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Abstract

In this study an attempt has been made to find out the welfare gains from trade of India's Machinery Equipment Industry including parts, during pre-WTO and post-WTO accession periods of India, considering 1988 to 2017 as study period. The empirical foundation of this study is based on the theoretical set up of Arkolakis, Costinot and R-Clare (2012) model, which is the simplified version of Armington Gravity framework. The analysis has also been linked the results of the welfare gains from trade with the changing rate of import tariff of this country. Finally, the study concludes that this sector has been enjoying sizable gains from trade during pre-WTO accession periods following an increasing trend in post accession liberalization periods. Regression analysis also supports the above results.

Keywords: Welfare Gains from Trade, Machinery and Equipment, WTO, Import Tariff.

1. Introduction

India was one of the founding members of GATT and thereafter WTO. In 1947, GATT (General Agreement on Tariff and Trade) had been signed among 23 member countries in persuasion of the objective of free trade to enhance growth and development of member countries. However, it was a formal agreement, rather institute. In the continuation of the practice of executing liberalized trade, World Trade Organization (WTO) had been established as a formal centre to take the charge of trade across the member countries. In fact, the initiation of trade liberalization had been taken place with the formal set up of WTO. Although, India was one of the founder members, but before IMF agreement, this

Rapti Deb and Anindita Basu (Chowdhury)

country had literally a closed economy with strict protectionist approach. Prior to independence and over three decades, due to economic and political imbalances the nation was forced to undertake policies supporting the view to make India economically closed. During sixties and late seventies, unlike other Asian developing countries, restrictive trade practices along with closed economic approaches had been continuing in India. However, since the end of sixth five-year plan, several macro-economic imbalances accompanied with oil price hike resulting acute BOP crisis had forced the government to make an abrupt change in its ongoing policy. Finally, after several adjustment and alteration, India had gone for liberalization, since 1991. It was mainly due to the acceptance of IMF financial assistance of which liberalization was a key condition. At the very first step, India had gone through several policy relaxation including rapid decrease in quantitative restrictions and import tariff rate, sustainable reduction in taxes and subsidies on trade and a suitable adjustment in exchange rate with a gradual movement towards full convertibility in current account etc. Reduction in import tariff and other quantitative restrictions had been widening India's industry specific performances in terms of production, trade, profit, employment generation etc. In pre-WTO accession period India had a very high simple average import tariff of 128 percent in 1990 that has decreased to 34.04 percent in 1997-98 and continued a decreasing trend after that (Narayanan, 2006). Another article by Brown and Tovar, (2007) pointed out that weighted average import tariff fell from 87 percent in 1990 to 38.5 percent in 2001-02 and the standard deviation of tariffs dropped by almost 50 percent during the same period (Topalova, 2004). WTO recommended 40% average tariff reduction on all imported industrial product for developed countries and the rate was 37 percent for developing and 25 percent for LDCs (Mehta, 2001). Nevertheless, liberalization and there after WTO accession, both had generated very beneficial impacts on India's industrial production and consequently on the growth and GDP.

In this article, the welfare gains from trade of India's Machinery parts and equipment sector in post WTO accession periods has been studied in a comparison with pre-WTO accession periods. The study considers 1988 to 2017 as the full sample period decomposing into two sub-study periods, viz., pre-WTO accession period, from 1988 to 1994 and post WTO accession period, from 1996 to 2017, based on the year of WTO accession, as India has been one of the founder members of WTO since January, 1995. It

has been observed that from pre-WTO to post WTO accession periods this sector had been enjoying larger welfare gains from trade and over time these gains from trade had been widening. Here, in this study specifically this sector has been considered because it is a major sector of India providing larger share in total domestic production as well as in total export from India to outside economies. Being a major part of India's engineering industry, this sector provides all types of machine tools and electronic equipment in all other manufacturing production including railways, defense, steel production, textile sector, agriculture, telecommunication, domestic purpose machinery etc. As one of the fastest growing sectors of India it can be classified into three basic segments based on the purpose of the machine tools. India's Electronic equipment sectors are classified into production purpose electronics and domestic purpose electronics. India had entered into this production segment during 1965 for the purpose of space research and defense equipment production.

The main motivation behind this study generates from the fact that only a very few empirical works have been made in this respect to examine the impact of welfare gains from trade of machinery equipment including parts sector. In the context none of the previous papers had examined the sectoral gains from trade of India specifically highlighting this sector. Here, the changing rate of tariff protection of India from pre-WTO to post WTO accession have been captured. The impact of this change on welfare gains from trade of machinery equipment including parts sector have also been investigated through regression analysis using STATA software.

