Azadi Ka Amrit Mahotsav

FICCI CASCADE

REGULATORY INTERVENTIONS AND ILLICIT TRADE ACROSS BORDER

Impact on Six Key Industries

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Foreword

Illicit trade is a growing threat and a major policy challenge in the digitally globalized economy. Globalization has provided opportunities for these activities to expand in the scope and scale. This has created an enormous drain of capital, resulting in loss of revenue for the government and industries, and jeopardizing public health and safety. Illicit trade is an obstacle to economic growth and development, besides breeding criminals and siphoning capital and human resources away from legitimate economic activities. The financial drain caused by such practices is re-invested in activities like terrorism and organized crime posing a serious threat to national and international security.

FICCI has been at the forefront of advocating policy framework on various aspects affecting industry. FICCI's dedicated Committee Against Smuggling and Counterfeiting Activities Destroying the Economy (CASCADE) has been focusing on curbing the problem of growing illicit trade in counterfeits, pass offs and smuggled goods by creating awareness and disseminating information amongst the stakeholders on this menace. In furthering its objective, CASCADE has prepared a study titled 'Regulatory Interventions and Illicit Trade Across Border- Impact on Six key Industries'. The report outlines the impact of tariff and non-tariff regulatory measures on illicit trade in the six key industries, namely:

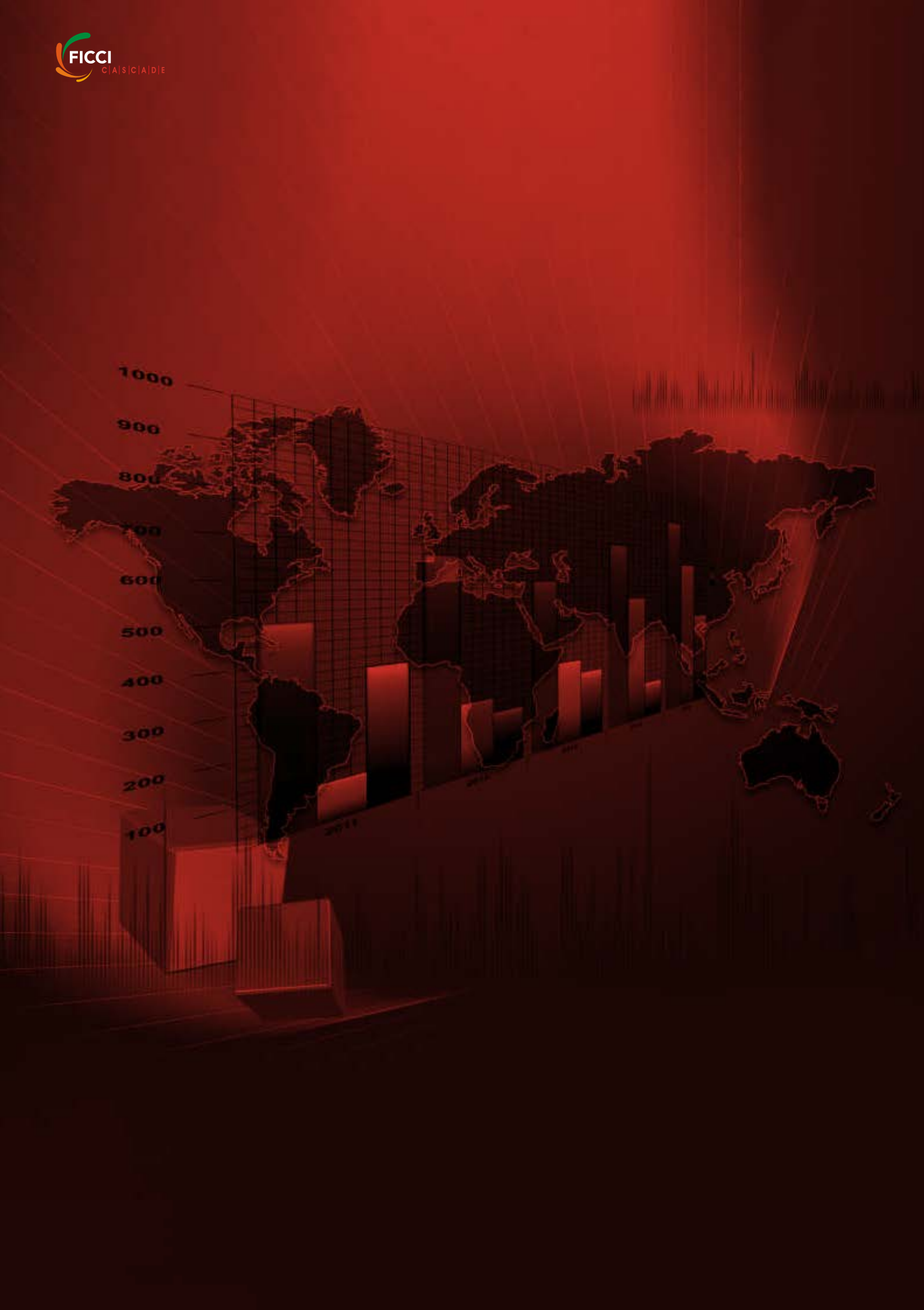
1. Alcoholic Beverages
2. Consumer Electronics
3. FMCG - Packaged Foods
4. FMCG-Household & Personal Goods
5. Mobile Phones
6. Tobacco Products

Based on the empirical findings and overall analysis of tariff and non-tariff regulatory measures, this report estimates the scale of illicit trade and provides a way forward to effectively tackle this global scourge. It is hoped that this study will stimulate further discussion on the extent of the problem and will provide means to mitigate this challenge.

I would like to thank and congratulate all stakeholders who have contributed significantly towards this study, particularly the Think Tank members of FICCI CASCADE.

I wish FICCI CASCADE success in its future initiatives.

Arun Chawla
Director General
FICCI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About this Report

This report has been prepared by Thought Arbitrage Research Institute (TARI) for FICCI Committee Against Smuggling and Counterfeiting Activities Destroying the Economy (CASCADE).

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About Thought Arbitrage Research Institute (TARI)

TARI is a not-for-profit organisation set up under Section 25 of the Indian Companies Act, 1956, to bridge the gap between policy initiatives and common perception through evidence-based research and comprehensive data-based reasoning.

TARI is a privately funded, independent, non-partisan Indian think-tank and works with government, industry, civil society and other stakeholders on:

- Corporate Governance
- Sustainability
- Economics
- Public Policy

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Note from the Authors

Note from the Authors

The current 2023 report, "REGULATORY INTERVENTIONS AND ILLICIT TRADE ACROSS BORDER: Impact on Six Key Industries". This report with its research approach aims to create evidence-based empirical reasoning for understanding how regulatory interventions, both tariff and non-tariff measures, affect illicit trade in the industries.

This report is in continuation of our earlier studies and needs to be read in conjunction with the earlier reports mentioned below.

2015

ILLICIT MARKETS: A THREAT TO OUR NATIONAL INTERESTS

2016

INVISIBLE ENEMY: A Threat to our National Interests
Extent, Causes & Remedies, A study on the top five products smuggled into India

2019

INVISIBLE ENEMY: Impact of Smuggling on Indian Economy and Employment

2022

ILLICIT MARKETS: A THREAT TO OUR NATIONAL INTERESTS

Counterfeiting, smuggling, and tax evasion-clubbed under the head of organized crime, and together, they may be referred to as grey or illicit market that covers all goods sold outside the authorized channels of trade. For this study, illicit market estimates are taken from our previous 2022 study, Illicit Markets: A Threat to Our National Interests and illicit trade estimated in this study may be

referred to as smuggling. The gap between the illicit market and illicit trade, therefore, is met by domestically manufactured goods which could possibly be evading local taxes or be counterfeits.

This study has analysed NTMs of key industries only from a data perspective and in relation to illicit trade. We are emphasising that no value judgement is being passed on the need of any NTM. The study is only bringing out the causal effect of the NTM on illicit trade and the fact that it creates an arbitrage which can be exploited by unscrupulous elements.

Our findings are based on credible data sources from international agencies providing international trade data, such as UN COMTRADE (from United Nations International Trade Statistics Division), UNCTAD's Trade Analysis and Information System (TRAINS) data on NTM measures, complemented by the Global Trade Alert (GTA) database, tariff data from the World Trade Organisation (WTO) and other regulatory and institutional country-level data on governance indicators provided by the World Bank.

We believe, illicit trade estimated using the mirror trade methodology takes into account both Type B and type C smuggling. We do not quantify or comment on any effect of any smuggling using India as a source or transit.

- Goods that pass through customs clearance in the exporting country, but not in the importing country, India (Type B)
- Goods that pass through customs clearance both in the exporting country and in the importing country, India (Type C)

If the good passes through customs channels in exporting countries but not the customs channels in India, it is captured in the trade data of exports but will be missing from import data in India. This is part of outright smuggling into India (type B). The structure of data takes into account the entire trade but data on type B and Type C smuggling cannot be segregated.

This research, as any data-based research has to, makes certain assumptions and works with limitations in the absence of reliable data, resources and time. We have highlighted these assumptions and limitations at appropriate places in the report.

- Data for this study is coming from different sources, we took due care to map data at a granular level, at 6-digit HS Codes level, for estimates and develop an empirical model.
- Mirror trade statistics after adjustment for CIF/FOB valuation and other gaps for missing/ unreported data provide estimates for illicit trade or smuggling.
- NTMs key indicators, frequency and coverage ratio can be analysed only at the aggregate level. We used prevalence score for Technical NTMs, Price & Quantity Control NTMs and Competition NTMs applied at 6-digit HS code level in our empirical model to provide a detailed impact analysis of the particular type of NTMs on the illicit trade.
- Our empirical models do not include 2020-year data being an outlier year due to the Covid-19 pandemic.
- All linear regression models and findings take due cognisance of all robustness checks.

- In our findings, we report independent variables coefficients, standard errors and their 95 % confidence limits.
- All the data and figures are reported for financial years with the understanding that there is not much difference between calendar year and financial year numbers.

We thank the members of the FICCI CASCADE think tank, who are named below for their comments, observations and direction during the course of this research and report.

- Mr. Anil Rajput, Member, Corporate Management Committee & President, Corporate Affairs, ITC Limited
- Justice Manmohan Sarin, Former Judge, High Court of Delhi, Chief Justice, High Court of Jammu & Kashmir, and Lokayukta, NCT of Delhi and Think Tank Member, FICCI CASCADE
- Mr. Najib Shah, Former Chairman, Central Board of Indirect Taxes and Customs
- Dr. Debi Prasad Dash, Former Principal Director General, DRI, Chairman, Enforcement Committee, World Customs Organisation (WCO)
- Mr. P K Malhotra, Former Secretary, Ministry of Law & Justice, Govt. of India
- Mr. Hem Kumar Pande, Former Secretary, Ministry of Consumer Affairs, Food and Public Distribution, Govt. of India
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- Mr. Narendra Sabharwal, Former Deputy Director General, WIPO, Geneva, Chairman, FICCI - IP Committee
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- Mr. Deep Chand, Former Special Commissioner of Police, New Delhi & Advisor, FICCI CASCADE

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Executive Summary

Executive Summary

1. Regulatory Interventions and Illicit Trade: Context and Objective

The importance of international trade cannot be overemphasised. In this regard, globalization has been a key driver and engine of economic growth. Paradoxically, the increase in trade has also offered opportunities for criminal organizations to engage in illicit trade activities. Significant illicit flows takes place within the international commercial trade system causing substantial revenue loss to Governments.[1] Given the humongous increase in international trade, this poses a considerable challenge to enforcement agencies across the world.

Illicit trade is termed as the crime of the 21st century on account of its impact on all world economies, be it developed economies or emerging ones. It covers all goods sold outside the authorized channels of trade.[2] The World Economic Forum (WEF) estimates illicit markets at US$ 2.2 trillion or about 3 percent of the world's GDP, making it a global menace.

Non-tariff measures (NTMs) have taken center stage in any discussion on global trade flows. They are defined as policy measures, other than customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, prices, or both.[3]

Modern-day trade is affected more by NTM regulations rather than tariff regulations. Tariffs have generally fallen between 1997 and 2015, while the use of NTMs has gained prominence more recently to protect the domestic market.[4] International frameworks and discussions on NTMs are still evolving and consequently, NTMs have become less transparent.

[1] Global Financial Integrity (2017). 'Transnational Crime and the Developing World' (March 2017)

[2] Counterfeiting, smuggling, and tax evasion-clubbed under the head of organized crime

[3] UNCTAD (2019). International Classification of Non-Tariff Measure 2019 Version (United Nations publication. Sales No. E.19.II.D.14. Geneva).

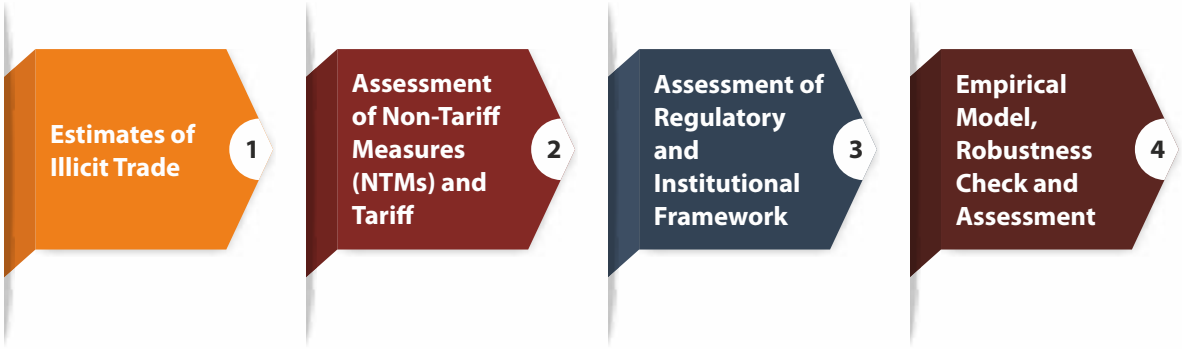
[4] Niu, Z., Liu, C., Gunessee, S., & Milner, C. (2018). Non-tariff and overall protection: evidence across countries and over time. Review of World Economics, 154(4).

Trade costs imposed by tariff and non-tariff regulatory measures have an adverse impact on both legal and illicit trade. Illicit traders bypass legal channels of trade to derive financial benefits from trade costs.[5] The overall impact of NTMs is estimated to be two to three times higher than current tariffs.[6] These higher trade costs arising from both tariff and non-tariff measures provide financial incentives for illicit trade, which is the main premise of this study.

This study aims to create data and evidence-based empirical reasoning, in the Indian context, for understanding how various tariff and non-tariff measures affect illicit trade in the key industries identified and their products.

2. Research Approach and Theoretical Underpinnings

The study focuses on regulatory interventions along with tariffs to provide theoretical foundations and an understanding of how they affect illicit trade. Our research approach has four stages to meet our study objectives.



Source: TARI research

Counterfeiting, smuggling, and tax evasion-clubbed under the head of organized crime, and together, they may be referred as illicit market that covers all goods sold outside the authorized channels of trade. For this study, illicit market estimates are taken from our previous 2022 study, Illicit Markets: A Threat to Our National Interests[7] and illicit trade estimated in this study may be referred to as smuggling. The gap between the illicit market and illicit trade, therefore, is met by domestically manufactured goods which could possibly be evading local taxes or be counterfeits.

The first stage of this research focuses on estimating illicit trade. The estimates are based on discrepancies between India's trade figures (imports) and related trade figures (exports) with all its trade partners (exporting countries) after adjusting for various trade gap issues. This type of illicit trade can be referred to as "technical smuggling" , where goods that pass-through customs clearance both in the exporting country and in the importing country, India.

[5] Trade Costs are usually defined as the sum of administrative barriers, trade policies - tariffs and non-tariff measures (NTMs) - and transaction costs (transport and insurance costs).

[6] UNCTAD (2013). Non-Tariff Measures to Trade: Economic and Policy Issues for Developing Countries. United Nations. United Nations publication.

[7] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[8] Please refer to the report for more details on smuggling, FICICI CASCADE and TARI Report (2019), Enemy at the Borders, Smuggling and its Impact on Indian Economy and Livelihood

This illicit trade takes place along with legal trade is a kind of commercial fraud, where intention of importer is to reduce their custom duty burden by adopting different ways and means .Importers may adopt different means to evade customs duty on goods and products: Undervaluation, Mis-declaration, Misuse of End Use and Other Notifications, and Others Means.

The second stage involves collecting and analysing data on NTMs and tariff measures specific to the selected six industries. We have analysed NTMs using three key indicators: frequency ratio, coverage ratio, and prevalence score. We classified these NTMs into the following four groups and analyse their impact on illicit trade.

Source: UN TRAINS, TARI research

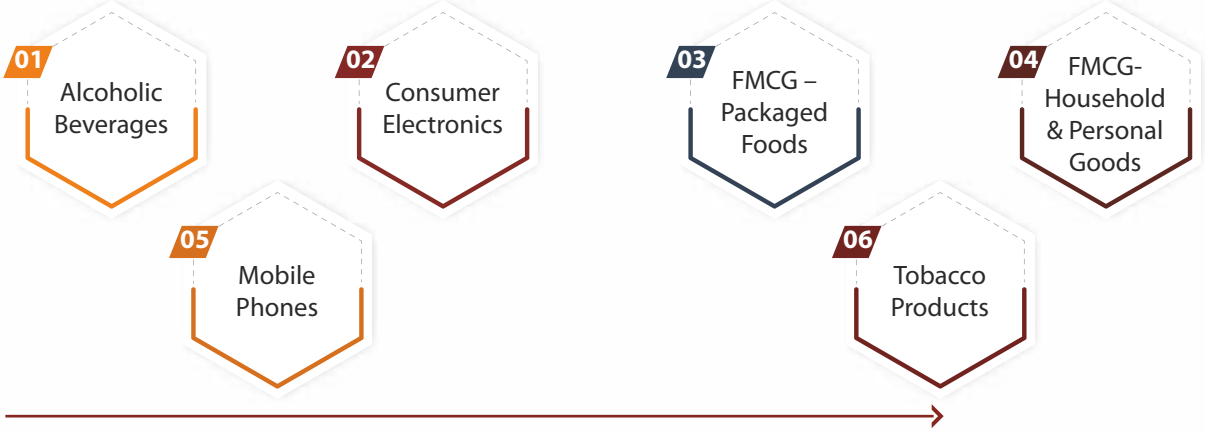
The third stage focuses on data collection and analysis of the overall regulatory and institutional framework indicators at the country level that affect every industry.

The fourth stage involves developing an empirical model using linear regression and presenting the findings taking cognisance of all robustness checks.[9] We have presented independent variables, coefficients, standard errors, and 95 percent confidence limits of all linear regression models.

Key Selected Industries

We have selected six key industries out of 36 industries for this study based on a detailed analysis of the regulatory framework applicable to them. Three indicators namely, frequency ratio, coverage ratio, and prevalence ratio related to the NTM analysis are key factors for selecting these industries. The frequency and coverage ratio of alcoholic beverages, mobile phones, and tobacco is 100 percent, meaning that each of the tariff lines under these industries has one or more NTMs.

Secondly, high tariff rates for alcoholic beverages and tobacco products provide significant financial incentives to undertake illicit trade activities. In addition, the consumption market and imports are key factors of demand that also drive illicit trade.



[9] Please refer to Annexure -2 for our regression model and robustness checks

3. Alcoholic Beverages

The Indian alcoholic beverages market is among the fastest-growing and the third-largest in the world. The Market was valued at approximately US$52.5 billion in 2020.[10] Alcohol is a state subject and one of the most regulated industries in India. The regulatory landscape encompasses all production, imports, distribution, and consumption aspects. The Food Safety and Standards Authority of India (FSSAI) lays down standards for alcoholic beverages under the Food Safety and Standards (Alcoholic Beverages) Regulations, 2018.

Illicit market estimates of alcoholic beverages, based on the FICCI CASCADE 2022 Report[1] show that it is gradually come down from 23.88 percent in 2017-18 to 19.87 percent in 2019-20. Even in value terms, it is coming down and is estimated at ₹23,466 crores in 2019-20. Illicit alcohol is a global phenomenon and represents 25.8 percent of global consumption, i.e., 1 out of 4 alcohol bottles are illicit.[2]

[1] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests
[2] Euromonitor International. (2018). Size and Shape of the Global Illicit Alcohol Market. London: Euromonitor

Illicit trade in alcoholic beverages, as in the case of imports, has also increased from ₹873 crores in 2015 to ₹2,666 crores in 2020. Illicit trade is comparable with the levels of imports as import duty and other taxes levied exceed 150 percent, which makes them three to five times more expensive than elsewhere in the world. [11]This provides illicit traders significant financial incentives to engage in unscrupulous activities.

The frequency and coverage ratio is 100 percent in all the years from 2015-2020. Technical measures (including SPS, TBT, and pre-shipment inspection) have the highest contribution to the prevalence score, however, their contribution is coming down. On an average more than 12 SPS measures are applicable to any alcoholic beverage, to take care of human health and safety.

Year	Tariff Lines #	Illicit Trade (Crores)	Frequency Ratio	Coverage Ratio	Technical Measure - Avg Prev Score	PQC Measures Avg Prev Score	Comp Measure - Avg Prev Score	All NTM Measure Avg Prev Score
2015	15	873	100.0%	100.0%	17.4	2.1	0.0	19.5
2016	15	1548	100.0%	100.0%	17.4	2.1	0.0	19.5
2017	16	2145	100.0%	100.0%	17.4	3.1	0.0	20.5
2018	15	2172	100.0%	100.0%	17.4	3.1	0.5	21.1
2019	15	2666	100.0%	100.0%	17.4	3.1	0.5	21.1
2020	16	1745	100.0%	100.0%	17.4	3.1	0.5	21.1

Source: TARI research

[10] ICRIER (2021). Developing Principles for Regulations Alcoholic Beverages Sector in India
[11] Indian Alcohol Consumption - The Changing Behavior
https://www.researchandmarkets.com/reports/4424894/indian-alcohol-consumption-the-changing-behavior

Overall, the alcohol beverages illicit trade model is statistically significant with an F value of 18.937. R-square indicates that independent variables are able to explain 78 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹1,880.8 crores. Lagged technical measures including SPS, TBT & C (ABC_L1) are statistically significant at a 1 percent level. Keeping other variables constant, one point increase in the prevalence score of technical NTMs (ABC_L1) decreases illicit trade by ₹182 crores [-235 to -129].[12] The other two NTM i.e., price and quantity measures (PQCM_L1) and competition measures (CompM_L1) have statistically insignificant impact on illicit trade. Tariffs on alcoholic beverages have a statistically significant negative impact on illicit trade.

4. Consumer Electronics

Consumer (electronics) durables are among the most dynamic and fastest-growing markets. Indigenous production of electronic items are on a high growth trajectory, increasing from US$37 billion in 2015-16 to US$74.7 billion in 2020-21 at a compounded annual growth rate of 17.9 percent.[13]

The National Policy on Electronics 2019 (NPE 2019) has three major schemes[14] to drive electronics manufacturing in the country: Production Linked Incentive Scheme(PLI) for Large Scale Electronics Manufacturing, Scheme for the Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS) and Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme.

The Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021 makes it compulsory for consumer electronics to conform with the prescribed standards and bear the "standard mark" under license from the Bureau of Indian Standards (BIS).[15] Various other laws and policies like the Legal Metrology (Packaged Commodities) Rules, 2011, Consumer Protection Act, 2019, BIS safety standards, Bureau of Energy Efficiency star labelling programme, and e-Waste Management Rules, 2016 also ensure consumer safety and protect their interests.

Imports of consumer electronics declined after 2018, but illicit trade has continued to increase. Between 2016 and 2018, average illicit trade as a percentage of imports was only 13.30 percent rising to 20 percent in 2019 and 20.2 percent in 2020.

The frequency and coverage ratio is 100 percent for all the years from 2015-2020. Technical NTM measures remained constant over the years. The prevalence score for price and quality control (PQCM) NTMs and competition NTMs have increased significantly from 2015 to 2020. Overall, prevalence score of the industry has increased from 12.9 in 2015 to 15.6 in 2020.

[12] 95 percent confidence interval

[13] Ministry of Electronics and Information Technology, Annual report 2021-22

[14] Parliamentary Standing Committee On Commerce) Report No. 158 One Hundred And Fifty Eighth Report: Attracting investment in post-Covid Economy: Challenges and Opportunities for India

[15] Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021

Year	Tariff Lines #	Illicit Trade (Crores)	Frequency Ratio	Coverage Ratio	Technical Measure - Avg Prev Score	PQC Measures Avg Prev Score	Comp Measure - Avg Prev Score	All NTM Measure Avg Prev Score
2015	85	4200	100.0%	100.0%	8.6	2.9	1.4	12.9
2016	85	16626	100.0%	100.0%	8.6	2.9	1.9	13.4
2017	82	18098	100.0%	100.0%	8.5	2.9	1.9	13.3
2018	82	22998	100.0%	100.0%	8.5	3.7	1.9	14.1
2019	81	28306	100.0%	100.0%	8.5	4.7	2.1	15.3
2020	82	36651	100.0%	100.0%	8.5	4.9	2.2	15.6

Source: TARI research

The consumer electronics illicit trade model is statistically significant with an F-value of 4.706. R -square indicates that independent variables are able to explain 26 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹18045.6 crores. Lagged competition measures (CompM_L1) are statistically significant at a 10 percent level and have a negative impact on illicit trade. Keeping other variables constant, a one-point increase in the competition NTMs prevalence score (CompM) decreases illicit trade by ₹191 crores [-387 to 5.3].[16] Other NTMs, PQCM & TBTC_L1, and tariffs do not have any statistically significant impact on illicit trade. t- statistics indicate that in the post-GST (2018-20) period, both tariff and alternative tariff measures (PQCM) are statistically higher compared to the pre-GST (2015-17) period. This confirms that higher financial incentives resulted in a significant increase in illicit trade after 2017-18.

5. FMCG - Packaged Food

The Indian food processing industry is considered a sunrise sector because of its large potential for growth and socio-economic impact.[17] To boost the sector, an industrial license is not necessitated for almost all food and agro-processing industries, except for items like alcoholic drinks, sugarcane, oils, and fats. The FSSAI is the apex body that regulates the packaged foods sector in India through the Food Safety and Standards Regulations, 2011.[18] These regulations lay down standards for domestic and imported food products and most importantly regulate unfair trade practices to ensure that food is safe for human consumption.

Globally it is estimated that the illicit food markets including sub-standard, fake, smuggled, and illegal agri-foods cost about US$30-40 billion each year. Estimates of the illicit market of FMCG packaged foods[1] show an increase from ₹106,486 crores in 2017-18 to ₹142,284 crores in 2019-20. However, the illicit market percentage has marginally come down from 25.19 percent in 2018-19 to 25.09 percent in 2019-20.

[1] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[16] 95 percent confidence interval

[17] Rais, M., Acharya, S., & Sharma, N. (2013). Food processing industry in India: S&T capability, skills and employment opportunities. Journal of Rural Development, 32(9), 451-480. doi:10.4172/2157-7110.1000260

[18] Food safety and standards regulations, 2011 https://www.fssai.gov.in/upload/uploadfiles/files/FSS_Gazete_Rules_2011.pdf

Illicit trade in packaged foods, as in the case of imports, also varies significantly over the years and was even negative in 2020 (due to the impact of the Covid-19). Median illicit trade is 21 percent with 2018 and 2020 being outlier years.

Year	Tariff Lines #	Illicit Trade (Crores)	Frequency Ratio	Coverage Ratio	Technical Measure - Avg Prev Score	PQC Measures Avg Prev Score	Comp Measure - Avg Prev Score	All NTM Measure Avg Prev Score
2015	139	3634	100.0%	100.0%	20.9	2.3	1.4	24.6
2016	140	4987	100.0%	100.0%	20.9	2.3	1.4	24.6
2017	138	5980	100.0%	100.0%	21.0	3.3	1.4	25.7
2018	141	7310	100.0%	100.0%	20.9	4.3	1.9	27.2
2019	140	4747	100.0%	100.0%	20.9	4.4	1.9	27.2
2020	140	-1471	100.0%	100.0%	20.9	4.7	1.9	27.5

Source: TARI research

The frequency and coverage ratio for the industry is 100 percent for all the years from 2015-2020. Packaged foods have diverse product categories and therefore it also have a wide NTM prevalence score ranging from a minimum of 17 to a maximum of 38. Technical measures have the highest contribution to the prevalence score and remained constant over the years. On average, more than 14 SPS measures are applicable to any packaged food to ensure human health and safety.

Overall, the packaged foods illicit trade model is significant with an F-value of 10.873. R -square indicates that independent variables are able to explain 78 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹853.6 crores. Lagged SPS NTMs (SPS_L1) are statistically significant at a 10 percent significance level. Keeping other variables constant, a one-point increase in the SPS NTMs prevalence score decreases illicit trade by ₹5.5 crores [-11 to 0.33].[19] The other three NTMs, TBT(TBT_L1), price and quantity measures (PQCM_L1) and competition measures (CompM_L1) have a statistically insignificant impact on illicit trade. t- statistics results show that in the post-GST (2018-20) period average PQCM is statistically higher compared to the pre GST (2015-17) period. This highlights alternate tariff measures (PQCM) significantly increased financial incentives for illicit trade in the post-GST period.

6. FMCG- Household and Personal Goods

Three segments of the FMCG household and personal goods sector -skincare, deodorant and perfumes, and household care - together account for more than 60 percent of the sector by value. The Government has allowed 100 percent FDI in single-brand retail and 51 percent in multi-brand retail.[20] All imported cosmetic items must have a compulsory registration certificate. Cosmetics in India are regulated under the Drugs and Cosmetics Act, 1940, Drugs and Cosmetics Rules, 1945 and labelling declarations prescribed under BIS.

[19] 95 percent confidence interval

[20] https://www.firstpost.com/business/fdi-in-retail-cabinet-approves-51-in-multi-brand-100-in-single-brand-139770.html

The FMCG household and personal goods sector has one of the highest illicit market percentages. Illicit market estimates of FMCG household and personal goods[1] show that it has increased from ₹47,301 crores in 2017-18 to ₹55,530 crores in 2019-20. However, the illicit market percentage has declined to 34.25 percent in 2019-20 from 35.12 percent in 2017-18 and 2018-19.

[1] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

Illicit trade in household and personal goods, similar to imports, also increased continuously over the years, falling in 2020 (due to the impact of Covid-19). Illicit trade as a percentage of imports varies from 22 percent to 29 percent with a median percentage of 24 percent.

Year	Tariff Lines #	Illicit Trade (Crores)	Frequency Ratio	Coverage Ratio	Technical Measure - Avg Prev Score	PQC Measures Avg Prev Score	Comp Measure - Avg Prev Score	All NTM Measure Avg Prev Score
2015	23	556	87.00%	79.00%	8.87	0.09	0.00	8.96
2016	23	652	87.00%	78.70%	8.87	0.09	0.00	8.96
2017	23	729	87.00%	81.20%	8.87	0.09	0.00	8.96
2018	23	1027	100.00%	100.00%	8.87	1.09	0.00	9.96
2019	23	1304	100.00%	100.00%	8.87	1.09	0.00	9.96
2020	23	318	100.00%	100.00%	8.87	1.09	1.00	10.96

Source: TARI research

Frequency ratio of 87 percent and coverage ratio of 79 percent in 2015 increased to 100 percent in 2020 suggesting that the regulatory framework has become more stringent over time. Household and personal goods have over 23 product categories and therefore have a wide applicable NTM prevalence score ranging from a minimum of 2 to a maximum of 16. Technical measures including TBT (6.261) and pre-shipment checks (2.609) have the highest contribution towards the total prevalence score but their share declined from 99 percent in 2015 to 81 percent in 2020.

The household and personal goods illicit trade model is statistically significant with an F-value of 7.252. R -square indicates that independent variables are able to explain 21 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹5,331.6 crores. Lagged technical measures TBTC_L1(including TBT and pre-shipment inspection checks) are statistically significant at 1 percent level. Keeping other variables constant, a one point increase in TBTC_L1 NTM prevalence score decreases illicit trade by ₹7.8 crores [-12 to -3.4].[21] Both tariffs and alternate tariffs, PQCM NTMs, have a statistically insignificant impact on illicit trade. t- statistics highlight that in the post-GST (2018-20) period, average PQCM, average competition measures, and average tariffs are significantly higher compared to the pre GST (2015-17) period indicating a significant increase in financial incentives for illicit trade.

[21] 95 percent confidence interval

7. Mobile Phones

India is the second-largest telecommunications market in the world after China. At the end of March 2020, India had 115.7 crore mobile users (with nearly 55 percent based at urban centres) and a tele-density of 86.68 precent.[22] Mobile telephony has also had a significant impact on the efficiency and productivity of individuals, industry, services, and the government. The target of NPE 2019 is domestic production of 1 billion mobile handsets valued at US$190 billion by 2025. To attract large-scale investments, the Government of India started the Production Linked Incentive Scheme (PLI) on April 01, 2020.

The regulatory framework applicable to consumer electronics, is also applicable to mobile phones. All mobile devices have to adhere to Electro Magnetic Field (EMF) exposure norms prescribing Specific Absorption Rate (SAR) safe exposure limit for mobile handsets. For safety purposes, mobile phones without IMEI numbers cannot be imported or sold in the country as per the Mobile Device Equipment Identification Number (Amendment) Rules, 2022.

The illicit market estimates of mobile phones based on FICCI CASCADE's Illicit Market Report[1] 2022 show that it is gradually coming down, from 11.82 percent in 2017-18 to 7.56 percent in 2019-20. This reduction can be attributed to policy emphasis and incentives for domestic manufacturing with the objective of reducing dependence on imports. This is apparent from domestic mobile manufacturing accounting for 96 percent (in value terms) of the market in 2019-20.

[1] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

The illicit market estimates of mobile phones based on FICCI CASCADE's Illicit Market Report[23] 2022 show that it is gradually coming down, from 11.82 percent in 2017-18 to 7.56 percent in 2019-20. This reduction can be attributed to policy emphasis and incentives for domestic manufacturing with the objective of reducing dependence on imports. This is apparent from domestic mobile manufacturing accounting for 96 percent (in value terms) of the market in 2019-20.[24]

Imports of mobile phones have drastically fallen from ₹45,000 crores in 2015 to ₹6,300 crores in 2019 and again increased in 2020 due to the impact of Covid-19. Illicit trade in mobile phones was fluctuating till 2018 after which it has been falling and is almost at par with imports. One of the main reasons is the increase in basic customs duty (BCD) of mobile phones from 15 percent to 20 percent in January 2018.

Year	Tariff Lines #	Illicit Trade (Crores)	Frequency Ratio	Coverage Ratio	Technical Measure - Avg Prev Score	PQC Measures Avg Prev Score	Comp Measure - Avg Prev Score	All NTM Measure Avg Prev Score
2015	3	4952	100.0%	100.0%	12.0	4.0	3.0	19.0
2016	3	11282	100.0%	100.0%	12.0	4.0	3.0	19.0
2017	3	7547	100.0%	100.0%	12.0	4.0	3.0	19.0
2018	3	13743	100.0%	100.0%	12.0	4.0	3.0	19.0
2019	3	5866	100.0%	100.0%	12.0	5.0	3.0	20.0
2020	3	4951	100.0%	100.0%	12.0	6.0	4.0	22.0

Source: TARI research

[22] 9Telecom Regulatory Authority of India (TRAI), Annual Reports and Data

[23] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[24] FICCI CASCADE (2022) Report, Illicit Markets: A Threat to Our National Interests

Technical measures including TBT (9) and pre-shipment checks (3) have the highest prevalence score. Non-technical NTMs, price and quantity controls measures (PQCM), and competition measures (CompM) prevalence scores increased after 2018 to protect domestic markets.

The mobile phones illicit trade model is significant with an F value of 5.305. R-square indicates that independent variables explain 74 percent of variation in the illicit trade. Average industry illicit trade for model period from 2015-19 is ₹8,678 crores. Tariffs are statistically significant at a 10 percent level of significance and a one percent increase in tariffs can increase illicit trade by ₹376.79 crores [-23.58 to 777.16][25]. NTMs and rule of law have a negative but statistically insignificant impact on illicit trade.

8. Tobacco Products

Tobacco is a high value commercial crop which provides significant socio-economic benefits. Tobacco products in India are regulated under the Cigarettes and Other Tobacco Products Act, 2003 (COTPA 2003) under the Ministry of Health & Family Welfare (MoHFW). The Act prohibits advertising of tobacco products, and regulates trade and commerce in and production, supply and distribution of cigarettes and other tobacco products. Since September 2018, it is mandatory to display specified health warnings on 85 percent of the principal display area of tobacco product packs.

Global estimates suggest that illicit cigarette consumption is 600 billion sticks or 10 percent of the total cigarette consumption.[1] Illicit tobacco products have increased from ₹21,811crores in 2018-19 to ₹22,930 crores in 2019-20. The illicit market percentage also increased from 19.88 percent in 2018-19 to 20.04 percent in 2019-20.[2]

[1] S. Dutta (2019), Confronting Illicit Tobacco Trade: A Global Review of Country Experiences, Technical Report of the World Bank Group Global Tobacco Control Program

[2] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

Imports of cigarette remained the same between 2015 and 2020. The average imports for these six years was ₹132 crores. This is only a fraction of total consumption suggesting that much of the trade is happening through unscrupulous channels. Illicit trade estimates based on mirror trade statistics confirm this. Average illicit trade between 2015 and 2020 is ₹206 crores which is 157 percent of imports.

Year	Tariff Lines #	Illicit Trade (Crores)	Frequency Ratio	Coverage Ratio	Technical Measure - Avg Prev Score	PQC Measures Avg Prev Score	Comp Measure - Avg Prev Score	All NTM Measure Avg Prev Score
2015	2	7183	100.00%	100.00%	3	2	0	5
2016	2	7730	100.00%	100.00%	3	2	0	5
2017	2	8750	100.00%	100.00%	3	3	0	6
2018	2	9669	100.00%	100.00%	4	4	0	8
2019	2	11181	100.00%	100.00%	4	4	0	8
2020	2	10707	100.00%	100.00%	4	4	0	8

Source: TARI research

[25] 95 percent confidence interval

High taxes/duties provide smugglers with an opportunity to engage in outright smuggling through clandestine channels. Consumption-based estimates highlight that cigarette smuggling is increasing due to the high number of illegal and smuggled cigarettes.

In the year 2019-20, based on ASI data tobacco consumption (excluding bidi) for this year is estimated at ₹ 89,427 crores and that attributable to cigarettes is ₹ 56,000 crores. Our earlier report estimates illicit markets (domestic and smuggling) for tobacco for 2019-20 at ₹ 22,930 crores, which apportioned based on consumption value is estimated at ₹15,133 crores for cigarettes. The current study estimates illicit trade i.e., mainly smuggling of cigarettes based on seizure and other data at ₹11,181 crores, which is about two-thirds of the total value of the illicit cigarette market in India. GST forms on a composite basis of 58.14 percent of taxes on cigarettes and the Tobacco Institute of India estimates that cigarette contributes 80 percent of taxes to the Government from tobacco products making it one of the most taxed commodities in India.

Technical TBT norms such as labelling requirements(B31), restricted use of certain substances (B22), distribution and location of products after delivery (B853), are applicable to tobacco products. Overall, the prevalence scores applicable to tobacco products have increased since 2018.

The tobacco products illicit trade model is significant with an F value of 86.5. R -square indicates that independent variables explain 98.7 percent of variation in illicit trade. Average industry illicit trade for model period from 2015-20 is ₹9,203 crores. All_NTM, (including PQCM and TBT measures) are statistically significant at a 1 percent level. A one-point increase in the All_NTM prevalence score increases illicit trade by ₹816 crores [546 to 1085].[26] Also, rule of law has a statistically significant negative impact on illicit trade. Empirical findings of the model suggest tariff evasion (direct tariffs and PQCM NTMs) along with stringent non-tariff measures are the main motive for illicit trade as they increased significantly, particularly from 2018.

9. Key Industries - Illicit Market and Trade Model

We developed two aggregate empirical models for the selected key Industries: one for illicit markets and the other for illicit trade. The illicit market model is based on estimates of five key industries[27] for the years 2017-18 to 2019-20. The model is statistically significant with an F value of 453.07 and independent variables are able to explain 99.5 percent variations indicated by R -square. Avg_Tariff has a substantial positive impact (statistically significant at a 1 percent level of significance) on the illicit market. Two NTMs indicators price and quantity control measures (PQCM) and other NTMs (NTM_All), on the contrary, have a significantly negative impact (statistically significant at 1 percent level) on the illicit market.

[26] 95 percent confidence interval

[27] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

The illicit trade model is based on estimates of six industries for the years 2015 to 2020. The model is statistically significant with an F value of 8.722 and independent variables are able to explain 34.5 percent variations indicated by R-square. Financial incentives for illicit trade are quite significant. The results highlight tariff rates and alternative tariff measures- price and quantity control measures (PQCM_L1) have a positive and statistically significant impact (at a 1 percent level) on illicit trade. Competition NTMs, which protect domestic products have a statistically significant negative impact on illicit trade (at a 5 percent level).

10. Conclusions and Way Forward

Illicit trade has now become a global phenomenon affecting nearly all countries in the world. It is among the main factors that hold up the growth of legitimate manufacturing and harms economies in multidimensional ways. Based on the empirical findings and overall analysis of non-tariff measures, tariff measures, and other regulatory measures, this report provides a way forward and makes recommendations for policy consideration to tackle illicit trade.

Source: TARI research

1

Regulatory Interventions and Illicit Trade: Understanding the Context

1

Regulatory Interventions and Illicit Trade: Understanding the Context

1.1 Illicit Trade: The Magnitude of the Problem

Illicit trade[28] covers all goods sold outside authorized channels of trade. It concerns "any commercial practice or transaction related to the production, acquisition, sale, purchase, shipment, movement, transfer, receipt, possession or distribution of any illicit product defined as such by international law, or any licit product for non-licit purposes as defined by international law as well as any conduct intended to facilitate such activities."[29]

The world economy is increasingly interconnected. As trade grows, illicit markets and their capital follows. The World Economic Forum (WEF) estimates illicit markets at US$ 2.2 trillion or about 3 percent of the world GDP, making the menace a globally debilitating phenomenon.

Illicit trade has been termed the crime of the 21st century on account of its impact on all world economies, be it developed economies or emerging ones. Notwithstanding the endeavours of governments, international organizations including law enforcement and multilateral agencies, and private sector businesses, it continues to grow itself into a lucrative proposition for some, at the cost of causing significant losses for industry, governments, and society at large.[30] Illicit trade tends to emerge spontaneously where governments impose stiff price ceilings or stringent non-tariff measures (NTMs) or the regulatory environment creates insurmountable hurdles to conduct commerce legitimately.

[28] Counterfeiting, smuggling, and tax evasion-clubbed under the head of organized crime

[29] Illicit Trade Group, Available at: https://illicittrade.org/research-overview

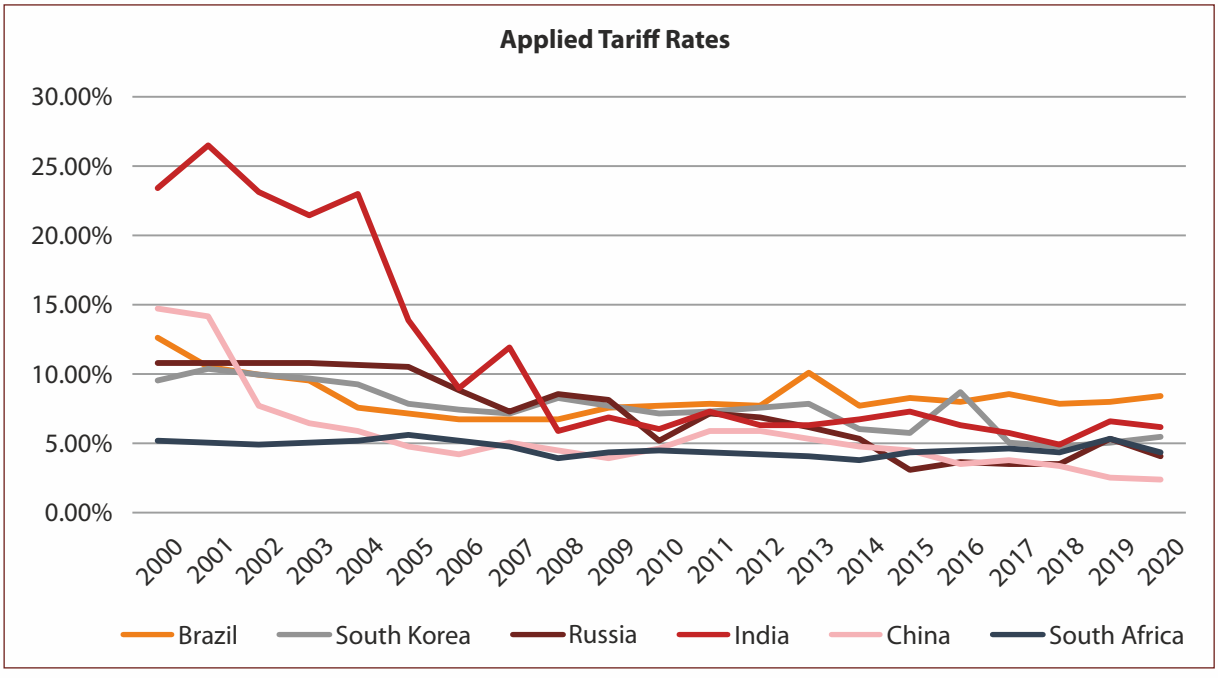
[30] OECD (2016). Illicit Trade: Converging Criminal Networks, OECD Reviews of Risk Management Policies, OECD Publishing, Paris. Available at: http://dx.doi.org/10.1787/9789264251847-en

Covid-19 brought about a change in the balance of global geo-politics, changes in supply chains and demand-supply equations with national governments becoming more protectionist with increasing policy and tariff regulations to control trade flows. It provided criminals unparalleled opportunities to increase their already significant illicit activities.[31]

Illicit trade creates a triple threat to the financing of development by crowding out legitimate economic activities, depriving the Government of revenues for investment in public services and increasing the cost of achieving sustainable development goals (SDGs) set out for 2030. [32]

1.2 Understanding Non-Tariff Measures and Trade Effects

Many developing countries rely heavily on trade taxes for national revenue, with the International Monetary Fund (IMF) estimating trade tax revenue for low and middle-income countries to be between one-quarter and one-third of total tax revenue.[33] Tax avoidance or evasion, therefore, eats into the national income of both developed and developing economies.



