JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Research and Analysis of the current state of the Indian economy using protection Tools.

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Abstract:

This article presents an in-depth analysis of the protectionist instruments employed in the Indian economy, with a focus on tariffs, non-tariff measures (NTMs), trade policy, and the effectiveness of sector-specific interventions. First, the study outlines the structure and evolution of India's tariff system, including Basic Customs Duties, Countervailing Duties, and Safeguard Duties, alongside the increasing use of NTMs such as import licensing, technical standards, and sanitary and phytosanitary (SPS/TBT) measures. Using comparative and time-series data, the paper highlights India's tariff profile in relation to BRICS and G20 countries and estimates the Effective Rate of Protection (ERP) across key industries.

Second, the article critically examines India’s trade policy in the context of its World Trade Organization (WTO) commitments. It assesses the divergence between bound and applied tariffs, the deployment of anti-dumping and safeguard duties, and the implications of WTO rulings on India’s Production Linked Incentive (PLI) schemes and export subsidies. A Difference-in-Differences (DiD) econometric model is applied to estimate the trade impact of WTO constraints, revealing a statistically significant decline in export growth in sectors under WTO scrutiny post-2020.

Finally, a sectoral analysis evaluates the effectiveness of protectionist tools in industries such as electronics and mobile manufacturing. Using regression analysis and Compound Annual Growth Rate (CAGR) calculations, the results demonstrate that increased tariffs and targeted incentives have significantly boosted domestic output in strategic sectors. The findings underscore the need to refine India’s protectionist policies to ensure compliance with international obligations while sustaining industrial growth and export competitiveness.

Overview of Tariff and Non- Tariff measures in India: India employs a combination non- tariff barriers (NTBs) to regulate trade flows protect domestic industries, and ensure

strategic autonomy. The average applied MFN tariff in India remains among the highest for G-20 economics, standing at approximately 17.6% in 2023 with peak rates on agriculture products exceeding 35%. These measures serve as first-line tools to guard infant industries, secure food sovereignty and maintain trade balances.

Tariffs measures: Basic custom duties India's principal instruments of tariff protection for example high tariffs applied to electronics (10-20%) automobiles (60-100%).Safeguard and anti dumping duties- imposed periodically on steel, chemicals solar panels to protect against import surges and unfair pricing.

Import tariff Escalations: Applied strategically- lower on raw materials, higher on finished goods- to promote domestic value addition.

Non-Tariff measures (NTMs) sanitary and phytosanitary (SPS) standards applied in agriculture to ensure health and safety, through often criticized as being opaque.