In the present paper it has been viewed that WTO accession enhances the gains from trade of Machinery parts and equipment sector in India. The simple average tariff of this sector depicts a prominent downward trend up to 1998, and after a small structural break, tariff again drastically have been fallen since 2002. Supporting the tradeoff relation between gains from trade and tariff, welfare gains from trade have been following increasing trend, however, in 2004-06 welfare gains from trade had faced a structural break, and nevertheless after that welfare had increased steadily.

The plan of our study is as follows. Section 2 culminates the related literature review. Section 3 describes the data sources and the methodology applied in this paper. Section 4 analyses the impact of welfare gains from trade of Machinery parts and equipment sector

of India after joining WTO in comparison with pre-WTO. In Section 5, the regression result of welfare gains from trade and other factors (import intensity, export intensity and tariff protection) have been estimated with the help of STATA software. Finally, the concluding remarks have been done in Section 6.

2. Literature Review

In this regard we can mention the work of Eaton and Kortum (2002), which developed simple Ricardian model with Dixit-Stiglitz (1977) preference considering bilateral trade with technology and geography as the two basic parameters. They have constructed productivity level compatible with any country as a function of technology, trade cost and prices. Following Hopenhayn (1992) simple dynamic industry model, Melitz (2003) has modified this idea incorporating it in heterogeneous firms' model to examine intra-industry trade effect on international trade and checked how the magnitude of export market entry cost could alter the profit earning conditions of firms based on their productivity level. Another study by Ianchovichina and Walmsley (2003) has found evidence that Chinese membership in WTO has possessed contradictory results on international trade for East Asian Countries. Anderson and Wincoop (2004) have calculated trade cost considering all types of costs between producers and consumers involved in international trade. Broda and Weinstein (2006) have observed the effect of trade globalization and its consequent welfare on USA imports of new product varieties. Seker and Rodriguez-Delgado (2011) have concluded that in India importing intermediate inputs could enable the nation to earn greater revenue from selling the good produced by using those imported intermediaries and also created knowledge spillover to produce new variety. The study by Arkolakis, Costinot and Clare (2012) has estimated the gains from trade as a function of the share of expenditure on domestic commodities and trade elasticity with respect to ice-berg trade cost incorporating the simplified version of Armington Gravity model. A Paper by Caliendo & Parro (2014) has developed a general equilibrium model to estimate trade elasticities of different sectors which are consistent with any trade model, irrespective of country and time. Lei, Riesman and Wang (2015) have conducted their study on Chinese firms and found out that most of Chinese importing industries enjoyed larger welfare gains from trade moving from pre-WTO to post-WTO, while most of its exporting industries have been suffering from losses.

3. Data and Methodology

The study of welfare gains from trade of India's machinery equipment including parts is a secondary data base empirical analysis that considers 1988 to 2017 as the full study period. Again, this study period has been sub-categorized into two sub-periods, namely, from 1988 to 1994, as pre WTO accession and from 1996 to 2017 as post WTO accession. The theoretical base of our study is taken from the model done by Arkolakis, Costinot and R-Clare (ACRC) (2012), where gains from trade is measured in terms of change in real income or real expenditure of the residents of an economy moving from previous trade situation to current trade position. Following Armington, in ACRC model welfare gains from trade have been computed through a modular formation considering import, export, GDP, trade elasticity and tariff as different variables. Import, export and tariff data are taken from World Integrated trade Statistics, World Bank (WITS, WB) dataset and GDP (2010 constant US dollar) data is from World Bank in time series format. Trade elasticity statistics have been taken from the empirical research by Caliendo and Parro (2015) which is compatible with the works related to the trade model irrespective of country, time and sectors.

Before applying conventional econometric tools, the stationarity checking (here Augmented Dickey-Fuller (ADF) test) of the variables has been done individually to identify the nature of the data set to interpret the model. Thereafter, to check the long run and short run relationships among the variables we follow the Johansen Test for Cointegration of the non-stationary variables and VECM /VAR model respectively.