Source: macrotrends, World Bank data

Global Financial Integrity's 2017 report highlights[34] that trade tariffs lead to illicit flows being hidden within the international commercial trade system and ultimately to revenue losses for the Governments. Illicit traders bypass legal channels of trade to derive financial benefits arising from trade costs. 'Trade Costs' are usually defined as the sum of administrative barriers, trade policies - tariffs and non-tariff measures (NTMs) - and transaction costs (transport and insurance costs).[35]

[31] OECD (2020). Illicit Trade in Context of COVID-19 and Future Pandemics. Business at OECD, 22 April 2020

[32] UNCTAD (2020). Illicit Trade Forum, Background Note. Palais des Nations, Geneva.3-4 February 2020.

[33] Benedek, D., Benitez, J. C., & Vellutini, C. (2022). Progress of the Personal Income Tax in Emerging and Developing Countries. IMF Working Papers, 2022(020).

[34] Global Financial Integrity (2017). 'Transnational Crime and the Developing World', March 2017.

[35] Carrere, C. &, J. Melo De (2011). Non-Tariff Measures: What do we Know, What Should be Done? HAL Id : halshs-00553599.

With globalisation and empirical evidence emerging from the integration of the international markets, there is a global consensus and focused effort to reduce tariff barriers. Applied tariff rates [36] worldwide have been falling gradually over the past two decades from over 10 percent in the year 2000 to less than 7 percent after 2015.[37] This decline in global tariff barriers has resulted from several rounds of negotiations under the General Agreement on Tariffs and Trade (GATT), WTO as well as the proliferation of preferential bilateral and regional trade agreements.[38]

Non-tariff measures have taken centerstage in any discussion on global trade flows. Modern day trade is affected more by policy regulations rather than tariff regulations. Non-tariff measures (NTMs) are defined as policy measures, other than customs tariffs, which potentially have an economic effect on international trade in goods, changing quantities traded, prices or both.[39] Researchers find that even though tariffs have generally fallen between 1997 and 2015, rise in applied NTMs highlights a paradigm shift to regulatory measures to protect domestic markets.[40]

The United Nations Conference on Trade and Development (UNCTAD) has actively worked on the matter since the early 1980s. The International Classification of Non-Tariff Measures[41] provides a taxonomy of NTMs. This facilitates the collection, analysis, and dissemination of data on NTMs, with the final objective to increase transparency and understanding of NTMs. The classification is regularly revised by the Multi-Agency Support Team (MAST) Group established by UNCTAD.

NTMs include a diverse array of policies that countries apply to imported and exported goods. Regulatory trade policies are increasingly using NTMs designed to address a wide array of both trade related objectives, such as limiting trade with import quotas, export restrictions, etc, and non-trade, public policy objectives, such as product and food safety, environmental protection, or national security. NTMs often overlap the wider national regulatory landscape to ensure the competitiveness of domestic markets, protect society and consumers and regulate other areas to promote a sustainable future.[42]

Regardless of their intended objectives, NTMs can alter the volume, direction, cost, and composition of international trade. Their primary regulatory objectives make them indispensable. They may play an important role in trade through greater transparency by reducing information asymmetry in the marketplace, mitigating risks in consumption, improving the sustainability of ecosystems, and inducing competition or decision to import/export.[43]

Producers and exporters have to bear additional trade and compliance costs due to NTMs and regulatory measures both due to fixed costs (e.g. upgrade of practice codes and facilities, acquisition

[36] Applied tariff is the average of effectively applied rates weighted by the product import shares corresponding to each partner country

[37] Kinzius, L., Sandkamp, A. & E. Yalcin (2019). Trade protection and the role of non-tariff barriers. Rev World Econ 155, 603-643. https://doi.org/10.1007/s10290-019-00341-6

[38] I.Bagayev, R.B Davies, P., Hatzipanayotou, P., Konastantinou, & M. Marie (2017). Non-Tariff barriers, enforcements, and revenues: The use of anti-dumping as a revenue generating trade policy, UCD Centre for Economic Research, WP No. WP17/06, University College Dublin, Dublin

[39] UNCTAD (2019). International Classification of Non-Tariff Measure 2019 Version (United Nations publication. Sales No. E.19.II.D.14. Geneva)

[40] Niu, Z., Liu, C., Gunessee, S., & Milner, C. (2018). Non-tariff and overall protection: evidence across countries and over time. Review of World Economics, 154(4).

[41] UNCTAD. (2013). Non-Tariff Measures To Trade?: Economic and Policy Issues. 124.

[42] UNCTAD, G. (2013). Non-tariff measures to trade: economic and policy issues for developing countries. Developing Countries in International Trade Studies.

[43] R, Singh, S. Sharma & D. Tandon (2018). Non Tariff Measures in Indian Context and the European Union. International Journal of Economics and Finance; 10 (9); doi:10.5539/ijef.v10n9p54

of certificates, conformity in marketing requirements) and variable costs (e.g. prolonged delivery time due to inspection and testing procedures at customs points, rejection of certain shipments).[44] Further, NTMs may include policy measures that reduce competition in the domestic market for imported products, through preferential treatment and subsidies for local firms to safeguard domestic industries.[45]

Trade costs imposed by tariff and non-tariff regulatory measures have an adverse impact both on import prices and quantities. NTMs increase the trade cost of imported products which is ultimately passed on to the cost of final products in the domestic market. According to World Bank research, [46] NTMs increase the final prices of domestic products to the extent of 8.7 percent worldwide. WTO study[47] finds that the impact of NTMs on trade is almost twice as much as that of tariffs.

Researchers have highlighted that the overall impact of NTMs is estimated to be two to three times higher than current tariffs.[48] Kee et. al. (2009)[49] observe that on an average, NTMs contribute almost as much to trade restrictions as tariffs. They analyzed it through an overall restrictiveness index constructed for over 70 developed and developing countries, and estimated the ad valorem tariff equivalents to facilitate a direct comparison between the restrictiveness of non-tariff barriers (NTBs) and tariffs. Hoekman and Nicita (2011)[50] find that on an average, trade decreases significantly if NTBs are implemented rather than tariffs. More specifically, trade decreases on an average by 1.7 percent if the level of NTBs increases by 10 percent. Ghodsi et al. (2017)[51] study different types of NTBs. For the period from 1995 to 2014, they estimate average trade reducing effects that vary between 5 percent and 30 percent depending on the type of NTB. Similarly, a more recent study by Kinzius et. al., (2019) [52] find that implementation of NTMs reduces imports of affected products by up to 12 percent. Their trade dampening effect is thus comparable to that of trade defence instruments such as anti-dumping duties.

Continuous increase of tariff and non-tariff barriers as protection, and regulatory trade instruments, greatly affect market access especially in the manufacturing sector, where illicit players find an arbitrage to exploit such markets with illicit goods. A World Bank and UNCTAD study[53] highlights that burdensome NTMs induce large trade frauds (illicit trade) and affect trade flows. Results show that tariffs and NTMs are substitutes for each other. Products that have higher ad valorem equivalents (AVEs) tend to have larger trade discrepancies, suggesting that exporters circumvent cumbersome and opaque NTMs.

[44] Xiong, B., & Beghin, J. (2014). Disentangling demand?enhancing and trade?cost effects of maximum residue regulations. Economic Inquiry, 52(3), 1190-1203.

[45] Crivelli, P., & Gröschl, J. (2016). The impact of sanitary and phytosanitary measures on market entry and trade flows. The World Economy, 39(3), 444-473.

[46] Kelleher, S. and J.-D., Reyes. Non-Tariff Measures in the Central America : Incidence, Price Effects, and Consumers' Welfare. World Bank, Washington, DC.

[47] WTO. (2012). Trade and Public Policies: A Closer Look at Non-tariff Measures in the 21st Century. World Trade Report, Geneva: World Trade Organization.

[48] UNCTAD. (2013). Non-Tariff Measures To Trade?: Economic and Policy Issues. 124.

[49] H. L., Kee, A., Nicita, & M., Olarreaga, (2009). Estimating trade restrictiveness indices. Economic Journal, 119(534):172-199.

[50] Hoekman, B., & Nicita, A. (2011). Trade policy, trade costs, and developing country trade. World development, 39(12), 2069-2079.

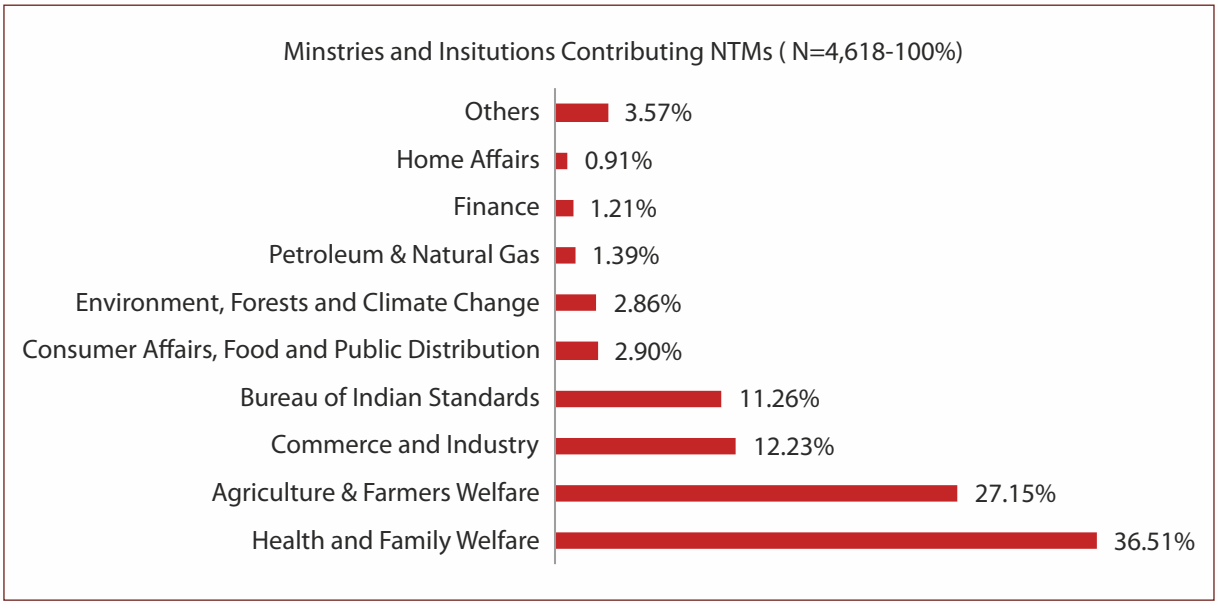
[51] Ghodsi, M., Grübler, J., Reiter, O., & Stehrer, R. (2017). The evolution of non-tariff measures and their diverse effects on trade (No. 419). Wiiw Research Report.

[52] Kinzius, L., Sandkamp, A., & Yalcin, E. (2019). Trade protection and the role of non-tariff barriers. Review of World Economics, 155(4), 603-643.

[53] Kee, H. L., & Nicita, A (2017). Trade Frauds, Trade Elasticities and Non-Tariff Measures, mimeo, World Bank.(http://pubdocs.worldbank.org/en/315201480958601753/3-KEE-paper.pdf)

1.3 Non-Tariff Measures in India and Trade Effects

NTMs applicable in India have been introduced through various laws, rules, orders and regulations. An analysis of NTMs by UNCTAD and ERIA[54] finds that there are a total of 4,618 NTMs covered in 479 regulations promulgated in India by 17 different ministries and institutions. Of these, a significantly large portion of 4,025 NTMs or 87.16 percent has been implemented by just four ministries/ institutions. The Ministry of Health and Family Welfare has introduced 1,686 NTMs (36.5 percent), followed by the Ministry of Agriculture and Farmers' Welfare which has 1,254 NTMs (27.15 percent) largely related to sanitary and phytosanitary [SPS] NTM measures. The Ministry of Commerce and Industry which looks after all aspects of trade and industry has introduced 565 NTMs (12.23 percent), while the Bureau of Indian Standards (BIS) that sets standards for manufactured consumer products in India has introduced 520 NTMs (11.26 percent).



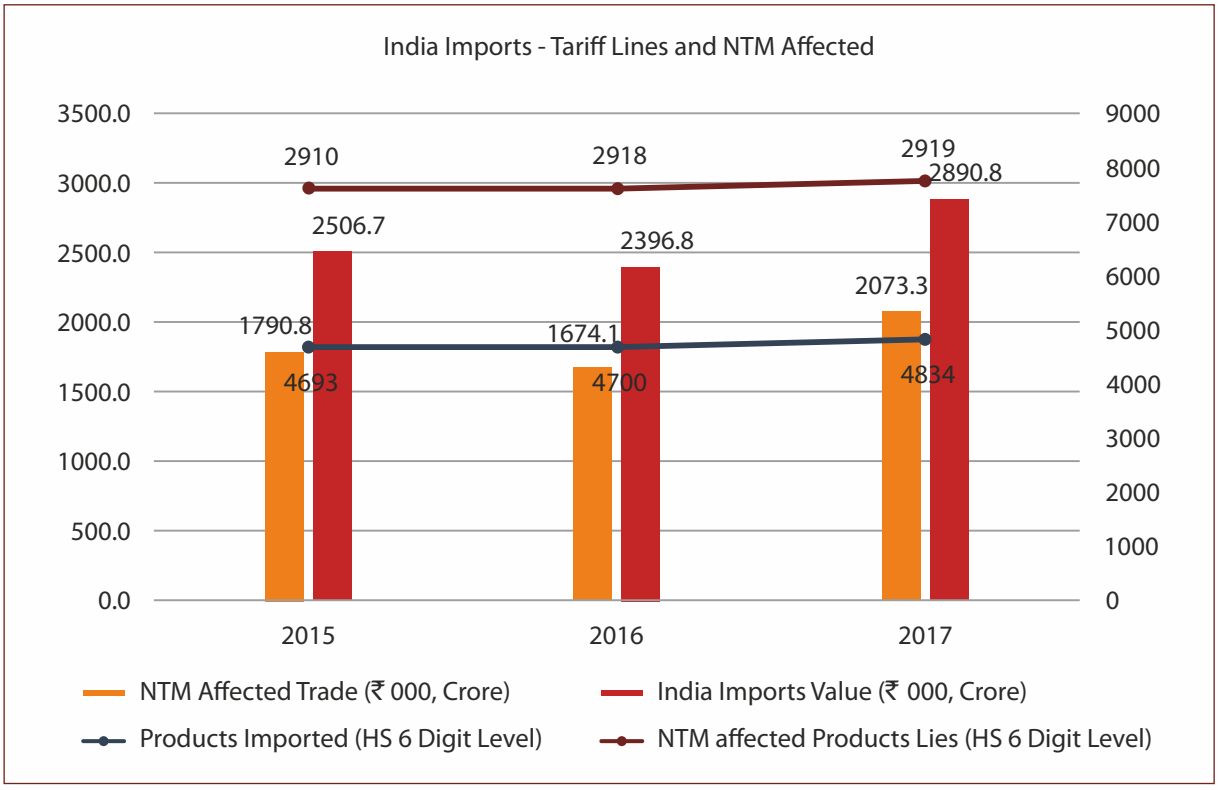
Source: UNTCAD and ERIA (2020)

The manufacturing sector is considered to be a potential game changer for India, to become a US$ 5 trillion economy, thus realising the aspirations of millions of people. While the share of the manufacturing sector in India's GDP (base year 2011-12), is increasing gradually, it still hovers around 18 percent, with a majority of the share contributed by the services sector. Compared with developed economies, the share of the manufacturing sector in GDP is still very low. The Indian Government's focus on this sector is further emphasized with the National Manufacturing Policy, 2011, the Make in India initiative of 2015 and the Production Linked Incentive (PLI) scheme. The manufacturing sector is also crucial in dealing with the immediate challenge India faces concerning unemployment and underemployment.

With the manufacturing sector in India still in a transition stage, greater reliance is placed on imports to meet industry and consumer needs. This is evident from the increase of Indian imports from ₹25.07 lakh crores in 2015 to ₹28.91 lakh crores in 2017. The number of imported items (HS 6-digit product

[54] UNTCAD and ERIA. (2020). Non-Tariff Measures in Australia, China, India, Japan, New Zealand and the Republic of Korea: Preliminary Findings

level) have also increased from 4,693 in 2015 to 4,834 in 2017. The imported value of goods in India that are subject to any of the NTMs is ₹20.73 lakh crores, which is about 72 percent (also referred to as coverage ratio) the total value of imports. A significant portion of trade under NTMs thus opens up opportunities for illicit trade.



Source: TARI Research, UN Comtrade and UN TRAINS database

The Indian manufacturing sector is affected by competition from international trade, it is also afflicted by illicit cross-border trade/smuggling. The issue goes beyond unfair trade (dumping of goods) in the Indian market and includes instances of outright smuggling and illicit trade, that is, unscrupulous imports through under-declaration/ mis-declaration etc. As research indicates, higher trade costs arising from both tariff and non-tariff measures provide financial incentives for illicit trade, which is the main premise for this study.

1.4 Setting the Context and Research Objectives

International frameworks and discussions on non-tariff measures (NTMs) are still evolving. Under this pretext, NTMs have become less transparent. However, they have become an important policy tool consequent to the global financial crisis of 2008-09 and more recently the COVID-19 pandemic.[55] Very limited research has been done to understand how government interventions through regulatory and trade policies affect and impact illicit trade, which is the rationale for this study.

[54] Kumar, S., & Arora, F. (2018). Non-tariff Barriers on International Trade Flows in India. Springer Singapore. https://doi.org/10.1007/978-981-10-8926-8_18

This study aims to create data and evidence based empirical reasoning for understanding how tariff and non-tariff measures in the context of India affect illicit trade for identified key industries and their products. In our research, we endeavour to establish an empirical relationship between illicit trade, imports, tariff and non-tariff measures along with other institutional measures (like regulatory governance and ease of doing business across borders).

We have selected six key industries for empirical analysis and modelling. For this study, we have done a detailed analysis of NTMs applicable on imported goods, while classifying them into three categories: Technical NTM measures that ensure human health and product safety; product and quantity control NTM measures and competition NTM measures that control product distribution.

The objectives of this study are:

- Understand illicit markets, imports and illicit trade of key industries
- Understand non-tariff policy measures (NTM) in the Indian context that affect illicit trade flow to India and a descriptive analysis of these NTMs (in terms of frequency and coverage ratio, and prevalence score) over a period of time (2015 to 2020)
- Understand other institutional (ease of doing business across borders) and governance frameworks (government effectiveness, regulatory quality and rule of law) that affect illicit trade, and
- Develop an empirical model to estimate the effect of NTMs on illicit trade

2

Regulatory Framework and Illicit Trade: Understanding Theoretical Foundations

2

Regulatory Framework and Illicit Trade: Understanding Theoretical Foundations

Illicit trade in a country is driven or motivated by several factors from an economic perspective. As it is a secretive, hidden and an inherent risky activity, there may be additional factors which may induce illicit trade. In this study, we largely focus on regulatory policies and frameworks along with tariffs to provide theoretical foundations to our analysis on how they affect illicit trade.

Five key factors analysed in this section include:

- Non-Tariff Measures
- Tariff Measures
- Regulatory Governance
- Doing Business Across Borders
- Industry and Product Type

Source: TARI research

2.1 Non-Tariff Measures

The UNCTAD-MAST (2013) classification of NTMs has 16 chapters of different measure categories. Chapters A to O refer to import related NTMs, whereas Chapter P covers measures that countries impose on their exports.[56] As this study focuses on imports and related illicit trade, it focuses only on NTMs related to imports covered in chapters A to O. The detailed discussion and examples of NTMs covered in these chapters are provided in Annexure-1 for reference purposes.

One of the important classifying distinctions is between technical measures (Chapters A, B and C) and non-technical measures (Chapters D to O). Technical measures comprise Sanitary and Phytosanitary (SPS) measures (covered in chapter A), Technical Barriers to Trade (TBT) measures (covered in chapter B) and related pre-shipment requirements (in Chapter C). These technical measures in conjunction with other measures increase overall trade costs, but their primary objective is indispensable and makes them an important policy tool. They are crucial regulatory measures not necessarily focusing on trade but to ensure food safety for human consumption, protect the plant, and animal health, prohibit and regulate trade on hazardous substances, chemicals and waste meant for human use and any other policy area related to the environment, for sustainable development of society.[57]

Non-technical measures cover a wide array of policies, including 'traditional' trade policies such as quotas, licences (Chapter E), price controls, and para-tariff measures (Chapter F) and contingent trade protective measures (Chapter D) such as anti-dumping duties. The measures covered in Chapters D, E and F are alternative measures in relation to tariffs and when applied impose significant restrictions on trade and offer financial incentives for illicit trade. Our research referred to them as price and quantity control measures (PQCM).

Source: Import NTM Measures, Adopted from UNTACD TRAINS

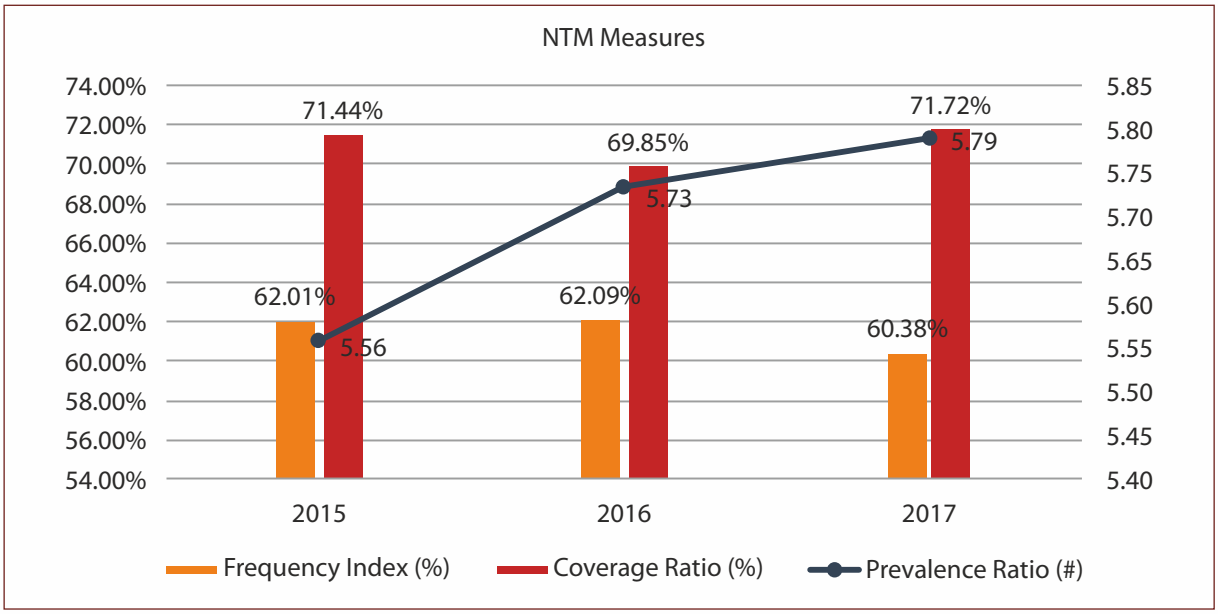
[56] UNCTAD (2013). Non-Tariff Measures to Trade: Economic and Policy Issues for Developing Countries. United Nations. United Nations publication.