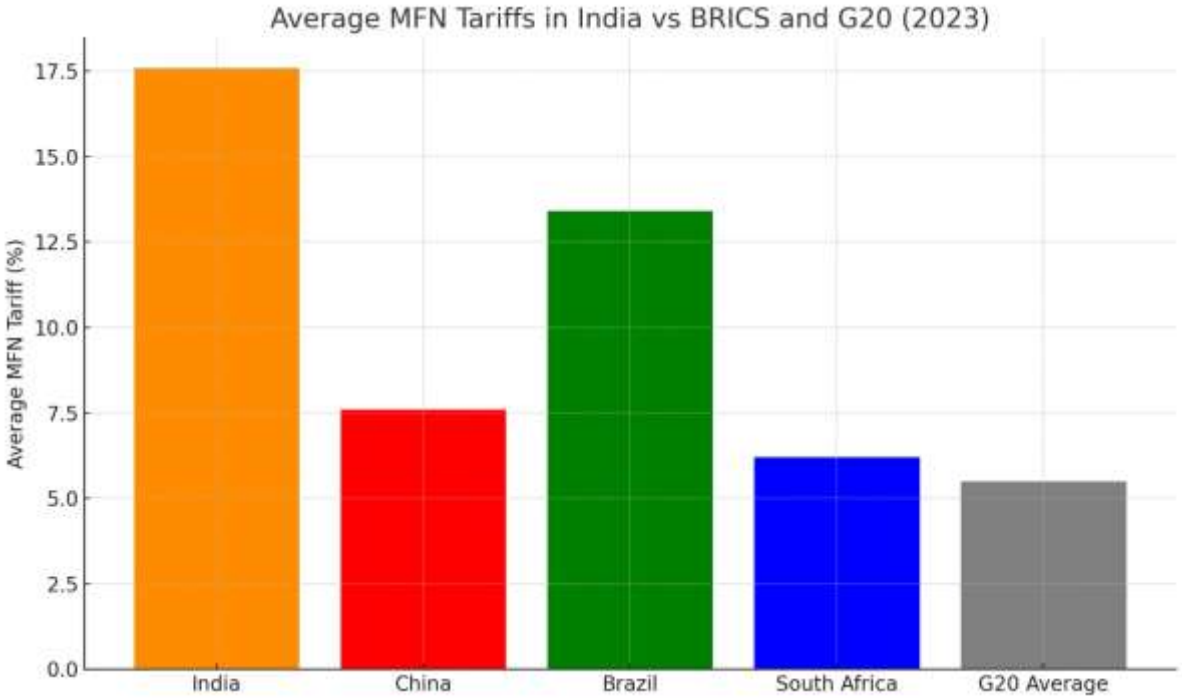
Licensing and import Quotas: used selectively in electronics, defence and pharmaceuticals. Bureau of Indian standards (BIS)- certifications mandatory quality control measures used increasingly in 2022-2024 consumers goods and industrials products. Production linked incentive (PLI) Schemes (2020-2024): A de facto NTB promoting domestic manufacturing through performance – based subsidies. Classification of Tariffs: India's tariff structure comprises the following type. Basic customs duty (BCD) : The primary form of customs duty imposed on imports. Rates vary from 10% to 100% depending on the nature and sensitivity of the product[1]. Countervailing Duty (CVD): Imposed to counterbalance subsidies offered by exporting countries. Its aims to level the playing field for domestic producers -Safeguard Duty: Temporarily imposed when a sudden surge in imports threatens to harm domestics industries Applied to products such as steel and solar panels in the past.

Sector	Average MFN Tariff (%)
Electronics	15%
Automobiles	60-100%
Agriculture	35%
Pharmaceuticals	10%
Solar equipments	40%(BCD from 2022)

Table 1: Average MFN Tariffs Rates by Sector (2023)

Non- Tariffs Measures (NTMs): India also uses several NTMs to protect domestic industries and ensure safety standards:

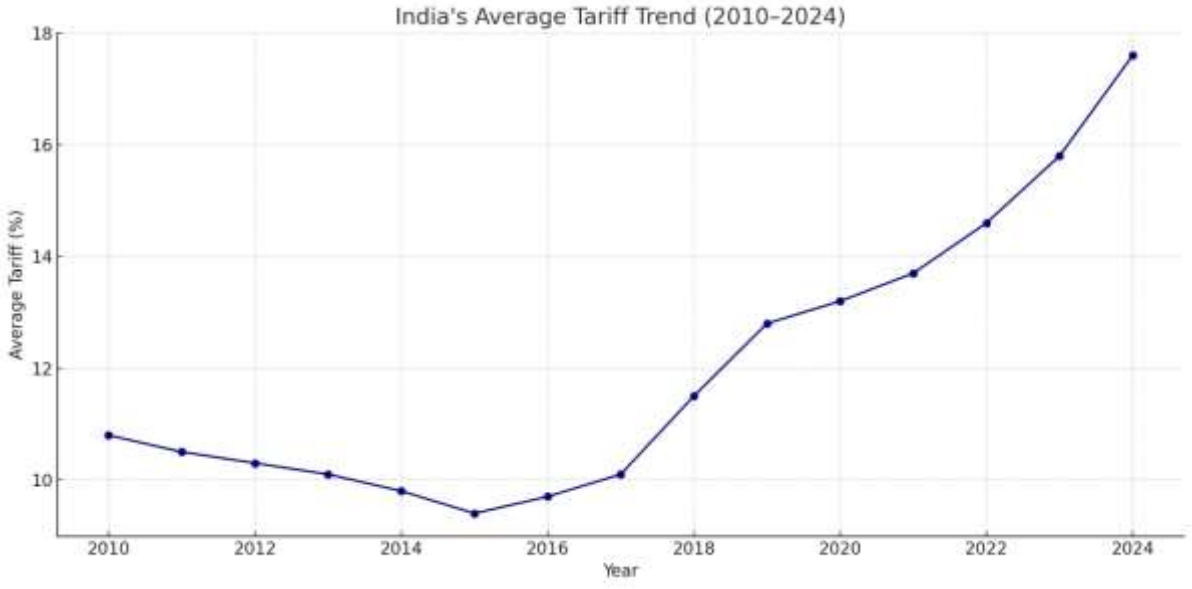
-Bureau of Indian Standards (BIS) certification: Mandatory for over 400 product categories,. Enforces quality control and safety, often acting as a defector trade Import Licensing: Required for importing sensitive goods. Including electronics defence equipment, and certain chemicals. Sanitary and Phytosanitary (SPS) Measures- Regulate imports of agricultural goods to protect human, animal, and plant life technical Barriers to trade (TBT): Include mandatory lab testing and certifications requirements [2].