4. The Impact of Welfare Gains from Trade of Machinery Parts and Equipment Sector

Machinery and electronic equipment producing industry is one of the crucial sectors of India providing various types of machine tools and electronic equipment to all primary, secondary and tertiary manufacturing production. India's machinery sector includes production of railway electronic machineries, defense, industrial electronic and non-machineries, agricultural machineries, electronic and telecommunication equipment etc. This sector can be classified into production purpose electronics and domestic purpose electronics. India had entered into this production segment during 1965 for the purpose of

space research and defense equipment production. The import and export intensities of India's machinery and electronic equipment are plotted in Figure 1.

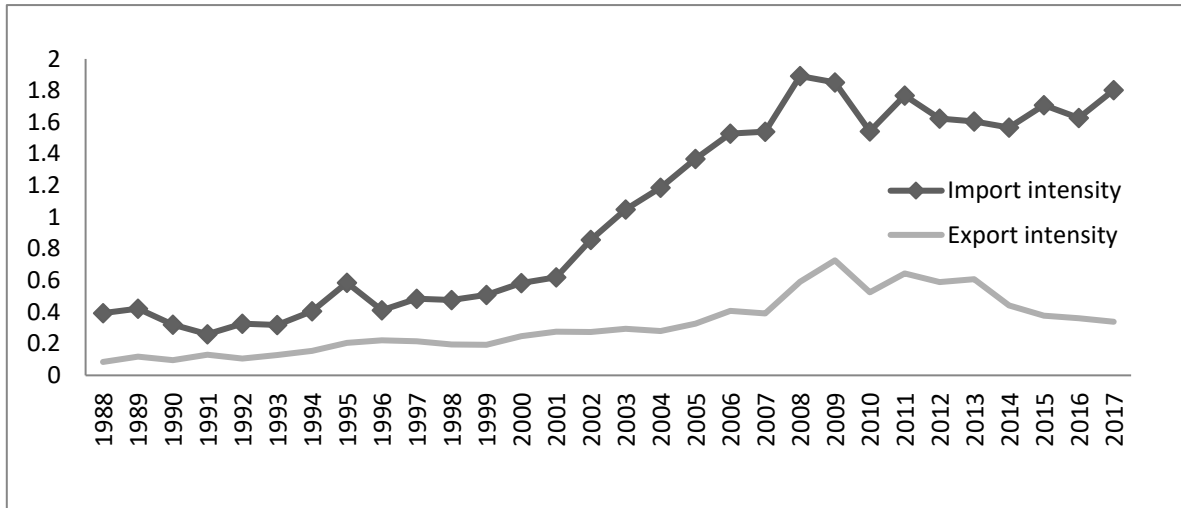


Figure 1: Import and Export Intensities of India's Machinery Equipment Sectors in Pre-WTO and post-WTO Regimes (For details please follow the appendix Table 1).

From above figure it has been observed that starting from very low intensities, less than 0.5 percent, India's import and export intensities had gradually increased and reached at a higher level. Throughout the time periods India's import intensity remained always higher than its export and after 2001 this gap had been widened continuously. During 2nd reform periods there had been a drastic rise in import intensity with a slight increase in its export intensity. India's import intensities had gained its momentum during second reform phase, after 2001. In pre-WTO period, more specifically during 1st reform periods nothing impressive was found in case of both intensities, however, after 2002 there was a sharp increase in import intensity and after 2007 same trend was seen for export intensity. Now, for sector specific detail explanations the decomposition of total machinery equipment producing sectors have been made into HS digit code specification, viz. 85 including electronic and non-electronic machineries for all types of production and further this code also decompose into forty eight 4-digit code specified sub-groups.

Among all 4-digit sub category products of machinery parts and equipment, in pre-WTO years electronic circuit and micro-assemblies, filaments, transistors and similar semiconductor devices, record players and other sound reproducing apparatus etc. had

generated major import intensities with cosmetics’ machineries, finished lamps, dry batteries etc. contributed minimum share in import intensity.

The welfare gains of this sector are plotted in Figure 2. From the figure (given below) a gradual increasing welfare trend has been found throughout the entire periods. After 1993-94, welfare has been following an increasing trend by gradually acquiring large advantages. For most of its sub sectors similar trend had found. Telephone, electronic instruments for cellular network and other wireless network, reception apparatuses for radio broad-casting, electronic transformers, television and related parts, electronic circuit etc. had registered maximum and very prominent welfare gains in both pre-WTO and post-WTO accession years, while minimum gains had been registered in carbon brushes, battery carbons, and lamp carbons etc.