[57] C., Knebel and R. Peters, Non-tariff measures and the impact of Regulatory convergence in ASEAN, Chapter 5.

The NTMs in chapters G, H, I, J, K, L and M are certain behind border measures that aim to provide preferential treatment to domestic products and reduce their competition with imported products. The UN TRAINS database does not have much information on the NTM's imposed by having to follow intellectual property requirements or conditions imposed by Rules of Origin. Hence though relevant, this study is handicapped by lack of data to this extent. Intellectual Property (Chapter N) and Rules of Origin (Chapter O) have consequently been classified as ' Other Measures.

NTMs can be analysed directly or indirectly. Direct measures calculate the incidence dimension of NTMs and include indicators such as frequency ratio (proportion of tariff lines or product categories covered by one or more NTMs), coverage ratio (proportion of NTMs import value covered by one or more NTMs) and prevalence score (count of the number of NTMs against each product category or tariff lines).

Meanwhile, indirect measures assess the severity level through calculation of ad valorem equivalents (AVEs). For our research which focuses on assessing NTMs in key industries, direct indicators are more relevant and provide more meaningful insights.

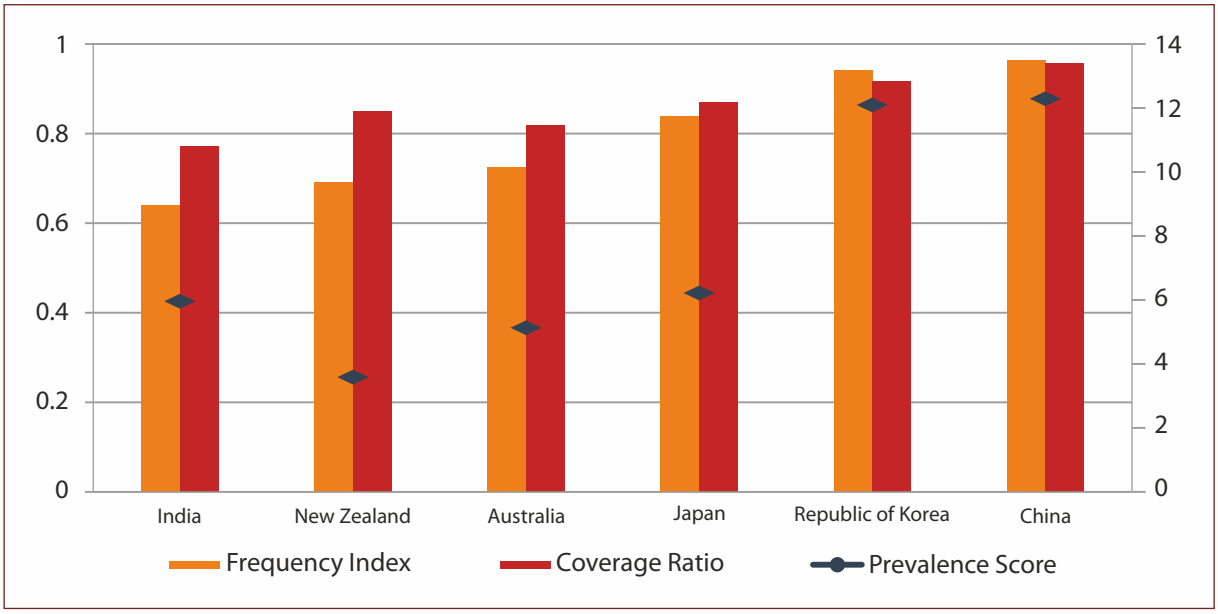


Source: TARI Research, UN Comtrade and UN TRAINS database

Our research on NTM data from the UN TRAINS database and trade data from UN Comtrade database shows that the frequency ratio has decreased from 62.01 percent in 2015 to 60.38 percent in 2017 (against product tariff line items HS 6-digit level 4693- 4834). Coverage ratio has marginally increased to 71.72 percent in 2017 (against imports of ₹28.90 lakh crores). The average prevalence score has also slightly increased from 5.56 in 2015 to 5.79 in 2017.

India's NTM incidence indicators, however, are quite less as compared to other Asian or Asia-Pacific countries as observed in the graph in the following page. For the year 2017, India's frequency ratio is just above 0.6 while in China and South Korea, it is over 0.9. Similarly, India's coverage ratio is below 0.8, while it is over 0.8 for all other comparable countries and is touching 0.9 for China and South Korea. India's average prevalence score is below 5, but it is 12 for China and South Korea. This suggests that

India has fair play in international trade while other developing countries are pursuing stringent NTMs to protect their domestic markets.



Source: UNTCAD and ERIA (2020)

Stringent trade restrictions and administrative policies cause significant price disparities between the domestic and international market of goods/products. Such mark-ups on restricted items provide noteworthy financial incentives for smuggling and tariff evasion.[58] Buehn and Farzanegan[59] in their empirical research find that trade restrictions are important push factors for smuggling.

According to a World Bank and UNCTAD 2017 study,[60] burdensome non-tariff measures (NTM) induce large trade frauds (illicit trade) and affect trade flows. Overall, a 10 percentage points increase in AVE may cause a 6-percentage points increase in trade discrepancies. A more recent study by World Bank and UNCTAD in 2022[61] finds that border NTMs significantly increase cost of compliance and are the main cause of illicit trade compared to tariff rates. It shows that a 10 percent increase in AVE leads to a 15 percent increase in illicit trade while it is only 8 percent for a similar increase in tariffs.

Overall, the findings of the 2022 study highlight that NTMs have significant effect on trade as well as illicit trade, as it increases trade costs and leads to illicit financial gains through their avoidance.[62]

2.2 Tariff Measures and Rates

The concept of import duty is very wide and is applicable to almost every product/item imported to India, barring goods such as food grains, fertilizers, lifesaving drugs, etc. These duties are levied by customs authorities to increase government revenues and also protect domestic industries from

[58] Pitt, M. (1981): Smuggling and price disparity, Journal of International Economics, 11(4), 447-458.

[59] Buehn, A., & Farzanegan, M. R. (2012). Smuggling around the world: evidence from a structural equation model. Applied Economics, 44(23), 3047-3064.

[60] Kee, H. L., & Nicita, A. (2016, November). Trade frauds, trade elasticities and non-tariff measures. In 5th IMF-World Bank-WTO Trade Research Workshop, Washington, DC, November (Vol. 30).

[61] Kee, H. L., & Nicita, A. (2022). Trade Fraud and Non-Tariff Measures. Available at SSRN 4019050.

[62] Kee, H. L., & Nicita, A. (2022). Trade Fraud and Non-Tariff Measures. Available at SSRN 4019050.

competition. Basic duty is a type of tax imposed under the Customs Act, 1962. The rate varies for different products and may be fixed on ad-valorem or specific rate basis. The Goods and Services Tax (GST) regime subsumed several different charges (apart from custom duty) including "additional duty" and "special additional duty".

India – TARIFF Rate Schedule 2020									
	Final bound duties				MFN* applied duties			Imports	
Product groups	AVG	Duty-free	Max	Binding	AVG	Duty-free	Max	Share	Duty-free
		in %		in %		in %		in %	in %
Animal products	104.5	0	150	100	30.8	0.9	100	0.0	1.8
Dairy products	63.8	0	150	100	35.7	0	60	0.0	0
Fruit, vegetables, plants	101.2	0	150	100	30.2	4.3	100	1.1	9.0
Coffee, tea	133.1	0	150	100	56.3	0	100	0.1	0
Cereals & preparations	114.1	0	150	100	32.9	13.2	100	0.1	14.0
Oilseeds, fats & oils	165.1	0	300	100	33.9	0	100	2.3	0
Sugars and confectionery	126.2	0	150	100	50.9	0	100	0.1	0
Beverages & tobacco	120.4	0	150	100	75.8	0	150	0.2	0
Cotton	110.0	0	150	100	6.0	80.0	30	0.3	100.0
Other agricultural products	105.6	0	150	100	22.8	10.7	70	0.6	5.0
Fish & fish products	135.7	0	150	24.6	29.9	0.1	30	0.0	0.4
Minerals & metals	38.3	0.4	55	61.5	8.9	2.8	40	31.5	9.7
Petroleum	-	-	-	0	3.7	1.5	5	22.8	0.0
Chemicals	39.6	0.1	150	88.9	8.1	0.8	20	11.2	2.9
Wood, paper, etc.	36.9	0	192	64.4	10.2	2.6	25	1.9	0.2
Textiles	27.2	0	98	70.3	13.9	0	112	1.3	0
Clothing	37.9	0	67	58.7	21.5	0	69	0.2	0
Leather, footwear, etc.	34.6	0	40	51.6	13.7	6.2	70	1.0	1.9
Non-electrical machinery	28.6	6.3	40	95.4	7.8	4.0	20	9.3	19.8
Electrical machinery	27.8	24.6	40	93.5	9.3	15.4	20	10.4	35.5
Transport equipment	35.7	0	40	70.6	25.3	5.3	100	2.9	23.7
Manufactures, n.e.s.	33.5	14.5	40	43.5	11.4	4.7	60	2.8	11.1
*Most Favoured Nation									

Source: WTO

India' average most-favoured nation (MFN) applied tariff rate was 17.6 percent and WTO bound tariff rate was 50.8 percent in 2019. It was 38.8 percent for agricultural products and 14.1 percent for non-agricultural products in the same year. The Central Government has the power and flexibility to amend tariff rates within the WTO agreement from time-to-time under the Finance Act.

Illicit trade thrives whenever there is a tax arbitrage between two countries or when taxes on products become punitive. High import duty on goods/products increases the price differential and therefore provides financial incentives and motivation to engage in smuggling. Buehn and Farzanegan,[63] based on their empirical findings, point out that higher tariffs are important push factors for smuggling.

Higher tax rates cause higher tax evasion through smuggling. Several studies have examined tax evasion by analysing the relationship between tax rates and reporting discrepancies (Bhagwati, 1964; Fisman and Wei, 2004; Mishra et. al., 2008).[64] By exploiting the variation of tariff rates across product classifications, these studies confirm that the higher the tax rate in a product category, the greater the incidence of reporting discrepancy in that segment. A World Bank and UNCTAD study[65] highlights that a 10 percentage point increase in tariffs may only lead to an 8 percentage point increase in illicit trade.

2.3 Regulatory Governance

Regulatory governance is defined "as policies, tools, processes, and institutions that are primarily concerned with developing, implementing, administering, enforcing new rules/decisions, and reviewing/revising regulation over time."[66]

Inefficiencies of institutional and government pillars create trade barriers and ease of flow, which create illegal flows of goods and capital. We propose that improvements in regulatory governance in policy formulation, its implementation, its assurance, and effective enforcement can deter and protect the economy from the harmful effects of illicit trade.

Regulatory governance may be assessed by three World Governance Indicators (WGI) of the World Bank: Government Effectiveness, Regulatory Quality and Rule of Law. Government effectiveness captures perceptions of the quality of public services and quality of policy formulation and its effective implementation. Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations. Rule of law captures perceptions about rules and particularly enforcement by the police and courts.[67]

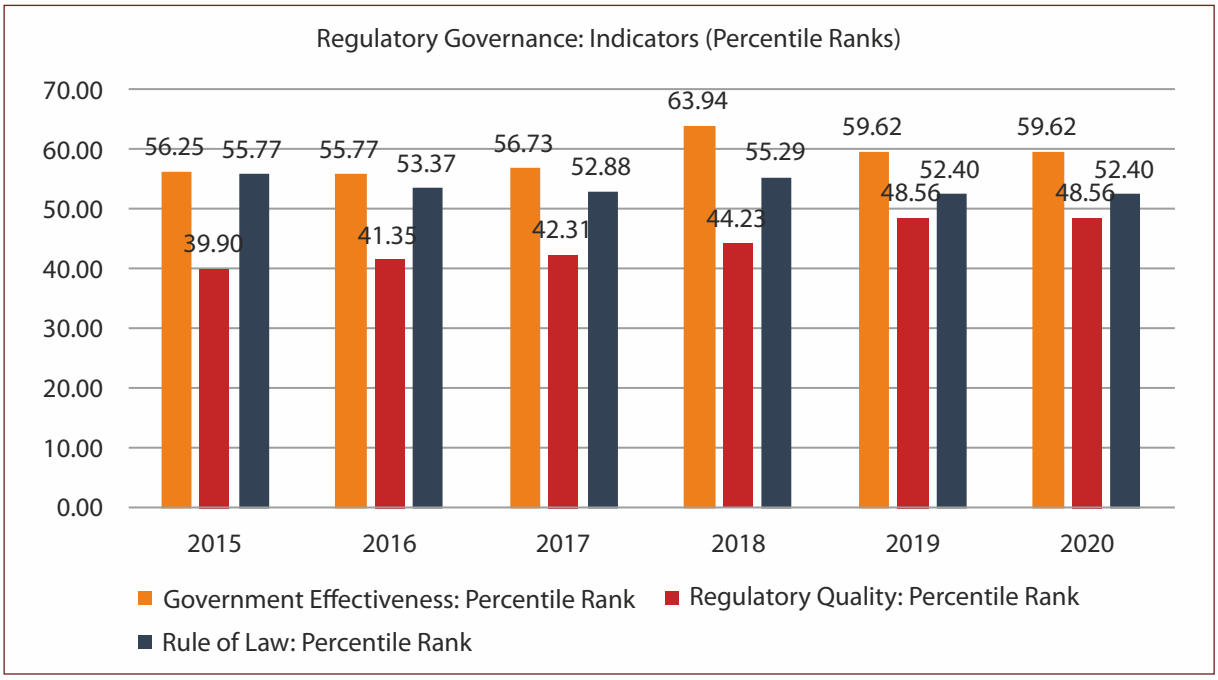
[63] Buehn, A., & Farzanegan, M. R. (2012). Smuggling around the world: evidence from a structural equation model. Applied Economics, 44(23), 3047-3064.

[64] Bhagwati, J. (1964). On the under invoicing of imports. Bulletin of the Oxford University Institute of Statistics, 26, 389-397; Fisman, R., & Shang-Jin Wei. (2004). Tax Rates and Tax Evasion: Evidence from "Missing Imports" in China. Journal of Political Economy, 112(2), 471-496; Mishra, P., Subramanian, A., & Topalova, P. (2008). Policies, Enforcement, and Customs Evasion?: Evidence from India. Journal of Public Economics, 92(10-11), 1907-1925

[65] Kee, H. L., & Nicita, A. (2022). Trade Fraud and Non-Tariff Measures. Available at SSRN 4019050.

[66] Principles for the Governance of Regulators, Available at: https://regulationbodyofknowledge.org/ revitalizing-and-reforming-regulatory-governance-for-infrastructure-in-post-fcv-environments/principles-for-the-governance-of-regulators/

[67] Please go through World Bank Indicators for detailed understanding



Source: World Bank Governance Indicators

India's performance on overall regulatory governance indicators has remained average. The government effectiveness rank though mostly stable, increased till 2018 but observed a sharp fall in 2019 and 2020. Regulatory quality has shown steady improvement over the period. Rule of law which is an important indicator of enforcement of rules and regulation has on the other hand, mostly declined over the same period.

Rule of law acts as a deterrent to smuggling. Researchers have shown that higher expected costs, including fines and punishment costs, reduce the net gain of smuggling.[68] Low risk of law enforcement with profitability from tax evasion from smuggling enhances the motivation for illegal activities. Empirical findings show that intensifying law enforcement is a deterrent to smuggling and enables authorities to reduce the extent of smuggling. Mishra et al. (2008) show that the elasticity of tax evasion concerning tariffs is a decreasing function of the quality of tariff enforcement.[69] Direct financial costs in terms of higher penalties have a significantly negative impact on under-invoicing of imports. Buehn and Eichler find that by increasing the level of fines to GDP by 1 percent, the share of under-invoiced imports reduces by 17 to 18 percent.[70] The rule of law index also has a significant negative correlation with smuggling. A 1 standard deviation increase in this index reduces smuggling by more than 0.50 standard deviations.[71] In India, smuggling is higher than in developed countries largely due to poor enforcement and compliance.

[68] Martin, L., & Panagariya, A. (1984). Smuggling, trade, and price disparity: A crime-theoretic approach. Journal of International Economics, 17(3-4), 201-217.

[69] Mishra, P., Subramanian, A., & Topalova, P. (2008). Policies, Enforcement, and Customs Evasion?: Evidence from India. Journal of Public Economics, 92(10-11), 1907-1925

[70] Buehn, A., & Eichler, S. (n.d.). Uncovering Smuggling: Worldwide Evidence for Four Types of Trade Misinivoicing. Business. Retrieved from http://eiit.org/WorkingPapers/Papers/Other/FREIT176.pdf

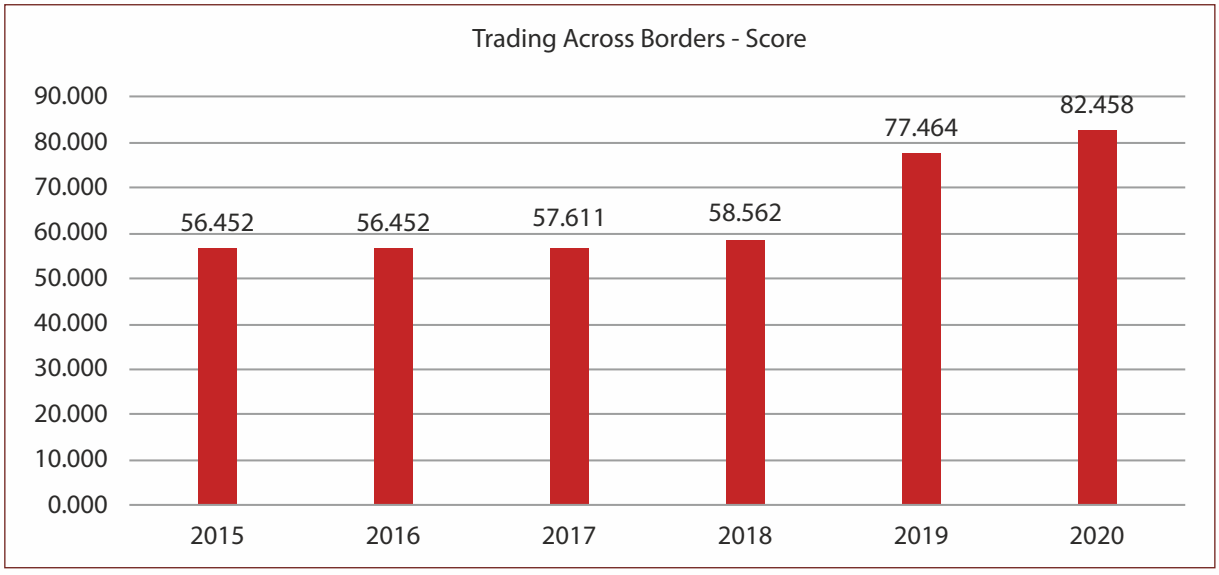
[71] Buehn, A., & Farzanegan, M. R. (2012). Smuggling around the world: evidence from a structural equation model. Applied Economics, 44(23), 3047-3064.

2.4 Doing Business Across Borders

Ease of doing business across borders removes hurdles to trade and eases flow of goods and facilitates greater integration with world trade. Greater cost burden, time delays and regulatory compliances result in higher administrative costs that motivate perpetrators to engage in the illicit trade.

We propose that improving ease of doing business across borders will reduce illicit trade. Research[72] also shows that imports of any developing country are significantly constrained by tariffs, NTB/NTMs, and administrative costs (as represented by the Doing Business variable).

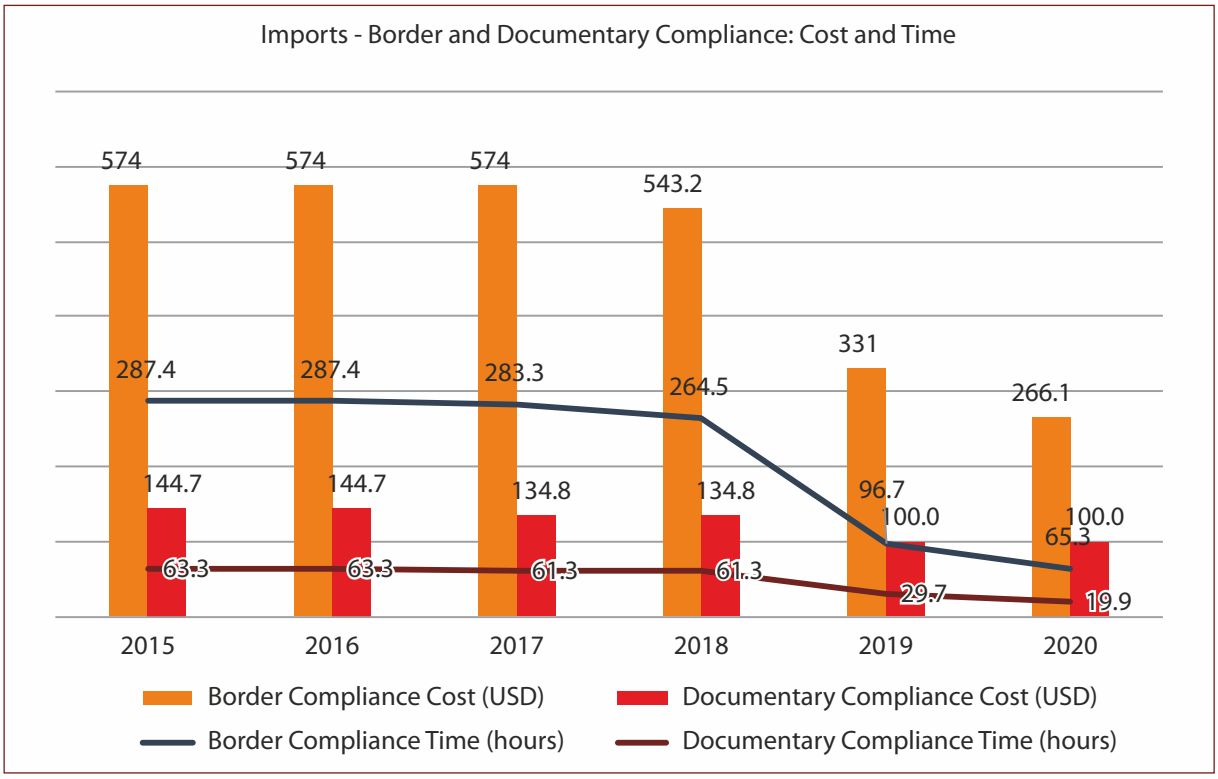
Doing Business measures the time and cost associated with two sets of procedures of importing goods within the overall process: documentary compliance and border compliance. Overall, India's Trading Across Borders score as per the World Bank, has seen significant improvement since 2017.



Source: World Bank Ease of Doing Business Indicators

Major reasons for progress in this score are significant improvements in both time and cost of border and documentary compliances. The costs declined by about 50 percent from US$718.7 in 2015 to US$366.1 in 2020. In addition, the time taken for these compliances declined sharply by 75.7 percent from 350.7 hours in 2015 to 85.2 hours in 2020. As a consequence, these reduced costs would decrease financial incentives associated with the cost of trade resulting in a decrease in illicit trade.