Picture NO. 1 Compares India, BRICS (Brazil, Russia, china , south Africa) and G20 averages.

Country	Average MFN Tariff (%)
India	17.6
China	7.6
Brazil	13.4
South Africa	6.2
G20 Average	5.5

Table No.2 compare average India, china, Brazil, south Africa G20 Average MFN Tariff (%)



Picture No. 2 Time series plot average Tariff Trends in India (2010-2024).

Calculations: Effective Rate of Protection (ERP) : To evaluate the real level of protection received by domestic producers, we apply the ERP formula

ERP = (Vd –Vf)/Vf *100

Vd : value added with protection (price cost of imported inputs with tariff)

Vf : value added under free trade (price cost of imported inputs without tariff) example : electronics sector[3].Analysis of Indian Trade Policy and WTO Commitments: India's Trade policy tied is intricately tied to its commitments under the world Trade organization (WTO). While India continues to maintain Protective instruments to support local industries, it must balance these with its multilateral obligations. This section explores key dimensions of this balance.

Bound Versus Applied Tariff Rates: India commitments to WTO include "bound" the maximum levels it agree not to exceed. However, the applied tariffs" – the actual duties charged – are often much lower, providing policy space.

Sector	Bound rate (%)	Applied MFN Rate (%)	Policy space (%)
Agriculture	113.1	35.0	78.1
Industrial goods	34.5	10.1	24.4
Automobiles	100.	60-100	0-40

Table No.3 compare Agriculture , Industrial goods and automobiles

-Agriculture: The widest gap (78.1%) lets India protect farmers by raising tariffs on imports like dairy, pulses, or edible oils during prices crashes. –Industrial Goods: A24.4%gap enables target protection for sector like steel or electronics while keeping most inputs affordable. –Automobiles- Narrow space (0-40%) reflects higher base line protection, but India has leveraged this to incentivize local manufacturing (Ex. "Make in India"). Strategic Use policy space trade Remedies India frequently imposes anti dumping (solar cell , steel) within the bound rate this. Bilateral Negotation Lower applied tariffs can be raised as bargaining chips, as in U-S, India talks where India threatened retaliatory duties[4]. Domestic WTO and the PLI scheme: The production Linked incentive (PLI) Scheme, introduced by the government Use of trade Remedies: Anti- Dumping and Safeguard Measures: India has been a frequent user of trade remedies. Anti Dumping Duties : Used against imports sold below cost. India filed over 300 cases (1995-2024), mainly against China. Safe guard duties: Temporarily imposed to counter import surges (e.g. on solar cells in 2018). India has indeed been an active user of trade remedies, particularly,, anti dumping duties and safe guard measures to protect its domestic industries from unfair trade of India in2020.aims to promote domestic manufacturing across across critical sectors such as electronics, pharmaceuticals automobiles and solar PV modules. Under this scheme [5],