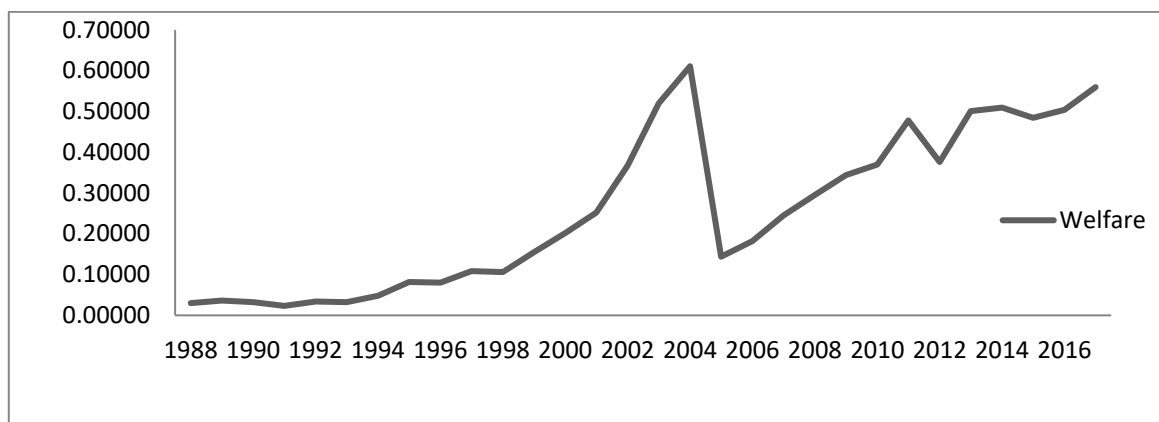


Figure 2: Welfare Gains from Trade of India's Machinery Equipment Sectors in Pre-WTO and post-WTO Regimes (For details please follow the appendix Table 2).

Since 1990 import tariff has been decreasing drastically, with an increase in the welfare gains from trade. However, in 2004-06 the gains from trade has faced a structural break, nevertheless after that it has increased steadily. From above it can also be stated that telephone set, television set, re-recording machines, equipment for cellular network and other wireless network have contributed significant impact on total welfare of machinery equipment sector. Welfare gains from trade can be decomposed into producer surplus and consumer surplus. Higher export intensity indicates more export from India inducing greater welfare gains for the producers. Again, significant import intensities of this sector specify sizable import from abroad. Import of final machinery products generates welfare

for the consumers while import of electronic and non-electronic machinery parts enhances both quality and quantity of exportable machineries, generating producers 'welfare, again. So, in simple words, more import and export give higher values to the intensities, which in turn generate higher gains from trade. Hence, low import tariff facilitate higher import from abroad that indicate increased export both in terms of quality and quantity measures.

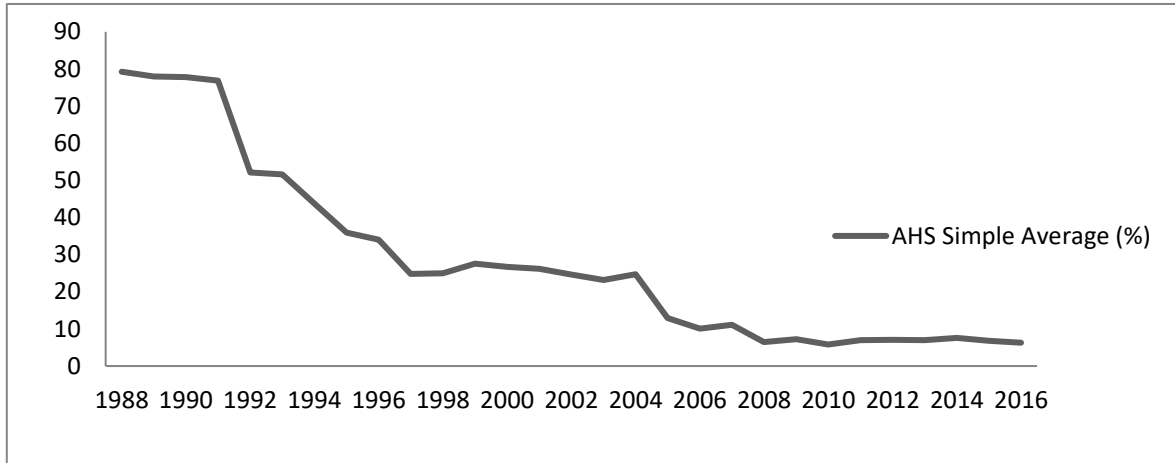


Figure 3: AHS Simple Average Import Tariff (%) on India's Machinery Equipment Import in Pre-WTO and post-WTO Regimes (For details please follow the appendix Table 3).