[72] Beghin, J., & Xiong, B. (2017). Quantifying Standard-like Non-Tariff Measures and Assessing their Trade and Welfare Effects. Chp. 5, Non-Tariff Measures: Economic Assessment and Policy Options for Development, UNCTAD.



Source: World Bank Ease of Doing Business Indicators

The latest time-release study of 2022 by Nhava Sheva Customs, Mumbai also shows a significant reduction in the average release time of imports from 181.34 hours in 2017 to 88.39 hours in 2022.[73] This highlights the continuous effort put by customs department in facilitating trade and improving ease of doing business across borders.

2.5 Industry and Product Type

Price or type of product are some of the factors that determine whether a product should be smuggled or not. High value products that are also small in terms of quantity, are always on the radar of smugglers as they have a high risk-reward payoff due to ease of smuggling and high financial gains.

Significant price arbitrage between two countries for a commodity is one of the underlying causes of smuggling as it increases profit margins for smugglers.[74] Goel (2008) points out that a substantial price difference across different jurisdictions in the case of luxury items is one of the guiding factors in their smuggling.[75] High value electronic goods are among the most sought after smuggled products in India.

[73] Time Release Study (2022). Jawaharlal Nehru Custom House. Nhava Sheva, Mumbai Customs Zone-II, Available at: https://jawaharcustoms.gov.in/pdf/TRS_2022.pdf

[74] Pitt, M. (1981). Smuggling and Price Disparity. Journal of International Economics, 11(4), pp. 447-458.

[75] Goel, R. K. (2008). Cigarette smuggling: price vs. nonprice incentives. Applied Economics Letters, 15(8), 587-592.

Products that can be easily counterfeited are more prone to smuggling. In industries where there is a large informal market, the demand for the product is often met through illicit trade goods. Contraband goods/products provide such large profits to smugglers that over the long term it creates a false market.

Smuggling of contraband cigarettes in India provides huge financial gains to smugglers, as they are one of the most highly taxed products in the country and smokers opt for them due to their low price point compared to legal brands.

In addition, there is a higher incidence of technical smuggling of differentiated products compared to homogenous products, as it is quite difficult to assess the total shipment value of differentiated products.[76] Traders can easily misclassify a differentiated product, like machinery or electronic items belonging to a higher tax category, to a product in a lower tax category. A World Bank policy paper (2022) finds that illicit traders are more involved in misclassifying products with highly restrictive NTMs.[77]

[76] Mishra, P., Subramanian, A., & Topalova, P. (2008). Policies, Enforcement, and Customs Evasion: Evidence from India. Journal of Public Economics, 92(10-11), 1907-1925

[77] Kee, H. L. & Alessandro, N. (2022). Trade Fraud and Non-Tariff Measures. Policy Research Working Paper; 10112. Washington, DC: World Bank.

3

Research Approach and Key Findings

3

Research Approach and Key Findings

3.1 Research Approach

Illicit markets/ trade remains an intricate issue worldwide for researchers and policymakers and is fraught with challenges. As illicit marketers or traders operate outside the law, making any estimate of such activities is extremely challenging. OECD points out that quantifying any illicit trade of a given product with absolute precision is quite difficult due to its secretive nature and lack of verifiable data.[78]

This section focuses on the research approach and methodology, to assess the level of illicit trade and the regulatory framework (both tariff and non-tariff) applicable across six key industries, and to develop an empirical model to find the impact of the applicable regulatory framework on illicit trade in these industries.

This research makes certain assumptions and works with limitations in the absence of reliable data, resources and time. We have outlined these assumptions and limitations at appropriate places in this report. Our findings are based on credible data sources from international agencies providing international trade data, such as UN COMTRADE (from United Nations International Trade Statistics Division), UNCTAD's Trade Analysis and Information System (TRAINS) data on NTM measures, complemented by the Global Trade Alert (GTA) database, tariff data from the World Trade Organisation (WTO) and other regulatory and institutional country level data on governance indicators provided by the World Bank.

Counterfeiting, smuggling, and tax evasion-clubbed under the head of organized crime, and together, they may be referred as illicit market that covers all goods sold outside the authorized channels of trade. For this study, illicit market estimates are taken from our previous 2022 study, Illicit Markets: A Threat to Our National Interests[79] and illicit trade estimated in this study may be referred to

[78] OECD (2016), Illicit Trade: Converging Criminal Networks, OECD Reviews of Risk Management Policies, OECD Publishing, Paris. Available at : http://dx.doi.org/10.1787/9789264251847-en

[79] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

as smuggling. The gap between the illicit market and illicit trade, therefore, is met by domestically manufactured goods which could possibly be evading local taxes or be counterfeits.

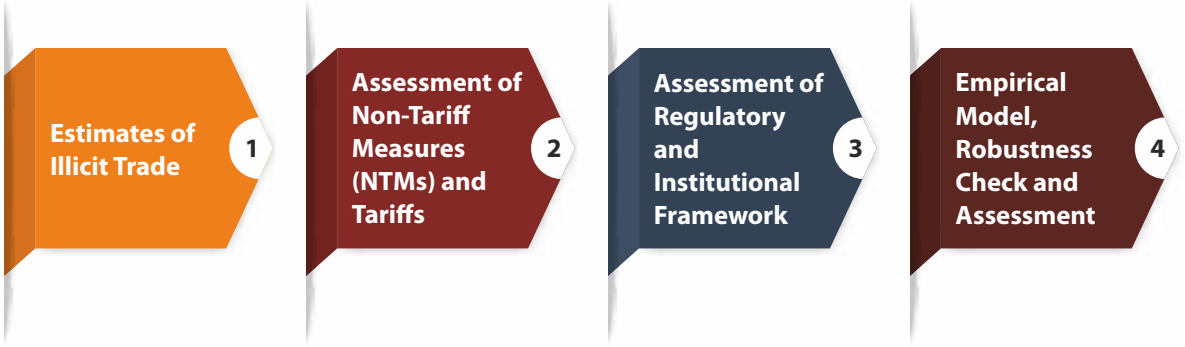
The first stage of this research focuses on estimating illicit trade. The estimates are based on discrepancies between India's trade figures (imports) and related trade figures (exports) with all its trade partners (exporting countries) after adjusting for various trade gap issues. This type of illicit trade can be referred to as "technical smuggling"[80], where goods that pass-through customs clearance both in the exporting country and in the importing country, India.

Our research approach has four stages to meet objectives. The first stage focuses on estimating illicit trade. As illegal businesses do not report information on their activities to any government agency, therefore measuring their size requires using indirect methods.[81] Our estimates of illicit trade are based on an analysis of discrepancies between India's trade figures (imports) and related trade figures (exports) with all its trade partners (exporting countries), after adjusting for various trade gap issues.

The second stage involves collecting and analysing data on non-tariff measures (NTMs) and tariff measures specific to the six selected industries. While analysis of tariffs is direct in terms of tariff rates (percentage), analysis of each NTM is difficult. We analysed NTMs of each industry through three key aggregate indicators: frequency ratio, coverage ratio and prevalence score.[82] We also classified these NTMs in four groups and estimated their prevalence score.

Source: UN TRAINS, TARI Research

The third stage of our research focuses on data collection and analysis of the overall regulatory and institutional framework indicators at a country level that affects every industry. We have used regulatory governance indicators and doing business across borders indicators in our research model.



Source: TARI research

[80] Please refer to the report for more details on smuggling, FICICI CASCADE and TARI Report (2019), Enemy at the Borders, Smuggling and its Impact on Indian Economy and Livelihood

[81] Estimating the global economic and social impacts of counterfeiting and piracy, BASCAP, 2011

[82] Please refer to sections 2.1& 2.2 and Annexure -2 for more details and data sources on NTMs and tariffs

[83] Please refer to sections 2.3 & 2.4 and Annexure -2 for more details and data sources on regulatory governance indicators and doing business across borders

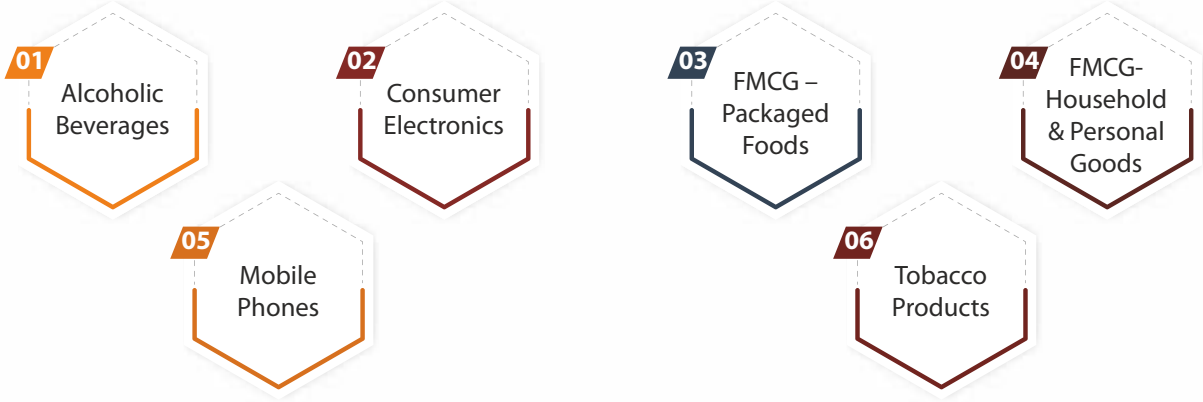
The final stage of our research involves developing an empirical model to estimate the impact of NTMs and tariffs on illicit trade. The fourth stage involves developing an empirical model using linear regression and present the findings take due cognisance of all robustness checks.[84] We incorporated imports/ consumption in the models to control for endogeneity issues. In our findings, we report independent variables coefficients, standard errors and their 95 % confidence limits for all linear regression models.

While frequency and coverage ratio can be analysed only at the aggregate level, we used prevalence score for Technical NTMs, Price & Quantity Control NTMs and Competition NTMs applied at 6 digit HS code level in our empirical model to provide a detailed impact analysis of the particular type of NTMs on the illicit trade.

3.2 Key Industries for the Report

We have identified six key industries out of 36 for this study based on our research and literature review in the previous section, and consultations with FICCI-CASCADE think tank members and industry representatives.

We have used frequency ratio, coverage ratio, and prevalence score from our analysis of NTMs to select these industries. The frequency and coverage ratio of three of these industries, namely, alcoholic beverages, mobile phones and tobacco is 100 percent, which means that each of the tariff lines under these industries has one or more NTMs. Two products (meant for direct human consumption) and industries - alcoholic beverages and packaged foods have a high prevalence score (with SPS NTMs applicable on these products). Another important factor considered for selecting some of the key industries, such as alcoholic beverages and tobacco products, is high tariff rates that provide significant financial incentives for illicit trade.



The study also considered the consumption market and imports as key factors. FMCG industries such as packaged foods and household and personal goods have very local consumption markets, while industries such as consumer electronics and mobile phones have a very high dependence on imports to meet demand. All these key industries are more susceptible to illicit trade and previously analysed in our earlier studies on the subject.

[84] Please refer to Annexure -2 for our regression model and robustness checks

Selected Key Industries Indicators : 2017-18						
Key Industries	**Consumption Market (₹ Cr)**	**Imports (₹ Cr)**	**Illicit Trade (₹ Cr)**	**Frequency Ratio (%)**	**Coverage Ratio (%)**	**Prevalence Score (#)**
Alcoholic Beverages	111833	2058	2145	100.00%	100.00%	20.5
Consumer Electronics		157799	18098	100.00%	100.00 %	13.3
FMCG – Packaged Foods	446515	26814	5980	100.00 %	100.00%	25.7
FMCG-Household & Personal Goods	134690	3259	729	87.00 %	81.20 %	8.96
Mobile Phones	174299	22547	7547	100.00%	100.00%	19.00
Tobacco Products	91752	116	8750	100.00%	100.00%	6.00

Source: TARI research

3.3 Illicit Market and Trade: Findings of Aggregate of Key Industries

This section of the report presents the empirical findings of our linear regression model for illicit markets/ trade, taking into account all data points of all key industries together. First model, Illicit market model provides results based on the illicit market estimates for five industries from FICCI CASCADE,2022[85] report for years 2017-18 to 2019-20.[86] The second model is the illicit trade model based on estimates of six industries derived for years from 2015 to 2020. This model is based on illicit trade estimates of key industries at the 6-digit HS codes level.

3.3.1 Illicit Market: Findings of Aggregate of Key Industries

The empirical model for the overall illicit market of five key industries is given below. The dependent variable for this is the illicit market (₹ crores) and data comes from our previous study "Illicit Markets - A Threat to Our National Interests." The model is statistically significant with an F value of 453.07 and independent variables are able to explain 99.5 percent variations indicated by R -square.

Illicit Market (Cr)	Coefficient	95% Confidence Interval		Rob Std Err	P value
Consump (Cr)	**0.352**	**0.326**	**0.379**	**0.011**	**0*** **
NTM_All	**-1811.938**	**-2334.464**	**-1289.411**	**226.594**	**0*** **
PQCM	**-9856.837**	**-12222.641**	**-7491.033**	**1025.932**	**0*** **
RuleLaw	429.368	-1247.679	2106.416	727.252	0.571
Avg_Tariff	**194.03**	**126.43**	**261.62**	**29.31**	**0*** **
Constant	-4288.990	-95757.467	87179.487	39665.357	0.917
R - Squared		0.995	Number of observations		14
F- test		453.068	Prob>F		0
*Statistical significance: ***(1 percent), **(5 percent), *(10 percent)*					
Where Consump stands for consumption, NTM_All stands for other NTMs and PQCM stands for price quantity control measure					

Source: TARI Research

[85] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[86] Model does not include consumer electronics industry as illicit market estimates are not available from the report

The illicit market model result highlights that tariff is a key determining factor for illicit markets in India. The Avg_Tariff variable has a substantial positive impact on the illicit market levels, and is statistically significant at a 1 percent level. Industries such as alcoholic beverages and tobacco products, where tariffs are significantly high offer illicit marketers the opportunity to engage in illegal activities for their financial benefit. On average, a one percent increase in the average tariff rates will lead to an increase of ₹194.03 crores (₹ 126.43 crores to ₹ 261.26 crores) in the illicit market levels keeping other variables constant.

Two NTM indicators in our model, Price and Quantity Control measures (PQCM) and Other NTMs (NTM_All), have a statistically significant negative impact on illicit markets at a 1 percent significance level. The negative impact on illicit markets is more pronounced for PQCM NTMs (- 98.57 crores) than all other NTMs (NTM_All -18.12 crores). This can be very effective in controlling illicit markets in key industries, particularly in alcoholic beverages, where price and quantity control measures are largely applicable.

Overall, the findings of the model suggest that policy makers should focus on the rationalisation of tariffs to a certain extent and focus on non-tariff measures for controlling illicit markets in India.

3.3.2 Illicit Trade: Findings of Aggregate of Key Industries

The empirical model for the overall illicit trade of all six key industries is given below. The dependent variable for this regression model is illicit trade (₹ lakhs), which is estimated for each HS code of the six key industries.[87] The model is statistically significant with an F value of 8.722 and independent variables are able to explain 34.5 percent variations indicated by R-square.

Illicit Trade (Lakhs)	Coefficient	95% Confidence interval		Rob std Err	P value
Import	**0.192**	**0.109**	**0.274**	**0.042**	**0*** **
SPS_L1	-450.498	-1687.116	786.119	630.355	0.475
TBTC_L1	1961.504	-2787.542	6710.55	2420.787	0.418
PQCM_L1	**8306.982**	**2382.846**	**14231.117**	**3019.779**	**0.006*** **
CompM_L1	**-9376.364**	**-16808.463**	**-1944.265**	**3788.451**	**0.013** **
RuleLaw	-1674.968	-7845.751	4495.815	3145.505	0.594
GovEff	527.879	-2721.712	3777.47	1656.452	0.75
EODBT	-330.874	-1542.126	880.378	617.426	0.592
Tariff	**166.43**	**41.43**	**291.42**	**6371.62**	**0.009*** **
Constant	55376.246	-300278.24	411030.73	181291.92	0.76
R - Squared		0.345	Number of observations		1319
F- test		8.722	Prob>F		0

*Statistical significance: ****(1 percent), **(5 percent), *(10 percent)***

Where SPS stands for sanitary and phytosanitary measures, TBTC stands for Technical barriers to trade, CompM_L1 stands for competition measures, PQCM stands for Price quantity control measure, GovEff stands for Government effectiveness and EODBT stands for Ease of Doing Business Across Broders

Source: TARI research

[87] Please refer to Annexure 2 for HS code for key industries and methodology for estimating illicit trade

The model result highlights that tariff is a key determining factor for illicit trade in India. Tariff rate have a substantial positive impact on the illicit trade, and are statistically significant at a 1 percent significance level. On average, a 1 percent increase in the tariff rate will lead to an increase of ₹1.66 crores (₹ 0.41 crores - ₹ 2.91 crores) in illicit trade levels keeping other variables constant. Price and quantity control NTMs as in the case of tariff rates have a statistically significant positive correlation with illicit trade. Higher tariff rates along with higher price and quantity control measures (PQCM_L1) significantly increase trade costs. They provide significant financial incentives for tariff evasion resulting in higher illicit trade for products such as alcoholic beverages and tobacco products.

Competition NTM measures that aim to restrict markets for imported products, providing a greater preference for domestic products have a statistically significant negative correlation with illicit trade. Keeping other variables constant, on an average, a point increase in the prevalence score of the competition measures (CompM_L1) will decrease illicit trade by ₹93.76 crores(- ₹168.08 crores to - ₹19.44 crores). The technical measures SPS (A) and TBT(B) and pre-shipment checks(C) in the model do not have any statistically significant impact. This may be because SPS and TBT significantly vary from one industry to another.

The rule of law regulatory governance indicator and ease of doing business across borders indicator in this regression have a statistically insignificant negative correlation with illicit trade. These indicators may work differently for different industries to counter trade costs evolving from tariff and price and quantity control NTMs.

Overall, the findings of this model also suggest that policy makers should focus on the rationalisation of tariffs to a certain extent and focus on non-tariff measures for controlling illicit markets in India.

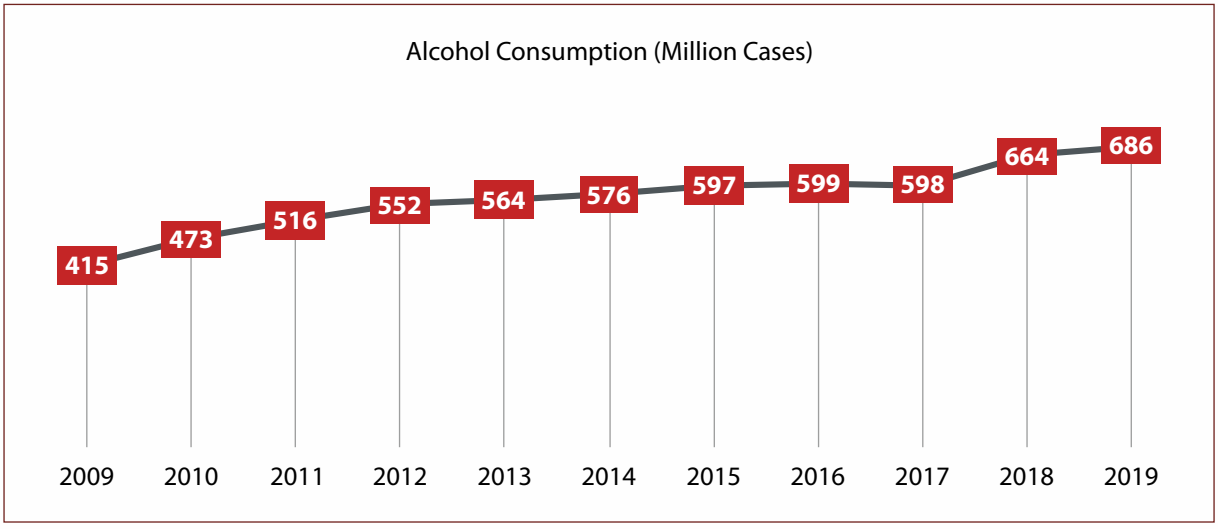
4
Alcoholic Beverages

4

Alcoholic Beverages

4.1 Alcoholic Beverages: Brief Overview

The Indian alcoholic beverages market is among the fastest-growing and third-largest markets in the world. Its market size is valued at US$ 52.5 billion in 2020.[88] Alcohol consumption in India as per IWSR data was 5.376 billion litres in 2017 and sharply increased in the next three years to reach 6.177 billion litres in 2020.[89] It is estimated that the industry employs more than 2.5 million people directly and indirectly.[90]



Source: IWSR Data, IARD

[88] ICRIER (2021). Developing Principles for Regulations Alcoholic Beverages Sector in India
[89] IWSR Report
[90] EBG Position Paper 2020

The steady increase in consumption of alcoholic beverages is due to several factors including rising disposable income with a sizable middle-class population, growing urban population, increasing rural consumption, global integration of the Indian population, changing lifestyles, and greater societal acceptance of alcohol.[91] However, per capita pure alcohol consumption (15 + years) in India is low (5.7 litres) as compared to China (7.2 litres) and European countries (9.8 litres).[92]

Alcoholic beverages can be segmented into IMFL (Indian Made Foreign Liquor), Country Liquor (Indian Made Indian Liquor), wine and beer. IMFL accounts for only 35 percent by volume but in terms of value captures 65 percent of the market share.

4.2 Alcoholic Beverages: Regulatory and Policy Landscape

The regulatory landscape of the alcoholic beverages industry, which is one of the most regulated industries in India, encompasses all aspects of production, import, distribution, and consumption. Regulations are largely driven by State Government laws since alcohol is a state subject. The market architecture varies from state to in terms of taxation, regulation, legalization, production, and promotion.

The government of India allowed 100 percent FDI through an automatic route in the "Distillation and Brewing" sector in 2006.[93] The government, through a licensing system, regulates alcohol production. However, the entire distillation and production process is owned and controlled by the private sector. Generally, in wholesale distribution, the state government and private sector are involved.