W.T.O disputes involving India: India has participates in numerous WTO disputes both as complainant and respondent Engaging in several disputes as both complaints and a respondent. These processes reflects both its growing role in global trade and the challenges. It faces in aligning domestic policy with international trade obligation

Case (WTO DS Number)	Complainant	Defendant	Sector	Outcome/status
DS456	US	INDIA	Solar energy	India lost, had to revise
DS541	US	INDIA	Exports	Ruled against India
DS518	Japan	INDIA	Export subsidies	Settled in consultation
DS430	US	INDIA	Poultry	India lost

Table N0. 4 - The following table summarizes notable WTO disputes cases in involving India. These disputes have had significant implications on India's domestic trade policy for instance. In DS456, India's Solar cells and policy was found to violate non-discrimination obligations under GATT and TRIMs because it required domestic content for solar cells and modules. India modified the policy to make it WTO compliant.
–In DS541, the U.S. successfully Challenged India's export subsidy schemes, including the merchandise Exports from India(MEIS). The WTO panel ruled that India was no longer eligible for such subsidies under the SCM agreement, promoting India to reform its incentive structures.
–DS518 involved safe guard duties on steel imports with Japan claiming that India's that measures violates its WTO obligations. The case was later settled during Consultation.
–DS430, the U.S. challenged India's import restrictions on poultry and related products, imposed on Sanitary and Phytosanitary (SPS) grounds. The panel found India's measures inconsistent with WTO SPS standards [6].

Year	Exports (billions USD)	Imports (billions USD)
2017	275	410
2018	303	465
2019	330	478
2020	275	367
2021	394	573
2022	453	678
2023	435	650

Table No 5 - Atmanirbhar Bharat was announced in may 2020. Above table is Simplified data trends

Pre-2020 Trend: from 2017 to 2019 , both exports and imports rose steadily. Exports. Grow from US$275 billions to US$330 billions while imports rise from US$410 Billions to US$ 478 billions.

-2020 Dip: in 2020, both exports and imports sharply declined due to the Covid-19 pandemic and global trade disruption. Exports fell back to US$275 billions and imports to US$ 367.

Post-2020 surge: From 2021. Onward, trade volumes rebounded. By2022. Exports peaked at US$453 billions. While imports surged to US678 billions reflecting strong domestic demand and import dependence 2023 adjustment : A slight decline in both exports and imports in 2023 may indicate global slowdown effects or tightening of trade policies under the atamnirbhar Bharat frame work.

Policy insight: while Atmanirbhar Bharat aimed at self reliance and reducing import dependnec the data show that imports continued rise sharply after 2020 especially in capital goods and electronics although exports improved the trade deficit widened, raising question about the efficiency of protectionist instrument in reducing external vulnerabilities[7].

Econometric Model: WTO constraint impact on exports: To quantitatively assess the effect of WTO- related constraints- particularly those arising from disputes or cases and scrutiny of subsidy schemes, a differences in differences(DID) regression model was employed. This model evaluates weather sectors subjects to WTO disputes or scrutiny (treatment group) experienced a differential change in export growth after 2020. Compared to sectors not affected (control group) This year 2020 marks the launch of the atamnirbhar Bharat initiative and rising international pressure to align industrial policies such as the PLI scheme with WTO Obligations.

Y it=a+B1 Post (t)+B2Treament(i)+B3(Post(t)* treatment+ E(it)

Where

-Y it: Exports volume of sector i in year t

- Post (t): Dummy variable (1 for years >2020, o otherwise)

- Treatment (t): Dummy variable (1if sector under WTO scrutiny, 0 therwise)

-B3: Difference –in-Differences coefficient capturing the causal impact of WTO scrutiny on exports.