Hence, a direct link could be established between welfare gain and tariff protection. India's applied effective import tariff on machinery equipment including parts are drawn in figure 3. For lack of HS-code specific tariff data we take the tariff on final Machinery equipment as a proxy of its sub-category products.

Comparing table 2 and table 3 the following observations can be highlighted. Figures directly indicate the result that lowers the import tariff higher will be the welfare gains from trade. After 1991 a huge fall in tariff had been seen for machinery equipment sectors and after 2008 tariff became more or less constant. India had witnessed an enormous fall in tariff protection over the period from 1991 to 2007. Exactly the opposite relation between tariff and welfare gain has been detected. During pre-WTO years, i.e., before 1995, at relatively higher tariff rate India has been enjoying moderate gains from trade, which has gradually increased with lowering import tariff protection. The main logic behind this behavior is that low tariff protection induces the consumer as well as the producers to import more. Higher intermediary import of machinery equipment parts boost the number

of finished products at relatively lower production cost. Low cost of production automatically increases the sale by lowering the price of the final product resulting producer surplus. On the other, hand low tariff on final goods indicates more import of modern finished machinery that can enhance the consumer surplus by providing better machinery goods at affordable price. So, in a nutshell it can be said that, undoubtedly, the lowering tariff has greatly influenced the welfare gains of machinery equipment manufacturing sectors towards positive direction. Although, it is true that since the initiation of liberalization, India has followed the path of flexible eco-financial practices, but in the real sense, trade relaxation had been accepted and implemented after 1995, i.e., after WTO accession. Supporting this view, it can be said that WTO membership and thereafter huge trade relaxation had pushed the gains from trade in positive direction.

5. Regression Analysis

This section has captured the significant determinants of welfare gains from trade performing regression analysis. Here, the chosen determinants are import intensity (import/GDP), export intensity (export/GDP), Tariff rate. Now, the functional form of the total welfare gains from trade can be specified as follows:

$$Welfare_t = \alpha + \beta_1 importintensity_t + \beta_2 exportintensity_t + \beta_3 tariff_t + e_t \text{----- (1)}$$

Here, estimation has been made to check whether the above variables are significant or not after verifying the stability of the model.

In this context at first detection of the nature of the data set has been made following the diagrammatic presentation. From the following diagram, it can be said that all the variables have both trend and constant terms. Now, as we know that time series data move together, we have to check the stationarity of the variables individually with the help of Augmented Dickey-Fuller Test (ADF) using STATA software (results shown in table 4).