Alcohol is largely sold through licensed/authorized liquor stores permitted by state governments with sales through supermarkets and malls kick-starting in tier I and tier-II cities.[94] Some recent policy changes concerning alcoholic beverages sale include, ban on sale of liquor on National Highways, allowing certain alcoholic beverages like wine and beer to be sold in supermarkets in some states, allowing malls and pubs to remain open for 24 hours and alcohol e-commerce permitting online sales.[95]

Consumption of alcoholic beverages, like production and distribution, faces certain restrictions. According to Article 47 of Part IV Directive Principles of State Policy, of the Constitution of India, it is the primary duty of States to raise the level of nutrition and the standard of living of its people, and improve public health. Accordingly, state governments have promulgated laws governing the sale, possession, and consumption of alcohol. Some states strictly prohibit the sale and purchase of alcohol. Other states allow alcohol consumption, however, with age restrictions (ranging from 18 to 25 years) for consumption and purchase of alcohol.[96]

[91] The Whiskey Market 2023; Indian Alcohol Consumption - The Changing Behavior https://www.researchandmarkets.com/reports/4424894/indian-alcohol-consumption-the-changing-behavior

[92] WHO (2018). Global Status Report on Alcohol and Health

[93] http://www.pib.nic.in/newsite/erelease.aspx?relid=15119

[94] Indian Alcohol Consumption - The Changing Behavior https://www.researchandmarkets.com/reports/4424894/indian-alcohol-consumption-the-changing-behavior

[95] Gururaj, G., Gautham, M.S. and Arvind, B.A. (2021), Alcohol consumption in India: A rising burden and a fractured response. Drug Alcohol Rev., 40: 368-384. https://doi.org/10.1111/dar.13179

[96] Alcohol Laws in India, Available at : https://www.saathee.org/docs/laws.pdf

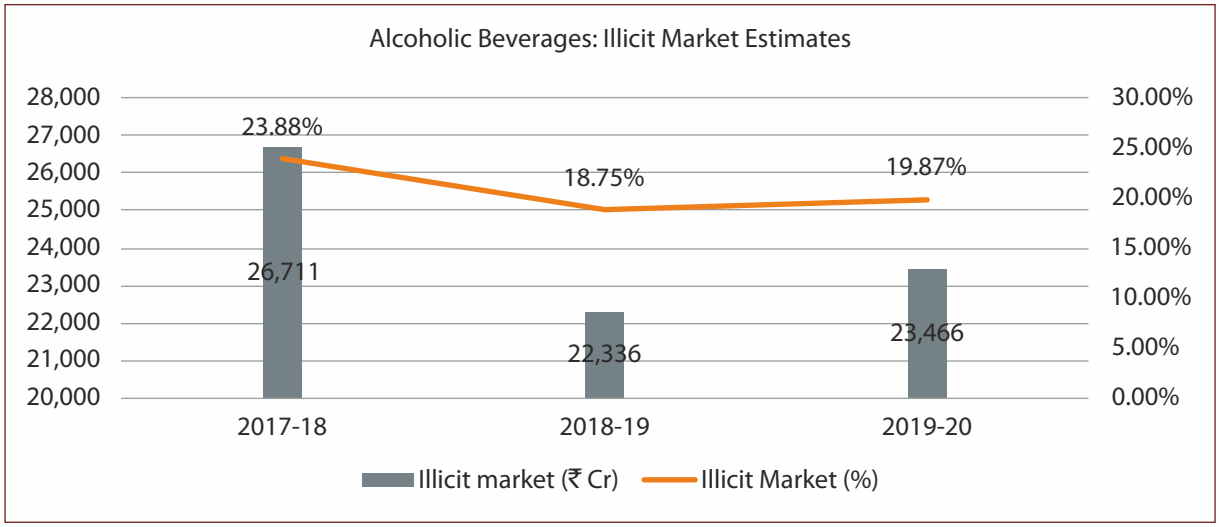
Alcoholic Beverages fall under the purview of food products as per the Food Safety and Standards Act, 2006 (FSS). The Food Safety and Standards Authority of India (FSSAI) lays down the standards for ensuring safe consumption and distribution of alcoholic beverages in India.

The Food Safety and Standards (Alcoholic Beverages) Regulations, 2018 frame the standards for alcoholic beverages such as for distilled alcoholic beverages, beer and wine. The regulations also stipulate labelling requirements such as declaration of alcohol content, labelling of standard drink, labelling of wine allergen warnings and statutory warnings. The regulations also point out that alcoholic beverages cannot contain any nutritional information or make any health claims, labels cannot use words like 'non-intoxicating' or words implying similar meaning when they contain more than 0.5 per cent alcohol, etc.[97]

Direct or indirect advertisement of alcoholic beverages was prohibited under the Cable Television Network Rules, 1995 (CTNR). Satellite TV channels were banned from airing any kind of advertisement that promotes sale or consumption of alcoholic beverages including liquor and wine. However, advertisement of brand extensions of liquor and tobacco products is permitted under CTNR. With effect from June 9, 2022, all surrogate advertisement has been prohibited under the Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022 of the Consumer Protection Act, 2019.

4.3 Alcoholic Beverages: Illicit Market and Trade

Illicit alcohol trade is a worldwide phenomenon. According to a 2018 Euromonitor study, illicit alcohol represents 25.8 percent of global consumption, i.e. 1 out of 4 alcohol bottles are illicit.[98] Illicit alcohol taxonomy is complex and includes varied products such as contraband/ legitimate alcohol illegally smuggled into the country, counterfeit alcohol (fraudulent imitation of a legitimate brand) produced in illicit factories, homemade artisanal alcoholic beverages produced commercially without having a commercial license, legally produced alcohol however sold outside tax channels and non-conforming alcohol that are not produced as per regulatory norms.[99]



Source: Illicit Markets: A Threat to our National Interests, FICICI CASCADE (2022)

[97] Food Safety and Standards (Alcoholic Beverages Standards) Regulation, 2018

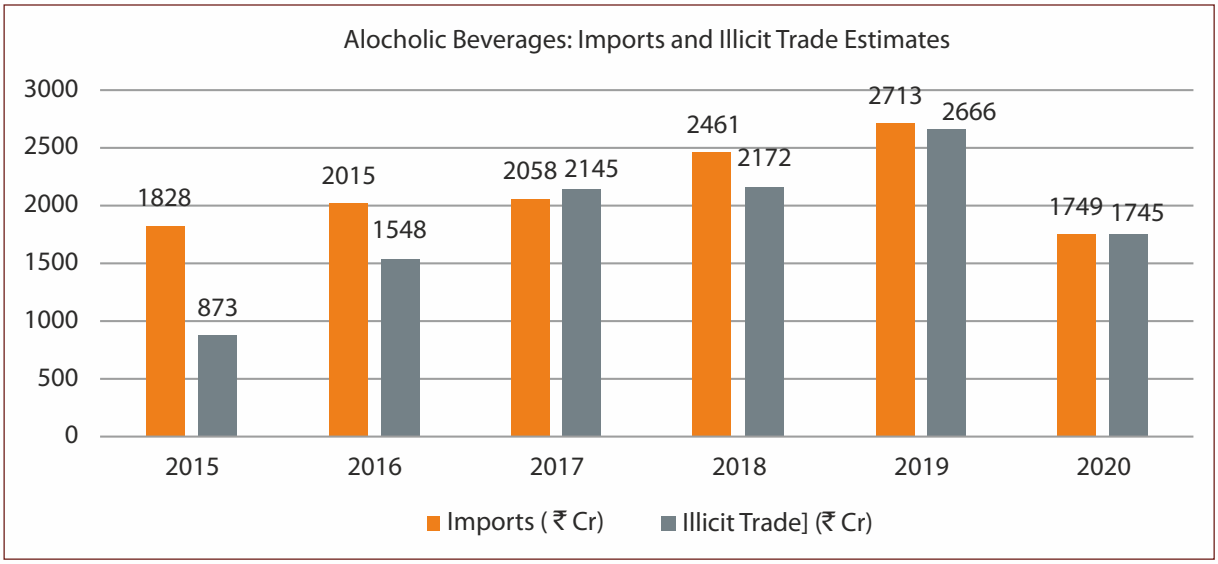
[98] Euromonitor International. (2018). Size and Shape of the Global Illicit Alcohol Market. London: Euromonitor

[99] TRACIT (2019). Mapping the Impact of Illicit Trade on the Sustainable Development Goals, Chapter 3- SDG and Illicit Trade in Alcohol

Illicit market estimates of alcoholic beverages in India, based on FICCI CASCADE's Illicit Market Report 2022[100] shows that it is gradually coming down, from 23.88 percent in 2017-18 to 19.87 percent in 2019-20. Even in value terms, it is falling and is estimated to be ₹23,466 crores in 2019-20. Overall, this reduction may be attributed to a reduction in the consumption of alcoholic beverages. The Covid-19 pandemic resulting in lockdowns and travel restrictions also seems to have affected overall consumption and illicit alcohol in 2019-20.

Illicit alcohol is driven by both supply-side (business practices) and demand-side (consumers) factors with the interplay of the regulatory landscape. Strong regulatory control on production and distribution with relatively poor enforcement mechanisms drive illicit alcohol production. Availability and affordability of illicit alcohol along with consumer awareness and perceptions are driving factors from the consumption side.[101]

Imports of alcoholic beverages increased from ₹1,828 crores in 2015 to ₹2,713 crores in 2019 though it fell in 2020 due to the Covid-19 pandemic. Imports are significantly low compared to a total consumption of ₹118,105 crores in 2019-20 (based on estimates of private final consumption expenditure data).[102]



Source: UN Comtrade Database, TARI estimates (for illicit trade)

Based on our methodology illicit trade in alcoholic beverages, as in the case of imports, has also increased, from ₹873 crores in 2015 to ₹2,666 crores in 2020. Illicit trade is comparable with the levels of imports in the country as import duty and other taxes levied exceeding 150 percent, make them three to five times more expensive than elsewhere in the world.[103] This provides illicit traders significant financial incentives to engage in unscrupulous activities. Apart from this, illicit trade is fuelled by the regulatory landscape and the presence of non-tariff measures that further increase cost of legal trade, presenting more opportunities for illegal activities.

[100] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[101] TRACIT. (2019). Illicit Trade in alcohol in India: Challenges and Solutions. A briefing by the Transnational Alliance to Combat Illicit Trade, September 2019

[102] Please refer to FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[103] Indian Alcohol Consumption - The Changing Behavior https://www.researchandmarkets.com/reports/4424894/indian-alcohol-consumption-the-changing-behavior

4.4 Alcoholic Beverages: Non-Tariff Measures and Indicators

Alcoholic beverages have 15-16 import tariff lines at the HS code 6-digit level. Applicable NTMs show that the frequency and coverage ratio is 100 percent for all the years from 2015-2020. This indicates that it is one of the highly regulated industries and each tariff line (HS Code - product category) is subject to some type of NTMs.

Year	Tariff Lines #	Frequency Ratio	Coverage Ratio	Prevalence Score – Avg NTM Measure	Std Dev NTM Measure	Min - NTM Measure	Max - NTM Measure
2015	15	100.0%	100.0%	19.467	2.00	12	20
2016	15	100.0%	100.0%	19.467	2.00	12	20
2017	16	100.0%	100.0%	20.500	2.00	13	21
2018	15	100.0%	100.0%	21.067	1.95	14	22
2019	15	100.0%	100.0%	21.067	1.95	14	22
2020	16	100.0%	100.0%	21.063	1.95	14	22

Source: TARI research

Prevalence score highlights applicable on import NTMs (at 3-digit NTMs classification) for each tariff line (6-digit HS code). Spirits (2208) and Beer (2203) has highest prevalence score of 22. The average prevalence score was 19.467 in 2015, which increased to 21.063 in 2020.

The World Health Organisation (WHO) has coordinated efforts or worked towards developing regulations and NTMs aimed at reducing the harmful effects of alcohol and controlling Illicit trade. Some recommendations provided by WHO in its two reports, WHO Global Strategy (WHO, 2010) [104] and Global Status Report on Alcohol and Health (WHO, 2014)[105] include labelling and packaging health warnings, traceability, traceability measures, import/export licenses and permits, price control measures and excise taxation in particular, registration of products and importers/ exporters, etc).

Year	SPS (A)	TBT (B)	Price & Quantity Control Measures (D+E+F)	Competition Measure (G+H+I+J+K+L+M)	Pre- Shipment Inspection (C)	Total
2015	12.600	3.867	2.067	0.000	0.933	19.467
2016	12.600	3.867	2.067	0.000	0.933	19.467
2017	12.625	3.875	3.063	0.000	0.938	20.500
2018	12.600	3.867	3.133	0.533	0.933	21.067
2019	12.600	3.867	3.133	0.533	0.933	21.067
2020	12.625	3.875	3.125	0.500	0.938	21.063

Source: TARI research

[104] WHO. (2010). Global strategy to reduce the harmful use of alcohol. Retrieved from http://www.who.int/substance_abuse/alcstratenglishfinal.pdf

[105] WHO. (2014). Global status report on alcohol and health. doi: http://apps.who.int/iris/bitstream/handle/10665/112736/9789240692763_eng.pdf;jsessionid=D07A63A9BC70A300C7AEBAC25ED1B42C?sequence=1

The above table shows average frequency distribution of the applicable NTMs. Technical measures including SPS, TBT and pre-shipment inspection have the highest contribution to the prevalence score. However, the contribution of SPS and TBT has fallen from 64 percent and 19 percent respectively in 2015 to 59 percent and 18 percent respectively in 2020. As alcoholic beverages are meant for human consumption, prevalence score contribution of SPS NTMs is more than 60 percent. On an average more than 12 SPS measures are applicable on any alcoholic beverage to take care of human health and safety. While technical NTMs have remained constant over the years, non-technical NTMs including price and quantity controls and competition related NTMs have seen an upsurge and their contribution to the prevalence score has increased from 11 percent in 2015 to 17 percent in 2020.

4.5 Alcoholic Beverages: Illicit Trade Model

The empirical model for alcoholic beverages based on our research approach is given below. Model does not include 2020 year data being an outlier year due to Covid-19 pandemic. The dependent variable is illicit trade (₹ lakhs), which is estimated for each of the HS code in the industry. Overall, the alcohol beverages illicit trade model is statistically significant with an F value of 18.937. R-square indicates that independent variables are able to explain 78 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹1,880.8 crores.

Illicit Trade (Lakh)	Coeff	95% Confidence Interval		Rob Std Err	p value
Import	0.426	0.113	0.74	0.157	0.008***
ABC_L1	**-18204.087**	**-23491.032**	**-12917.142**	**2648.759**	**0*** **
PQCM_L1	3757.478	-13725.355	21240.312	8758.898	0.669
CompM_L1	-913.132	-25434.439	23608.176	12285.173	0.941
RuleLaw	-2085.631	-8253.012	4081.751	3089.858	0.502
EODBT	-110.043	-1331.095	1111.008	611.747	0.858
Tariff	-82.55	-162.59	-2.52	40.10	0.043**
Constant	444803.26	121372.5	768234.03	162038.78	0.008***
R - Squared		0.781	Number of observations		75
F- test		18.937	Prob>F		0
		*Statistical significance: ***(1 percent), **(5 percent), *(10 percent)***			

Source: TARI research

Lagged technical NTMs including SPS, TBT & C (ABC_L1) are statistically significant at a 1 percent level. Keeping other variables constant, one point increase in the prevalence score of technical NTMs (ABC_L1) decreases illicit trade by ₹182 crores [-235 to -129].[106] The other two NTMs, i.e., price and quantity measures (PQCM_L1) and competition measures (CompM_L1) are not statistically significant and do not have a significant impact on illicit trade. Tariffs on alcoholic beverages have a statistically significant negative impact on illicit trade.

[105] 95 percent confidence interval

We analysed variables for two time periods: 2015 to 2017 and 2018 to 2020.[107] Our t-statistics[108] research findings show that price quantity control measures (PQCM) and competition measures (CompM), on an average have a statistically significant difference across the two time periods at a 5 percent level, and show a significant increase in the 2018-20 period. In the 2018-20 period, where the tariff regime has become stable for trade, policy-makers have used more discretionary PQCM and CompM NTMs to alter imports and illicit trade.

Regulatory Framework: 2015 to 2020				
Variables	**2015-17**	**2018-20**	**t value**	**p value**
SPS (A)	12	12	0	1
TBT (B)	3.667	3.667	0	1
Pre-ship Check (C)	0.834	0.834	0	1
PQCM	**2.5**	**3.333**	**-4.5**	**0***
CompM	**0**	**0.334**	**-2.9**	**0.009***
Import (Lakh)	32783.249	38456.118	-0.25	0.817
Tariff	1.417	1.417	0	1
Illicit Trade (Lakh)	25364.038	36568.221	-0.55	0.598
*Number of Observations-36, * statistically significant @ 5 percent level*				

Source: TARI research

Overall, the empirical findings suggest that policy makers should focus on non-tariff measures such as SPS or TBT for controlling illicit trade as an important policy tool. It would provide a signal to traders of illicit alcohol, generally not conforming to prescribed standards, that sub-standard alcoholic beverages have no place in the Indian markets and that consumer health is a priority. This is in line with WHO[109] which views alcohol as "a commodity of concern to public health" and their recommendations include use of the NTMs to reduce the harmful effects of alcoholic beverages.

[107] Also referred as pre-GST (2015-17) period and post-GST (2018-20) period

[108] t-test done only at 4-digit HS product code level

[109] World Health Organization. (2022). Reducing the harm from alcohol by regulating cross-border alcohol marketing, advertising and promotion: summary (No. WHO/MSD/UCN/ADA/22.01). World Health Organization.

5
Consumer Electronics

5

Consumer Electronics

5.1 Consumer (Electronics) Durables Industry: Brief Overview

Global electronics production in 2020 was estimated to be US$2.9 trillion. India's share in global production has increased from 1.3 percent in 2012 to 3.6 percent in 2020,[110] contributing about 3.4 percent of India's GDP.[111] The industry including mobile and computer hardware is among the most dynamic and fastest growing markets with substantial growth in manufacturing activities since 2014. Indigenous production of electronic items saw significant growth between 2015-16 and 2020-22, at a compounded annual growth rate (CAGR) of 17.9 percent, increasing from US$37 billion to US$74.7 billion.[112] Exports have also seen a huge surge of 88 percent since 2013-14 increasing from US$6.6 billion in 2013-14 to US$12.4 billion in 2021-22.[113]

The consumer electronics and durables industry has two broad segments: brown goods that include consumer electronics such as smart phones, computers, televisions etc. and white goods that include consumer appliances such as washing machines, air conditioners, refrigerators etc. According to the India Cellular & Electronics Association (ICEA), the industry is likely to achieve the target of US$ 300 billion in 2025-26.[114]

Inadequate infrastructure, high cost of finance, domestic supply chain logistics, inadequate components manufacturing ecosystem, limited research and development and designing, and inadequacy of skill development are limiting the growth of domestic electronics manufacturing in

[110] Ministry of Electronics and Information Technology, Annual report 2020-21

[111] IBEF: Electronics and computer software industry & exports

[112] Ministry of Electronics and Information Technology, Annual report 2021-22

[113] PIB press release dated 28.02.22: Ministry of commerce and industry https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1801781

[114] India Cellular & Electronics Association (ICEA): Second volume of vision document on the electronics manufacturing in India: A Call To Action For Broadening And Deepening Electronics Manufacturing

the country.[115] The Government of India has envisioned a ₹76, 000 crore[116] semi-conductor programme for establishing semiconductors and display manufacturing ecosystem to incentivise the value chain and make India self-reliant. The overall electronics manufacturing industry has significant potential to grow beyond import substitution and move towards the vision of "Make in India for the World" thus pushing indigenous manufacturing.

Rising disposable incomes, urbanisation with the growth tier-two two cities, increasing digitisation and use of smart phones, and access to credit financing are boosting the demand for consumer electronics and durables. The demand for electronic products in India was ₹6.83 lakh crores (US$106 billion) in 2017-18, which is increasing rapidly and is expected to reach to the levels of ₹ 26 lakh crores (400 US $ billion) by 2025-26.[117]

5.2 Consumer (Electronics) Durables Industry: Regulatory and Policy Landscape

The electronics industry is the world's largest and the most rapidly growing sector and finds applicability and use in all sectors of the economy. Recognizing the economic potential of electronics manufacturing, the Government of the India has conferred high priority to the Electronics System Design and Manufacturing (ESDM) sector.

The National Policy on Electronics 2012 (NPE 2012) and its schemes have resulted in significant growth of electronics manufacturing in India. It is core to both the Make in India and the Digital India programmes. The Government of India has taken several steps to enhance domestic manufacturing including nil basic customs duty (BCD) on several consumer electronics goods, permitting 100 percent FDI in consumer electronics manufacture via the direct route, to further attract FDI inflows and incentivise large investments in the value chain and encourage electronic exports.

The National Electronics Policy 2019 (NPE 2019), notified in February 2019 has three major schemes:[118] Production Linked Incentive Scheme(PLI) for Large Scale Electronics Manufacturing, Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS) and Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme to drive electronic manufacturing in the country.

The schemes under the policy have committed[119] nearly US$17 billion[120] for the next 6 years across 4 production linked incentive schemes (PLI) - IT hardware and components, smart phones, semiconductor and design to boost domestic manufacturing and exports in the entire value chain

[115] National Electronics Policy 2019 (NPE 2019)

[116] Ministry of Electronics and Information Technology

[117] Ministry of Electronics and Information Technology, Annual report 2018-19

[118] Parliamentary Standing Committee On Commerce) Report No. 158 One Hundred And Fifty Eighth Report: Attracting investment in post-Covid Economy: Challenges and Opportunities for India

[119] National Electronics Policy 2019 (NPE 2019)

[120] PIB press release - Ministry of Electronics & IT: https://pib.gov.in/PressReleasePage.aspx?PRID=1792189

of electronics manufacturing to realise the revised turnover target of US$300 billion (the estimates revised from US$400 billion due to the Covid- 19 pandemic).

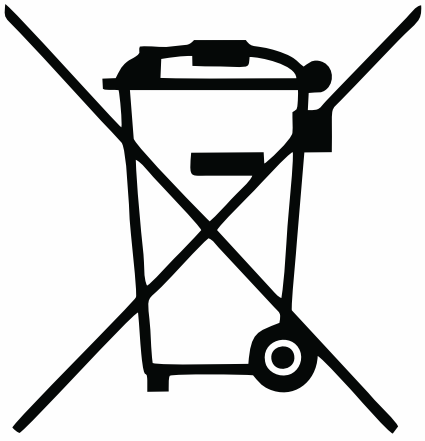
The Government of India, through the regulatory framework ensures quality and safety standards of imported as well as indigenously manufactured consumer electronics. The latest notification of the Ministry of Electronics and Information Technology (MEITY) - Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021 - makes it compulsory for consumer electronics to conform with prescribed standards and bear the "standard mark" under license from the Bureau of Indian standards(BIS).[121]

Electronic items falling under the compulsory registration scheme must self-declare that they are in compliance with prescribed standards. No person is allowed to import, manufacture or distribute any electronic items that do not conform with BIS standards.

The Legal Metrology (Packaged Commodities) Rules, 2011 require that every individual, firm or a corporation that prepacks or imports any product must seek registration under these rules. The packaging must have certain declarations on the principal display panel, like country of origin, name of the product, size, weight, quantity of the product, retail sale price etc. Manufacturers as well as packagers are required to comply with the rules.[122]

The MEITY has been prioritising consumer interests and tightening quality control measures to restrict poor quality and cheap electronic products from entering the Indian market. Policy initiatives like The Consumer Protection Act, 2019, BIS safety standards and the star labelling scheme of the Bureau of Energy Efficiency (BEE)ensure consumer safety and interests.

The E-waste Management Rules, 2016 regulate the use of hazardous substances in consumer electronics products. They ensure effective use, monitoring and disposal of such products, by the manufacturer, producer, importer, transporter, refurbisher, dismantler and recyclers.



Since e-waste is not permitted to be dumped with regular garbage, as per these rules, all electronic products are required to affix a visible, legible and indelible symbol (refer image here) on products or in their information booklets to prevent e-waste from being disposed of in garbage bins containing waste destined for disposal.

The Central Pollution Control Board also, may from time to time, conduct random sampling of electrical and electronic equipment placed in the market to monitor and verify compliance with provisions related to the reduction of hazardous substances thereby ensuring the safety of consumers.