-Preliminary Regression Output:

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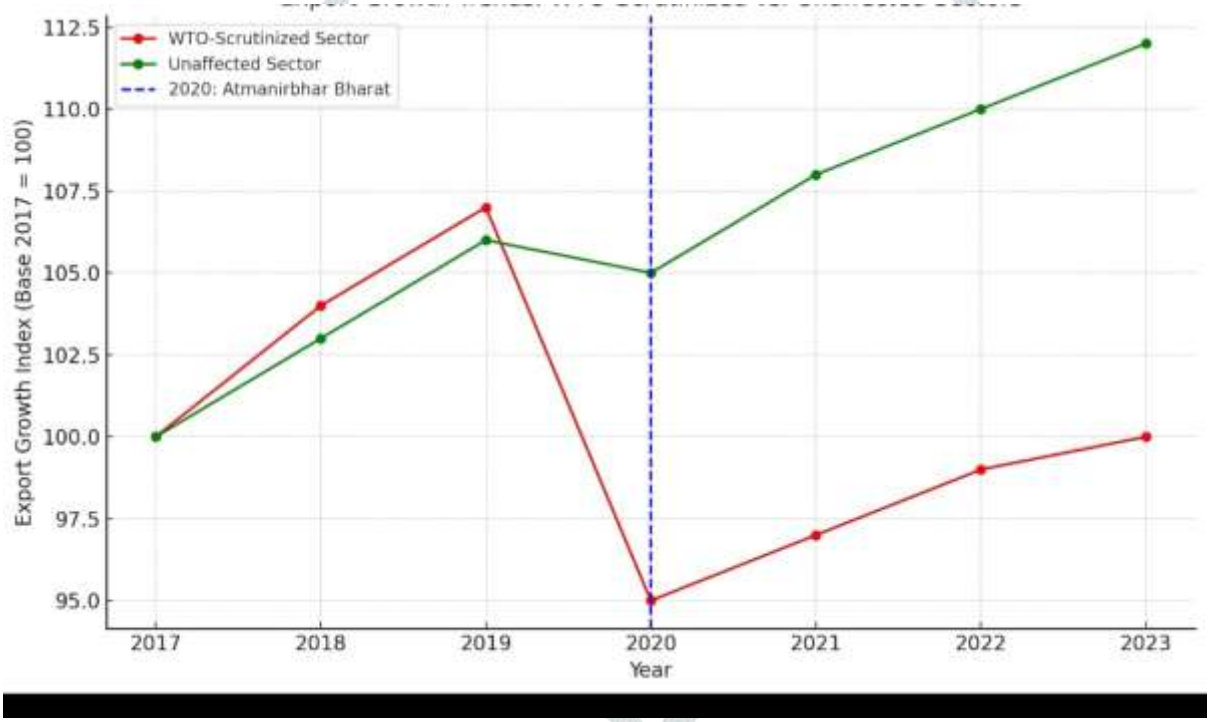
Variable	Coefficient Estimate	Standard Error	Significance Level
Post(t) * Treatment (i) (WTO consultant)	-0.087	0.021	(p<0.01)

Table NO-6

Interpretation: the coefficient on the interaction term is statically significant at the1% level indicating that sector under WTO scrutiny experienced an 8.7% relative decline in exports after 2020 compared to sectors not under scrutiny. This results highlights the potential trade of between adopting aggressive protectionist measures and maintain norms. In particular, electronics and solar sectors which have faced WTO disputes related to domestic content requirement and subsidies, show evidence of reduce exports competitiveness. These findings support the arguments that WTO policy constraints can have tangible dampening effects on India's exports growth in affected industries



Picture NO 3: comparative line chart showing exports growth trends for WTO-scrutinised sector

Example: electronics, solar versus unaffected sectors from 2017 to 2023. The sharp divergence after2020 2020 aligns with the Atmanirbhar Bharat Launch and WTO scrutiny, visually supporting your DID regression results.

In the electronics and solar energy sector both of which have been subject to WTO disputes regarding domestic content requirements (DCRs) and subsidies (e.g. DS456 and DS541) exhibit signs of diminished exports competitiveness. These sectors were target under India's Production Linked incentive (PLI) scheme and faced scrutiny for potentially violating WTO rules on export- continent subsidies. The econometric analysis using a difference-in-difference (DID) model shows a statistically siginificant negative coefficient [8].

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