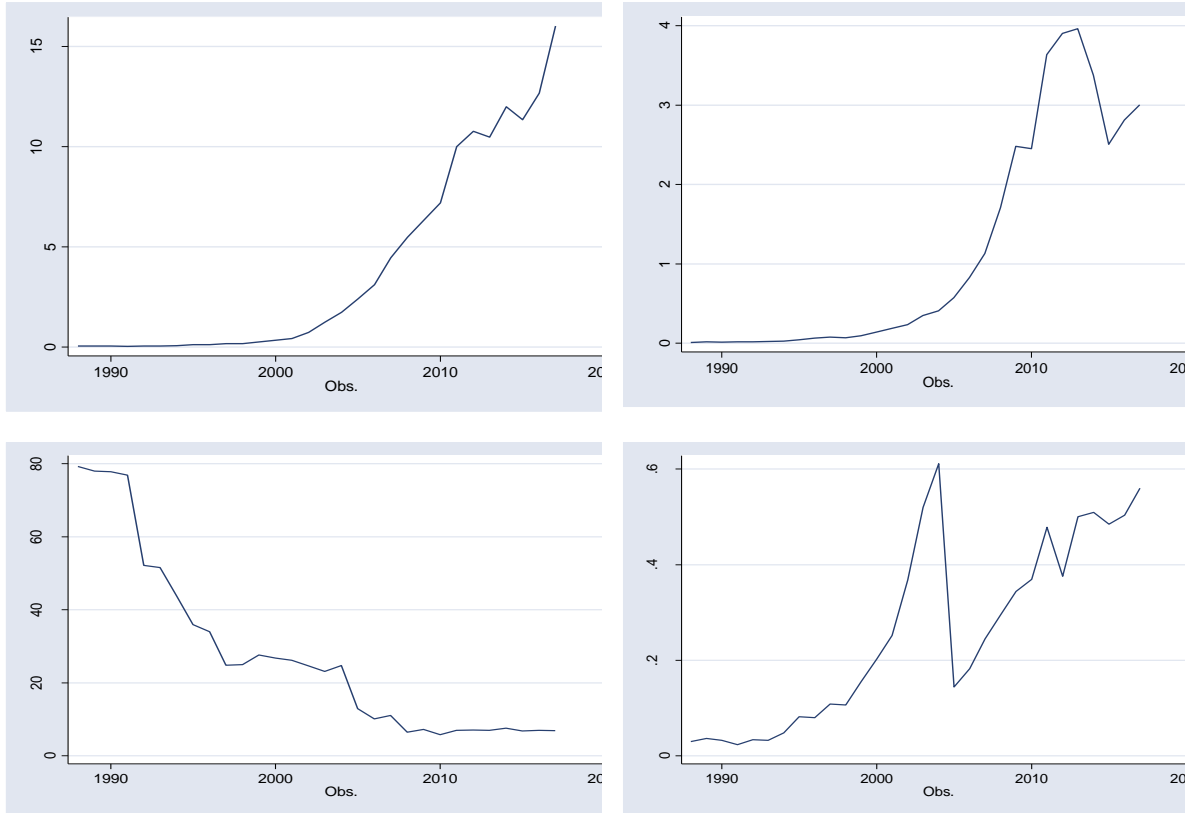


Figure 4: Trends Specification of the variables.

Result shows that all the chosen variables are stationary at level considering 5 % critical value. As the variables are stationary at level, we cannot go for Cointegration test and can directly apply VECM. Before that to find out the significant lag, we choose the optimum lag 3 by significant lag order selection criteria. To capture the long run dynamics of the system, here, Vector Error-Correction Model (VECM) have been applied (shown in Table 5). The result indicates that all the variables can significantly explain the relationship as R-square is very high. When welfare gain is dependent variable then in most of the lag all variables produce positive significant impact in long run. Taking import intensity as dependent variable, other variables have positive significant impact in most of the lag. Similarly, taking export intensity and tariff as the dependent variables, other variables have produced significant impact in most of the lag. So, in conclusion, it can be said that all the variables have significant effect in short run as well as in long run.

6. Conclusion:

In this study the sector specific welfare gains from trade of India's Machinery and parts including equipment in pre-WTO and post-WTO accession have been analyzed. Here the study have also tried to relate the welfare gains from trade with the changing rate of tariff imposition by India in pre-WTO and post-WTO regimes, separately. It has been shown that as long as the tariff is permitted to fall, the gains from trade are welfare generating. Prior to WTO accession, before 1995, average import tariffs were very high and consequently, the gains from trade were very minor. It is very interesting to note that this sector having higher import intensities over export have enjoyed larger gains from trade. Lower tariff leads to higher import creating larger values of import intensities at relatively lower cost. Low import cost promotes final production at greater amount at relatively lower price generating surpluses for both producers and for consumers. Again, production at greater amount assures more exports generating favorable effect on external trade. In spite of larger fall in tariff protection, gains from trade are not increasing very strongly. It may be the reason that the average tariff imposed by world partners remains slightly higher, lowering the gains from trade of this sector at low level.

In recent decade, China has been grabbing the machinery market offering low waged labor hour through product innovation mechanism and this has generated a major threat for Indian producers in world market. To survive in competition, India has to follow the new product innovation mechanism increasing the quality as well as quantity of the exportable machinery items.

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Rapti Deb and Anindita Basu (Chowdhury)

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UN Comtrade, International Trade Statistics Database, www.comtrade.un.org.

WITS, World Bank database, wits.worldbank.org/country-indicator.aspx.

Appendix

Table 1: Import and Export Intensity of India’s Machinery Parts and Equipment Sector in pre-WTO and post-WTO Years.

	Intensities	AVE (1988-94)	1995	AVE (1996-07)	2008	2009	AVE (2010-17)
85	Import Intensity	0.0501	0.1258	1.2588	5.4723	6.3246	11.3016
	Export Intensity	0.0170	0.0442	0.3459	1.7095	2.4827	3.2074

Source: Authors’ calculation based on the WITS, World Bank Dataset.