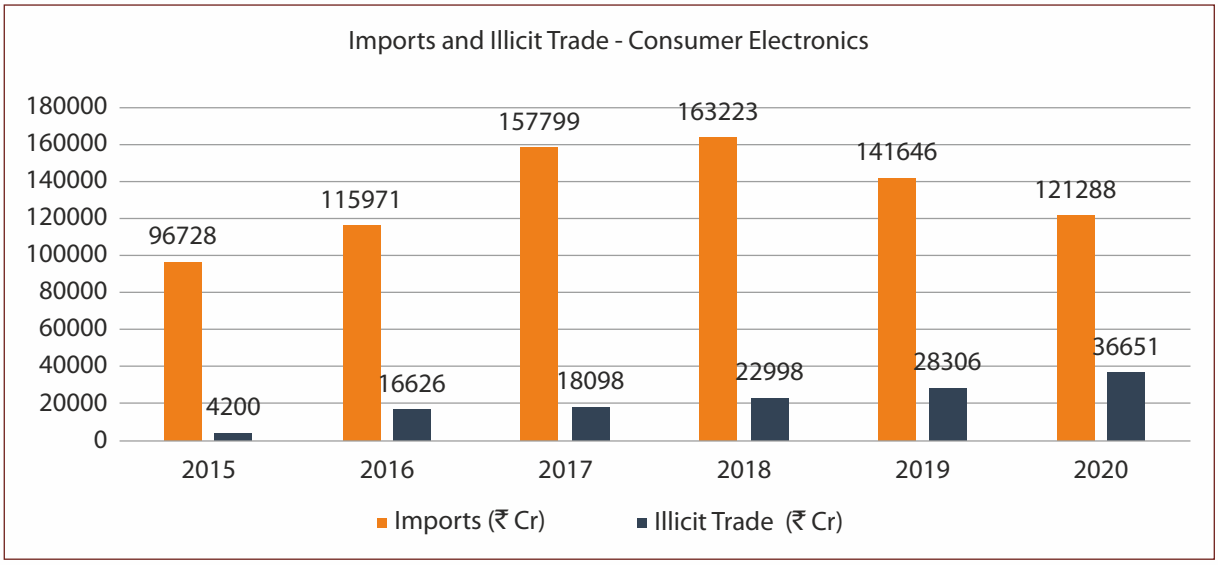
[121] Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021

[122] The legal metrology act (packaged commodities rule) 2011 https://consumeraffairs.nic.in/sites/default/files/uploads/legal-metrology-acts-rules/8.pdf

5.3 Consumer (Electronics) Durables Industry: Illicit Trade

Consumer electronics and durables are among the most imported products in India and are recorded under the 2-digit HS codes: 84 and 85.[123] Their imports were growing continuously till 2018, but declined thereafter. They accounted for 4 percent to 6.5 percent of India's total imports between 2015 and 2018. With greater emphasis on domestic manufacturing under the National Manufacturing Policy 2019, the share of consumer electronics in imports has reduced from the peak of 6.5 percent in 2018 to 4.8 percent in 2020.

The FICCI CASCADE 2019 report[124] highlights that around 50 percent - 60 percent of the domestic demand for electronic products is met through imports. For electronic components, the reliance on imports is much higher as it fulfils around 70 percent-80 percent of the demand. China (including Hong Kong), Korea, Malaysia, Singapore and Vietnam are key countries that account for nearly 85 percent of the electronics imports by India. With incentives and greater reliance on domestic manufacturing, the situation has been changing in recent years.



Source: TARI research and UN Comtrade

Based on the mirror trade statistics and methodology, estimated illicit trade of consumer electronics shows a significant increase over the years. Even though imports declined after 2018, illicit trade has continued to increase. Between 2016 and 2018, average illicit trade as a percentage of imports was only 13.30 percent rising to 20 percent in 2019 and 20.2 percent in 2020- 2022.

The reasons for this rise are manifold. The significant demand-supply gap and high value of consumer electronics items make these products more susceptible to smuggling. As per the 2018-19 Economic Survey, customs duty on finished electronics goods and consumer durables imported from China increased several fold in the preceding two years to promote domestic value addition. [125] Rise in illicit trade may be attributed to this as well, and to Covid-19 pandemic induced disruptions.

[123] Refer to Annexure II for detailed 4-digit HS code

[124] FICICI CASCADE (2019). Invisible Economy: Impact of Smuggling on Indian Economy and Employment

[125] Economic Survey 2018-19, Volume II

5.4 Consumer (Electronics) Durables Industry: Non-Tariff Measures and Indicators

Consumer electronics have 81 to 85 product categories (import tariff lines) at the 6-digit HS codes level. Analysis of applicable NTM shows that frequency and coverage ratio of the consumer electronics industry is 100 percent for all the years from 2015-2020. It suggests that the industry is highly regulated and each tariff line is subject to some type of NTM.

Year	Import Tariff Lines #	Frequency Score	Coverage Ratio	Avg Import NTM Measures	Std Dev of Import NTM Measures	Min - Import NTM Measures	Max - Import NTM Measures
2015	85	100.0%	100.0%	12.91	3.70	2	19
2016	85	100.0%	100.0%	13.39	3.77	3	19
2017	82	100.0%	100.0%	13.39	3.77	3	19
2018	82	100.0%	100.0%	14.20	3.88	4	19
2019	81	100.0%	100.0%	15.34	4.25	4	21
2020	82	100.0%	100.0%	15.61	4.21	5	22

Source: TARI research

As consumer electronics have diverse product categories and therefore also have a wide NTM prevalence score ranging from a minimum of 2 to a maximum of 22. In 2020, 8523 (media devices) had the minimum prevalence score of 5, while 8517 (communication apparatus) had the highest prevalence score of 22. Due to the significant divergence of min-max prevalence scores, the standard deviation for the prevalence score for consumer electronics is also quite high and ranges from 3.70 to 4.21 over different years. Overall, consumer electronics had a prevalence score of 12.91 in 2015 which increased to 15.61 in 2020.

Technical measures Including TBT (B), and pre-shipment check (C) measures have the highest contribution to NTMs prevalence score. They have however remained constant over the years with their contribution to the NTM prevalence score declining from 67 percent in 2015 to 54.5 percent in 2020. Prevalence score for non-technical NTMs such as price quality control (PQCM) and competition measure (CompM) has increased significantly from 2015 to 2020.

Year	SPS (A)	TBT (B)	Price & Quant Control NTM (D+E+F)	Competition NTM (G+H+I+J+K+L+M)	Pre-ship Check (C)	Total
2015	0.000	5.941	2.894	1.388	2.682	12.906
2016	0.000	5.941	2.894	1.871	2.682	13.388
2017	0.000	5.829	2.890	1.939	2.671	13.329
2018	0.000	5.829	3.695	1.939	2.671	14.134
2019	0.000	5.827	4.741	2.111	2.667	15.346
2020	0.000	5.829	4.866	2.232	2.671	15.598

Source: TARI research

5.5 Consumer (Electronics) Durables Industry: Illicit Trade Model

The empirical model for consumer (electronics) durables based on our research approach is given below. Model does not include 2020 year data being an outlier year due to Covid -19 pandemic. The dependent variable is illicit trade (₹ lakhs), which is estimated for each of the HS code in the industry. The consumer electronics illicit trade model is statistically significant with an F-value of 4.706. R-square indicates that independent variables are able to explain 26 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹1,8045.6 crores.

Illicit Trade (Lakhs)	Coeff	95% Confidence Interval		Rob Std Err	p value
Import	0.157	0.044	0.269	0.057	0.006***
PQCM & TBTC_L1	5197.252	-2592.725	12987.228	3962.76	0.19
CompM_L1	**-19113.343**	**-38759.578**	**532.892**	**9994.039**	**0.057***
RuleLaw	-2486.764	-20096.926	15123.399	8958.289	0.781
EODBT	244.688	-2163.437	2652.812	1225.013	0.842
Tariff	2599.20	-6068.62	11267.04	4409.33	0.556
Constant	63318.408	-1001944	1128580.9	541899	0.907
R - Squared		0.264	Number of observations		415
F- test		4.706	Prob>F		0
					Statistical significance: ****(1 percent), **(5 percent), *(10 percent)*

Source: TARI research

Lagged competition NTMs (CompM_L1) are statistically significant at 10 percent level and have a negative impact on illicit trade. Keeping other variables constant, a one-point increase in the competition NTMs prevalence score (CompM) decreases illicit trade by ₹191 crores [-387 to 5.3][126] . PQCM and TBTC_L1, that reflect the prevalence score of price quantity control measures (PQCM), technical barriers to trade and other pre-shipment checks (TBTC), increase illicit trade. However, they are statistically insignificant, and hence do not have any significant impact on illicit trade. Tariff has a positive correlation but doesn't have statistically any significant impact on illicit trade.

Implementation of GST affected the consumer electronics industry and illicit trade as it did other industries. Our findings of t- statistics[127] indicate that in the post GST (2018-20) period, average tariff and average price quantity control measures (PQCM) are significantly higher (statistically significant at 5 percent level) compared to the pre GST (2015-17) period. Financial incentives through tariffs and alternate tariff measures (PQCM) have resulted in a noteworthy increase in illicit trade after 2017-18 as observed earlier as well, with imports also seeing a decline. Average competition NTMs (CompM) in the post GST (2018-20) period are also statistically significant at the 10 percent level. This suggests that more policy incentives to promote domestic electronic manufacturing have led to a greater preference for domestic manufacturers and products.

[126] R95 percent confidence interval

[127] t-test done only at 4-digit HS product code level

Regulatory Framework and Illicit Trade: t statistics				
Variables	**2015-17**	**2018-20**	**t value**	**p value**
TBT (B)	5.402	5.389	0.05	0.971
Pre-ship Check (C)	2.563	2.563	0	1
PQCM	**2.793**	**4.352**	**-7.85**	**0***
CompM	1.886	2.264	-1.95	0.054
Tariff	**0.088**	**0.129**	**-5.85**	**0***
Import (Lakh)	514581.083	591885.05	-0.25	0.794
Illicit Trade (Lakh)	54061.15	122159.85	-1.2	0.226
				*No. of observations:144, * statistically significant @ 5 percent level*

Source: TARI research

Overall, the findings of the consumer electronics illicit trade model suggest that policy makers should emphasize NTMs such as competition measures to control illicit trade in this industry and boost the Government's vision of making India a global hub of indigenous manufacturing of electronics.

6

FMCG - Packaged Food

6

FMCG - Packaged Food

6.1 FMCG - Packaged Foods: Brief Overview

Fast-moving consumer goods or the FMCG sector is the fourth largest sector of the Indian economy and is expected to touch US$103.7 billion by 2021-22.[128] The packaged foods segment of the FMCG sector, is one of the key segments of the broad FMCG market.

The Indian food processing industry is considered a sunrise sector because of its large potential for growth and socio-economic impact.[129] It is one of the largest industries in India and is ranked 5th in terms of production, consumption, and export.[130] The industry contributes about 8.80 percent to the manufacturing sector and 8.39 percent to the agriculture sector in terms of Gross Value Added (GVA).[131] Total employment in the food processing industry is estimated to be 4.7 million in 2017-18.[132] The industry is expected to reach an output of US$535 billion by 2025-26.[133]

[128] IBEF Report; https://www.ibef.org/download/FMCG-January-2021.pdf

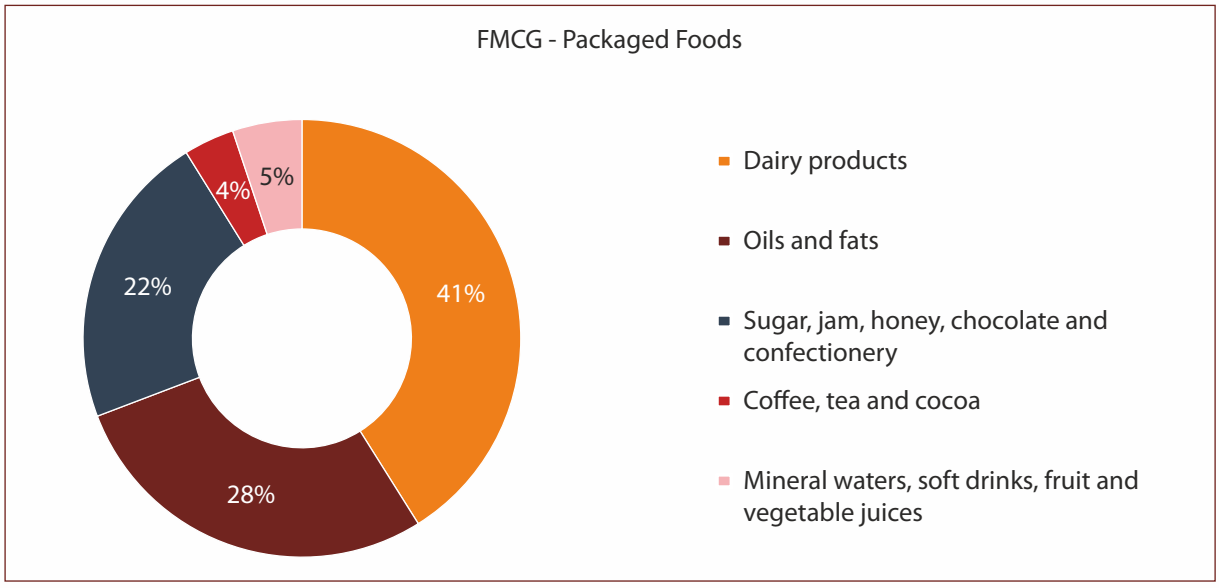
[129] Rais, M., Acharya, S., & Sharma, N. (2013). Food processing industry in India: S&T capability, skills and employment opportunities. Journal of Rural Development, 32(9), 451-480. doi:10.4172/2157-7110.1000260

[130] Sectoral Paper on Food Processing (NABARD, 2018) https://www.nabard.org/auth/writereaddata/file/NSP%20on%20Food%20and%20Agro%20Processing.pdf

[131] FICCI Food Processing Sector overview - https://ficci.in/sector-details.asp?sectorid=15

[132] Periodic Labour Force Survey (PLFS), Annual Report 2017-18, MOSPI, NSO, May 2019

[133] Growth Opportunities for the Food Processing Industry in India (IBEF, 2020) https://www.ibef.org/blogs/growth-opportunities-for-the-food-processing-industry-in-india



Source: TARI research; NAS-2020

Food processing in India is largely at a primary or secondary level with limited contribution of tertiary processed food products such as juices, jams, packaged food, etc.[134] Within packaged foods, consumption of dairy products (41 percent) is the largest, followed by vegetable oils and fats (28 percent), as per private final consumption expenditure (PFCE) data from NAS.[135]

A large population base, demographic changes (median age of 28 years), rapid urbanization, growing income levels, and changing lifestyles have led to a perceptible shift towards ready-to-eat and packaged foods for time-starved consumers. Research shows that with rising incomes, dietary habits diversify, leading to demand for high-value and speciality food products.[136]

6.2 FMCG - Packaged Foods: Regulatory and Policy Landscape

The food processing Industry (FPI) is a priority area for the Government of India. Understanding the potential impact on large-scale employment generation and exports, the Ministry of Food Processing Industries (MoFPI) looks after all policies for the sector. The proposed National Policy on Food Processing aims to increase the level of farm produce in food processing from 10 percent in 2010 to 25 percent by 2025.[137]

The Government allowed 50 percent FDI in multi-brand retail in 2006 and in 2016 also approved 100 percent FDI in the sale of food products through e-commerce, to boost the online food market in the country. In addition, 100 percent FDI in the cash and carry segment and in single-brand retail

[134] Rais, M., Acharya, S., & Sharma, N. (2013). Food processing industry in India: S&T capability, skills and employment opportunities. Journal of Rural Development, 32(9), 451-480

[135] Excluded non-classified foods products including snacks, ready to cooks and bakery for this study

[136] Hsu, H. H., Chern, W. S., & Gale, F. (2001). How will rising income affect the structure of food demand?. China's Food and Agriculture: Issues for the 21st Century, 10-13.

[137] Focusing on Food Processing Industries Ensuring Food Security and Enhancing Value Addition to Food Produce in India, Swaniti Initiative

have given a further boost to the sector. Consequently, FDI inflow in the FMCG packaged foods segment increased from US$280 million (2012) to US$1131 million (2017), a 303 percent increase.[138]

With an aim to boast the sector, the industrial license is not required for almost all food and agro-processing industries, excluding certain items such as alcoholic drinks, sugarcane, oils, and fats. Further, there is a 100 percent tax waiver on profits for five years and 25 percent for the next five years on items related to packaged preserved fruits and vegetables to boost the food-processing sector.[139] In November 2020, the Government of India approved a production-linked incentive scheme for the food industry (PLISFPI) to support creation of global food manufacturing champions and Indian brands of food products in the international markets with an outlay of ₹10900 crore. The aim was to facilitate the expansion of processing capacity to generate processed food output of ₹33,494 crore, increase the price to farm produce, increase exports, reduce wastages and generate large-scale employment.[140]

The Food Safety and Standards Authority of India (FSSAI), is the apex body that regulates the packaged foods sector in India through the Food Safety and Standards Regulations, 2011. These regulations lay down standards for domestic and imported food products and most importantly regulate unfair trade practices, to ensure that food is safe for human consumption. To ensure the effectiveness of the FSS Act, 2006, FSSAI notifies regulations relating to food standards, licenses/registration permits to Food Business Operators (FBOs), prohibition of certain products, threshold limits of contaminants, toxins and residues of food products, process of importing, approvals for food ingredients, etc. FSSAI is continuously amending rules and regulations to keep abreast of the latest developments in food science, consumption patterns, etc to ensure the safe consumption of food products.

The FSSAI emphasizes the role of packaging in raising consumer awareness and ensuring food safety. Packaging and labelling requirements have therefore been covered in two separate regulations: The Food Safety and Standards (Packaging) Regulations, 2018;[141] and The Food Safety and Standards (Labelling and Display) Regulations, 2020.[142] Import regulations were also notified by FSSAI in 2017, addressing issues faced by importers, imported food products are cleared only if they have a shelf life of not less than 3 months before expiry.[143]

6.3 FMCG - Packaged Foods: Illicit Market and Trade

Globally it is estimated that the illicit food markets including sub-standard, fake, smuggled, and illegal agri-foods cost about US$ 30-40 billion each year to the worldwide food industry.[144] Estimates of the illicit market of FMCG packaged foods based on FICCI CASCADE's Illicit Market Report 2022[145] shows an increase from ₹106,486 crores in 2017-18 to ₹142,284 crores in 2019-20.

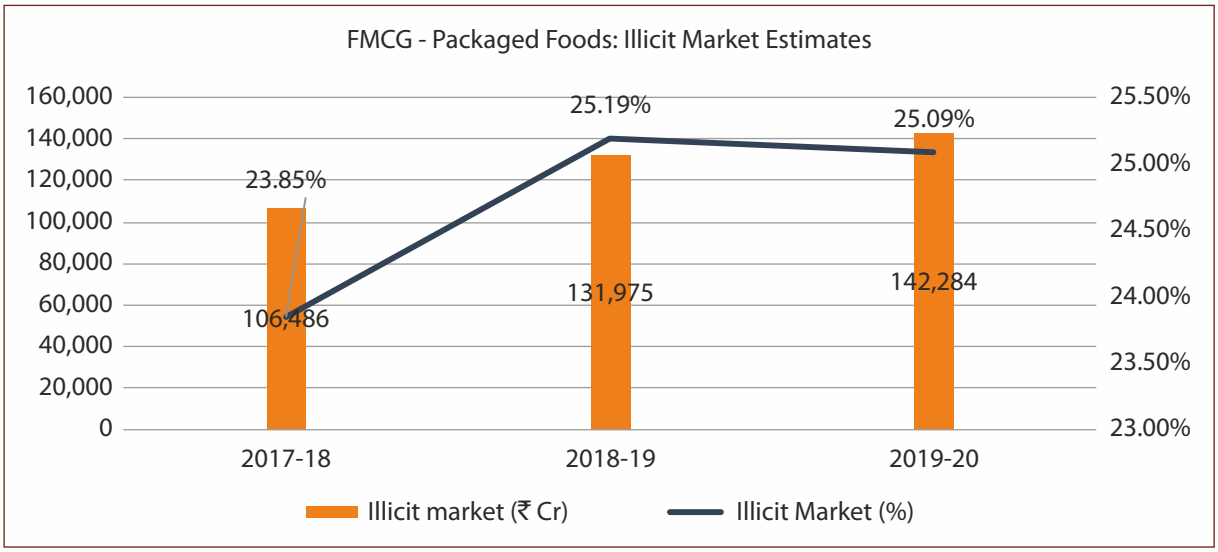
[141] The Food Safety and Standards (Packaging) Regulations, 2018 : https://www.fssai.gov.in/upload/uploadfiles/files/Gazette_Notification_Packaging_03_01_2019.pdf

[142] The Food Safety and Standards (Labelling and Display) Regulations, 2020: https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Labelling_Display_23_09_2021.pdf

[143] Food Safety and Standards (Import) Regulations, 2017

[144] TRACIT (2019). Mapping the Impact of Illicit Trade on the Sustainable Development Goals, Chapter 1 SDG and Illicit Trade in the Agri-Food Industry

[145] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests



Source: Illicit Markets: A Threat to Our National Interests (2022)

The illicit market percentage, however, has marginally come down from 25.19 percent in 2018-19 to 25.09 percent in 2019-20, which may be attributed to a reduction in consumption of packaged foods. The presence of a large of number small and micro enterprises with no industrial license requirements along with low IPR requirements and inadequate enforcement are the main driving factors for illicit markets in this segment.[146]

Packaged food imports which are only about 4 percent of total packaged foods consumption (based on PFCE estimates)[147] varied considerably over the years. It remained in the range of ₹17,000 crores to ₹27,000 crores falling significantly in 2020 due to the impact of the Covid-19 pandemic.

Imports and Illicit Trade: FMCG- Packaged Foods		
Year	**Imports (₹Cr)**	**Illicit Trade (₹Cr)**
2015	17508	3634
2016	25400	4987
2017	26814	5980
2018	20937	7310
2019	22939	4747
2020	15409	-1471

Source: TARI research

Based on our established methodology of mirror trade statistics, illicit trade in packaged foods, similar to imports, also varies significantly over the years and even became negative in 2020 (Covid-19 pandemic). Median illicit trade is 21 percent with 2018 and 2020 being outlier years. Apart from tariffs, Illicit trade is fuelled by the regulatory landscape and presence of NTMs as well, that also increases the cost of legal trade, and presenting opportunities for illicit traders.

[146] FICCI CASCADE & TARI (2015), Illicit Markets- A Threat to Our National Interests, The FMCG- Packaged Foods Industry

[147] Please refer to FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

6.4 FMCG - Packaged Foods: Non-Tariff Measures and Indicators

Packaged foods have 138 to 141 product categories (import tariff lines) at 6-digit HS codes level. Analysis applicable NTM show that frequency and coverage ratio of the consumer electronics industry is 100 percent for all the years from 2015-2020. It suggests that industry is a highly regulated and each tariff line is subject to some type of NTM.