Table 2: Welfare Gains from Trade of India’s Machinery Parts and Equipment Sector in Pre-WTO and post-WTO Periods

		AVE (1988-94)	1995	AVE (1996-07)	2008	2009	AVE (2010-17)
85	Welfare	0.03364	0.08172	0.24776	0.29503	0.34363	0.47276

Source: Authors’ calculation based on the UN Comtrade, International Trade Statistics Database.

Table 3: Applied Simple Average Import Tariff on India’s Machinery Parts and Equipment Sectors in Pre-WTO and post-WTO Periods

Machinery Parts and Equipment	
Years	AHS Simple Average (%)
1988	79.26
1989	77.96
1990	77.81
1991	76.90
1992	52.13
1993	51.60
1994	43.77
1995	35.93
1996	34.01
1997	24.80
1998	25.01
1999	27.59
2000	26.73
2001	26.15
2002	24.66
2003	23.15
2004	24.70
2005	12.94
2006	10.11
2007	11.07
2008	6.48
2009	7.19
2010	5.80
2011	6.96
2012	7.02
2013	6.94
2014	7.55
2015	6.80
2016	6.96
2017	6.89

Source: Authors’ calculation based on the WITS, World Bank Dataset.

Rapti Deb and Anindita Basu (Chowdhury)

Table 4: Result of Unit Root Test.

Tests	Welfare Gains (5% critical level)	Import Intensity (5% critical level)	Export Intensity (5% critical level)	Tariff (5% critical level)
ADF	-2.716 (-3.600)	-0.174 (-3.600)	-1.275 (-3.600)	-1.267 (-3.600)

Table 5: Results of Vector Error Correction Model (VECM):

Vector error-correction model

Sample:	1992	2017	No. of obs	=	26
			AIC	=	.0067127
Log likelihood =	70.91273		HQIC	=	.996033
Det(Sigma_ml) =	5.02e-08		SBIC	=	3.442284

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_welfare	17	.117941	0.6153	14.39592	0.6389
D_importintens~y	17	.604746	0.8903	73.02488	0.0000
D_exportintens~y	17	.283146	0.8134	39.21882	0.0017
D_tariff	17	3.46874	0.8930	75.14831	0.0000

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_welfare							
_ce1	L1	-2.391691	1.062753	-2.25	0.024	-4.474648	-.3087335
_ce2	L1	-.3937819	.1561497	-2.52	0.012	-.6998296	-.0877341
_ce3	L1	.8492961	.3535711	2.40	0.016	.1563096	1.542283
welfare	LD	1.393195	.8335181	1.67	0.095	-.2404709	3.02686
	L2D	.8539598	.5975604	1.43	0.153	-.3172371	2.025157
	L3D	.4187807	.5782823	0.72	0.469	-.7146317	1.552193
importinte~y	LD	.2357482	.2747244	0.86	0.391	-.3027018	.7741983
	L2D	.1408858	.2248401	0.63	0.531	-.2997927	.5815643
	L3D	.1273103	.2560258	0.50	0.619	-.374491	.6291117
exportinte~y	LD	-.636437	.5242351	-1.21	0.225	-1.663919	.3910449
	L2D	-.5753473	.4085806	-1.41	0.159	-1.376151	.225456
	L3D	-.5311366	.2716729	-1.96	0.051	-1.063606	.0013325
tariff	LD	-.0169199	.0081539	-2.08	0.038	-.0329013	-.0009385
	L2D	-.010001	.0070533	-1.42	0.156	-.0238253	.0038232
	L3D	-.0064284	.0060486	-1.06	0.288	-.0182835	.0054266
_trend		.0796038	.0498159	1.60	0.110	-.0180335	.177241
_cons		-.6684906	.5369569	-1.24	0.213	-1.720907	.3839256

Business Studies – Volume – XL, No. 2, July 2019

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_importin~y							
_ce1	L1	5.401086	5.449301	0.99	0.322	-5.279349	16.08152
_ce2	L1	2.113397	.8006628	2.64	0.008	.544127	3.682667
_ce3	L1	-5.726856	1.812948	-3.16	0.002	-9.280168	-2.173544
welfare							
	LD	-3.083177	4.273893	-0.72	0.471	-11.45985	5.293499
	L2D	-3.285753	3.064011	-1.07	0.284	-9.291105	2.719598
	L3D	-.4598556	2.965162	-0.16	0.877	-6.271466	5.351755
importinte~y							
	LD	-2.293806	1.408659	-1.63	0.103	-5.054727	.4671148
	L2D	-1.789843	1.152875	-1.55	0.121	-4.049437	.4697507
	L3D	-1.038178	1.312781	-0.79	0.429	-3.611182	1.534825
exportinte~y							
	LD	5.53002	2.688033	2.06	0.040	.2615716	10.79847
	L2D	4.683789	2.095011	2.24	0.025	.5776431	8.789935
	L3D	3.255764	1.393012	2.34	0.019	.5255104	5.986017
tariff							
	LD	.0146735	.0418096	0.35	0.726	-.0672717	.0966187
	L2D	.0117918	.0361661	0.33	0.744	-.0590924	.082676
	L3D	-.0084209	.0310145	-0.27	0.786	-.0692083	.0523665
_trend		.0853678	.2554325	0.33	0.738	-.4152707	.5860063
_cons		-1.031076	2.753265	-0.37	0.708	-6.427376	4.365224

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_exportin~y							
_ce1	L1	-.1445501	2.551394	-0.06	0.955	-5.14519	4.85609
_ce2	L1	.8341144	.3748749	2.23	0.026	.0993732	1.568856
_ce3	L1	-2.64804	.8488324	-3.12	0.002	-4.311721	-.9843589
welfare							
	LD	.4835321	2.001061	0.24	0.809	-3.438475	4.405539
	L2D	.1942308	1.434588	0.14	0.892	-2.617509	3.005971
	L3D	.9111342	1.388306	0.66	0.512	-1.809895	3.632163
importinte~y							
	LD	-.2672741	.6595421	-0.41	0.685	-1.559953	1.025405
	L2D	-.0456449	.5397827	-0.08	0.933	-1.1036	1.01231
	L3D	-.2235369	.6146515	-0.36	0.716	-1.428232	.981158
exportinte~y							
	LD	1.463302	1.258552	1.16	0.245	-1.003416	3.930019
	L2D	1.655077	.9808961	1.69	0.092	-.2674439	3.577598
	L3D	1.387358	.6522162	2.13	0.033	.1090373	2.665678
tariff							
	LD	.0083777	.0195755	0.43	0.669	-.0299895	.0467449
	L2D	.0090444	.0169332	0.53	0.593	-.024144	.0422328
	L3D	-.0008381	.0145212	-0.06	0.954	-.0292991	.0276229
_trend		-.0907861	.1195949	-0.76	0.448	-.3251879	.1436157
_cons		.9103044	1.289094	0.71	0.480	-1.616274	3.436883

Rapti Deb and Anindita Basu (Chowdhury)

		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_tariff							
_ce1	L1	-38.19583	31.25641	-1.22	0.222	-99.45727	23.06562
_ce2	L1	-9.870602	4.592487	-2.15	0.032	-18.87171	-.8694923
_ce3	L1	24.34245	10.39881	2.34	0.019	3.961163	44.72375
welfare							
	LD	37.45286	24.51444	1.53	0.127	-10.59455	85.50027
	L2D	18.00713	17.57473	1.02	0.306	-16.43871	52.45297
	L3D	9.188065	17.00775	0.54	0.589	-24.1465	42.52263
importinte~y							
	LD	6.406208	8.079866	0.79	0.428	-9.430038	22.24245
	L2D	4.082413	6.612728	0.62	0.537	-8.878296	17.04312
	L3D	3.257052	7.529924	0.43	0.665	-11.50133	18.01543
exportinte~y							
	LD	-18.80325	15.41817	-1.22	0.223	-49.02232	11.41581
	L2D	-18.8222	12.01668	-1.57	0.117	-42.37447	4.730069
	L3D	-15.08357	7.990118	-1.89	0.059	-30.74391	.5767788
tariff							
	LD	-.695466	.2398136	-2.90	0.004	-1.165492	-.2254399
	L2D	-.2996672	.2074434	-1.44	0.149	-.7062487	.1069143
	L3D	.006765	.177895	0.04	0.970	-.3419027	.3554328
_trend		.0074305	1.465124	0.01	0.996	-2.86416	2.879021
_cons		2.186143	15.79233	0.14	0.890	-28.76626	33.13855

Cointegrating equations			
Equation	Parms	chi2	P>chi2
_ce1	1	17.56273	0.0000
_ce2	1	17.20232	0.0000
_ce3	1	17.28852	0.0000