Year	Import Tariff Lines #	Frequency Score	Coverage Ratio	Avg Import NTM Measures	Std Dev of Import NTM Measures	Min - Import NTM Measures	Max - Import NTM Measures
2015	139	100.0%	100.0%	24.65	3.57	17	33
2016	140	100.0%	100.0%	24.69	3.57	17	33
2017	138	100.0%	100.0%	25.67	3.62	17	34
2018	141	100.0%	100.0%	27.12	3.48	19	35
2019	140	100.0%	100.0%	27.23	3.64	19	36
2020	140	100.0%	100.0%	27.50	4.03	19	38

Source: TARI research

Table below shows prevalence score is applicable on imports NTMs (at 3-digit NTMs classification) for each tariff line (6-digit HS code). Packaged foods have a diverse product categories and therefore also has a wide NTM prevalence score ranging from a minimum of 17 to a maximum of 38. In 2020, 0910 (coffee) had a minimum prevalence score of 19, while 1513 (coconut vegetable oil) had the highest prevalence score of 38. The standard deviation of prevalence score is also quite high and ranges from 3.57 to 4.03 over different years. The average prevalence score of packaged food products was 24.63 in 2015, which increased to 27.50 in 2020.

Year	SPS (A)	TBT (B)	Price & Quantity Control Measures (D+E+F)	Competition Measure (G+H+I+J+K+L+M)	Pre-ship Measures (C)	Total
2015	14.331	5.201	2.324	1.439	1.338	24.633
2016	14.357	5.200	2.321	1.429	1.336	24.643
2017	14.399	5.225	3.312	1.435	1.341	25.710
2018	14.383	5.213	4.312	1.894	1.348	27.149
2019	14.386	5.200	4.421	1.886	1.350	27.243
2020	14.386	5.193	4.693	1.886	1.350	27.507

Source: TARI research

Technical measures including SPS and TBT have the highest contribution to the prevalence score. However, their prevalence score has remained constant over the years while their contribution to the overall NTM prevalence score has declined from 79 percent in 2015 to 71 percent in 2020. On an average more than 14 SPS measures are applicable on any packaged food, to take care of human health and to maintain safety standards.

The SPS NTM measures including A2 (tolerance limits for residues and restricted use of substances), A3 (labelling, marking and packaging requirements), A4 (hygienic requirements), A6 (other requirements on production or post-production processes), and A8 (conformity assessment related to SPS), apply to all intermediate and final food products intended for human consumption to ensure food safety. Some TBT measures (B33 and B42) also prevent spoilage during transit, transhipment and storage. In addition, all food products need to disclose that their food composition or ingredients conform with applicable NTM codes B7 (product quality or performance requirement) and B8 (conformity assessment related to TBT)[148].

Non-technical NTMs like price & quantity control measures (PQCM) and competition measures (CompM) have seen an increase and their contribution to prevalence score has also increased particularly after 2017.

6.5 FMCG - Packaged Foods: Illicit Trade Model

The empirical model for FMCG-packaged foods based on our research approach is given below. Model does not include 2020 year data being an outlier year due to Covid -19 pandemic. The dependent variable for this regression model is illicit trade (₹ lakhs), which is estimated for each of the HS codes in the industry.[149] Overall, the packaged foods illicit trade model is significant with an F-value of 10.873. R -square indicates that independent variables are able to explain 78 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹ 5331.6 crores.

Illicit Trade (Lakhs)	Coeff	95% Confidence Interval		Rob Std Err	p value
Import	0.186	0.139	0.234	0.024	0***
SPS_L1	**-548.385**	**-1130.359**	**33.588**	**296.408**	**0.065***
TBTC_L1	448.643	-101.551	998.836	280.222	0.11
PQCM_L1	351.848	-426.162	1129.857	396.253	0.375
CompM_L1	-18.691	-576.798	539.416	284.253	0.948
GovEff	243.881	-157.393	645.154	204.375	0.233
RuleLaw	-113.941	-803.708	575.825	351.309	0.746
EODBT	-87.489	-226.57	51.591	70.836	0.217
Tariff	44.38	-9.82	98.58	27.60	0.108
Constant	-22.675	-42288.779	42243.43	21526.799	0.999
R - Squared		0.777	Number of observations		698
F- test		10.873	Prob>F		0
			Statistical significance : ***(1 percent), **(5 percent), *(10 percent)		

Source: TARI research

[148] UNESCAP (2019), Exploring linkages between non-tariff measures and the Sustainable Development Goals: A global concordance matrix and application to Asia and the Pacific. Trade, Investment and Innovation, Working Paper Series NO. 04

[149] Please refer to Annexure 2 for HS code for key industries and methodology for estimating illicit trade

In our empirical model, lagged SPS NTMs (SPS_L1) are statistically significant at 10 percent significance level. Keeping other variables constant, a one point increase in the SPS NTMs prevalence score decreases illicit trade by ₹5.5 crores [-11 to 0.33].[150] The other three NTMs, TBT(TBT_L1), price and quantity measures (PQCM_L1) and competition measures (CompM_L1) have a statistically insignificant impact on illicit trade.

Implementation of GST affected the industry and illicit trade as it did other industries. Our findings of t- statistics[151] indicate that in the post GST (2018-20) period, average price quantity control measures (PQCM) and competition measure (CompM) for packaged food products are significantly higher (statistically significant at 5 percent level) compared to the pre GST (2015-17) period. This highlights alternate tariff measures (PQCM) and competition measures (CompM) significantly increased financial incentives for illicit trade in the post-GST period.

Regulatory Framework and Illicit Trade : t statistics				
Variables	**(2015-17)**	**(2018-20)**	**t value**	**p value**
SPS (A)	14.884	14.896	-0.05	0.96
TBT (B)	5.21	5.205	0.05	0.966
PQCM	**2.639**	**4.618**	**-16.65**	**0***
CompM	**1.31**	**1.738**	**-3.9**	**0***
Pre-ship Check (C)	1.439	1.438	0	0.991
Import (Lakh)	55335.23	47051.859	0.35	0.718
Tariff	0.502	0.483	0.5	0.621
Illicit Trade (Lakh)	11587.63	8401.057	0.65	0.528
			*No. of observations: 252, * statistically significant @ 5 percent level*	

Source: TARI research

Overall, findings of the packaged foods illicit trade model suggest that policy makers should focus on NTMs such as SPS as a policy tool to counter illicit trade in the sector. Packaged foods are meant for direct human consumption, hence encouraging stringent SPS NTMs would act as a signal to traders across the globe that packaged foods which do not conform to safety standards are not welcomed in the Indian food market and businesses need to follow these standards, including good and hygienic manufacturing practices to ensure consumer health and safety.

[150] 95 percent confidence interval

[151] t-test done only at 4-digit HS product code level

7

FMCG- Household and Personal Goods

7

FMCG- Household and Personal Goods

7.1 FMCG - Household and Personal Goods: Brief Overview

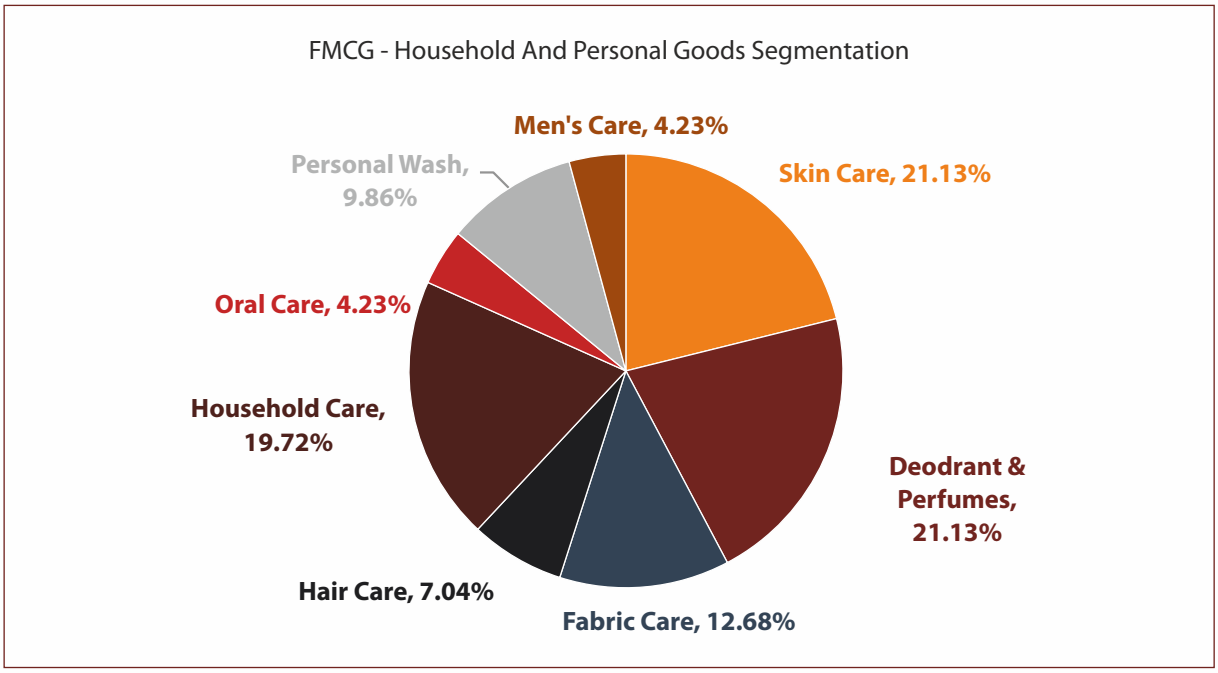
The FMCG sector in India employs nearly 30 lakh people, which accounts for approximately 5 percent of the total factory employment.[152] Increasing income levels and urbanization, growth of organized and modern retail, changing consumer preferences, and changing lifestyles of Indian consumers are driving growth in this sector. It has historically grown at 1.2 times the nominal GDP and has the potential to grow at 1.4 times.[153]

The household and personal goods, a key segment of the FMCG sector comprise of both essential and non-essential commodities for daily use. The industry includes products such as personal wash (soaps etc.), hair care (shampoo, hair oils, etc.), fabric care (detergents soaps, powders, etc.), oral care (toothpaste), men's care (shaving products, etc.), cosmetics (skincare products such cream and lotion), deodorants and perfumes, and household care products (such as surface and dishwashing cleaners).

Three product groups - skincare, deodorants and perfumes, and household care - together account for more than 60 percent of the household and personal goods sector, by value. Following the Covid-19 outbreak, the demand for hygiene products is rapidly emerging in the personal and household segment and demand for such products has jumped three times.

[152] India FMCG Market 2020, TechSci Research and Assocham

[153] Winning With the Indian Consumer, 2017, Bain & Company and CII



Source: TARI research based on Annual Survey of Industries, 2017-18

7.2 FMCG - Household and Personal Goods: Regulatory and Policy Landscape

The Government's policy decisions have been contributing to the growth of the household and personal goods market. Allowing 100 percent FDI in single-brand retail[154] and 51 percent in multi-brand retail,[155] has led to a 195 percent increase in FDI inflow in this segment, from US$95 million in 2013 to US$281 million in 2017.[156]

The Ministry of Health and Family Welfare (MoHFW) mandates that all imported cosmetic items must have a compulsory registration certificate.[157] The Central Drugs Standard Control Organisation under the MoHFW is the licensing authority for mandatory registration of all imported cosmetics. Cosmetics in India are regulated under the Drugs and Cosmetics Act, 1940 and Drugs and Cosmetics Rules, 1945 and labelling declarations prescribed by the Bureau of Indian Standards (BIS). The rules prohibit the use of compounds like lead, arsenic and mercury compounds in cosmetics.

Household care products such as surface and fabric cleaners are also governed by the provisions of the Bureau of Indian Standards Act,1986 and rules made thereunder. Manufacturers or importers of such products must conform with the BIS standards on packing and marking, composition levels, odour and colour, cautionary labels and date of expiry etc. to ensure safe use.

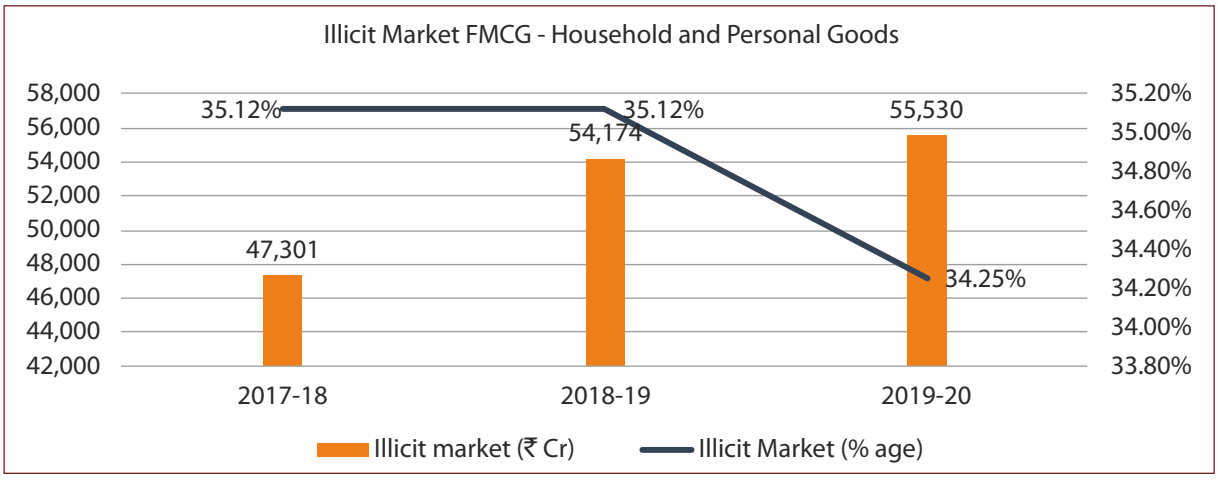
[154] https://pib.gov.in/newsite/PrintRelease.aspx?relid=192173
[155] https://pib.gov.in/newsite/PrintRelease.aspx?relid=191486
[156] IBEF Report, https://www.ibef.org/download/FMCG-January-2021.pdf
[157] Drugs and Cosmetic (4th amendment) rules, 2010

7.3 FMCG - Household and Personal Goods: Illicit Market and Trade

Illicit markets estimates of FMCG household and personal goods based on FICCI CASCADE's Illicit Market Report[158] 2022 show that it increased from ₹47,301 crores in 2017-18 to ₹55,530 crores in 2019-20.

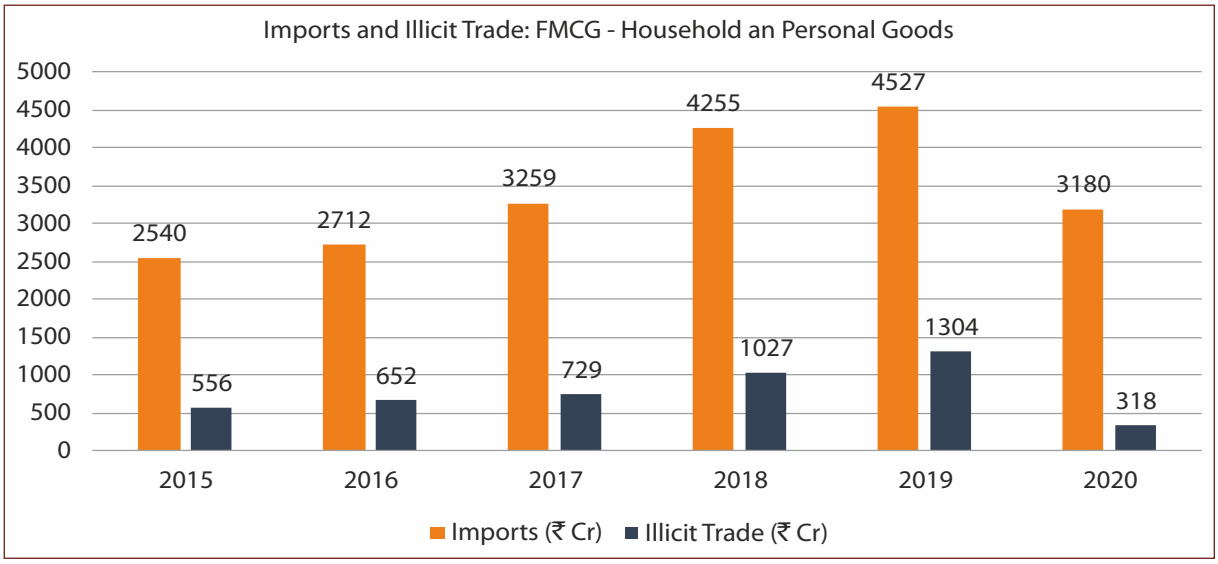
The industry has the highest illicit market percentages among key industries. However, the illicit market percentage declined to 34.25 percent in 2019-20 from 35.12 percent in 2017-18 and 2018-19. This decline may be attributed to the falling share of FMCG household and personal goods in the total PFCE basket of consumers.

High prices of branded and premium products are one of the main driving factors for illicit markets in this segment.[159] This leads to a huge disparity in prices of genuine and illicit products thus creating a market for cheap alternatives.



Source: TARI estimates

Imports of household and personal goods were increasing between 2015 to 2019 from ₹2500 to ₹4500 crores, but fell significantly in 2020 due to the impact of the Covid-19 pandemic. Imports are only about 2.8 percent of the total consumption of these goods (based on estimates of PFCE data).[160]



Source: TARI research and UN Comtrade

[158] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[159] FICCI CASCADE & TARI (2015), Illicit Markets- A Threat To Our National Interests, The FMCG-Household and Personal Goods Industry

[160] Please refer to FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

Based on our established methodology of mirror trade statistics, illicit trade in household and personal goods, similar to imports, increased continuously over the years, falling in 2020 (due to the impact of Covid-19). The percentage of illicit trade in relation to imports varies from 22 percent to 29 percent during the same period, with a median of 24 percent (2020 is an outlier year due to the Covid-19 pandemic). Apart from tariffs, illicit trade is fuelled by the regulatory landscape and presence of non-tariff measures that also increase the cost of legal trade, and present opportunities for illicit traders.

7.4 FMCG - Household and Personal Goods: Non-Tariff Measures and Indicators

FMCG - household and personal goods have 23 product categories (import tariff lines) at 6-digit HS code levels. Analysis of appliable NTMs shows that frequency ratio - 87 percent and coverage ratio- 79 percent in 2015 have increased to 100 percent in 2018 and thereafter. This indicates that the regulatory framework has become more stringent over time. Frequency and coverage ratios of 100 percent indicate that each tariff line is subject to one or more applicable NTMs.

Year	Tariff Lines #	Frequency Score	Coverage Ratio	Avg Import NTM Measures	Std Dev of Import NTM Measures	Min - Import NTM Measures	Max - Import NTM Measures
2015	23	87.0%	79.0%	8.96	3.66	0	14
2016	23	87.0%	78.7%	8.96	3.66	0	14
2017	23	87.0%	81.2%	8.96	3.66	0	14
2018	23	100.0%	100.0%	9.96	3.66	1	15
2019	23	100.0%	100.0%	9.96	3.66	1	15
2020	23	100.0%	100.0%	10.96	3.66	2	16

Source: TARI research

Table below shows prevalence score is applicable on import NTMs (at 3-digit NTMs classification) for each tariff line (6-digit HS code). Household and personal goods have over 23 product categories and therefore have a wide applicable NTM prevalence score ranging from a minimum of 2 to a maximum of 16. In 2020, 3307 (perfumes and deodorizers) had a minimum prevalence score of 2, while 330499(cosmetic and toilet preparations; n.e.c) had the highest prevalence score of 16. Due to significant divergence of min-max prevalence scores, the standard deviation is also high at 3.66. The average prevalence score of import NTMs was 8.96 in 2015 and increased to 10.96 in 2020.

Year	TBT (B)	Price & Quantity Control Measures (D+E+F)	Competition Measure (G+H+I+J+K+L+M)	Pre-ship Measure (C)	Total
2015	6.261	0.087	0.000	2.609	8.957
2016	6.261	0.087	0.000	2.609	8.957
2017	6.261	0.087	0.000	2.609	8.957
2018	6.261	1.087	0.000	2.609	9.957
2019	6.261	1.087	0.000	2.609	9.957
2020	6.261	1.087	1.000	2.609	10.957

Source: TARI research

Technical measures including TBT (6.261) and pre-shipment checks (2.609) have the highest prevalence score and contribution to the total prevalence score. However, their combined contribution has declined from 99 percent in 2015 to 81 percent in 2020. As these products are meant for daily use, TBT NTMs have a contribution of more than 50 percent, to ensure safe and controlled use and to take care of human health and maintain safety standards. Non-technical NTMs like price & quantity control measures (PQCM) and competition measures (CompM) have a minimal prevalence score and have slightly increased only after 2017.

7.5 FMCG - Household and Personal Goods: Illicit Trade Model

The empirical model for FMCG-household and personal goods based on our research approach is given below. Model does not include 2020 year data being an outlier year due to Covid -19 pandemic. The dependent variable for this regression model is illicit trade (₹ lakhs), which is estimated for each of the HS codes in the industry.[161] The household and personal goods illicit trade model is statistically significant with an F-value of 7.252. R -square indicates that independent variables are able to explain 21 percent of variations in illicit trade. Average industry illicit trade for model period from 2015-19 is ₹853.6 crores.

Illicit Trade (Lakhs)	Coeff	95% Confidence Interval		Rob Std Err	p-value
Import	0.185	0.073	0.297	0.056	0.001***
TBTC_L1	**-784.952**	**-1229.913**	**-339.991**	**224.458**	**0.001*** **
PQCM_L1	2344.837	-1924.949	6614.623	2153.865	0.279
GovEff	98.697	-1165.616	1363.009	637.774	0.877
RuleLaw	-218.687	-2076.515	1639.142	937.169	0.816
EODBT	-83.064	-488.277	322.149	204.407	0.685
Tariff	67.86	-797.64	933.36	436.60	0.877
Constant	17198.262	-47267.532	81664.055	32519.337	0.598
R - Squared		0.207	Number of observations		115
F- test		7.252	Prob>F		0
					Statistical significance: ****(1 percent), **(5 percent), *(10 percent)*

Source: TARI research

In our empirical, lagged technical measures TBTC_L1(including TBT and pre-shipment inspection checks) are statistically significant at 1 percent level. Keeping other variables constant, a one point increase in TBTC_L1 NTM prevalence score decreases illicit trade by ₹7.8 crores [-12 to -3.4].[162] Both tariffs and alternates to tariffs, PQCM NTMs have a positive, but statistically insignificant impact on illicit trade. This suggests that financial incentives are a primary motive to undertake illicit trade.

Implementation of GST affected the FMCG household and personal goods industry and illicit trade as it did other industries. Our research findings of t- statistics[163] indicate that in the post GST (2018-20)

[161] Please refer to Annexure 2 for HS code for key industries and methodology for estimating illicit trade
[162] 95 percent confidence interval
[163] t-test done only at 4-digit HS product code level

period, average price quantity control measures (PQCM), competition measures and average tariffs are significantly higher (statistically significant at a 5 percent level) compared to the pre GST (2015-17) period. Financial incentives for illicit trade have thus increased significantly after the implementation of GST through tariffs and alternate tariff measures.

Regulatory Framework and Illicit Trade: t statistics				
Variables	**2015-17**	**2018-20**	**t value**	**p value**
CompM	**0**	**0.334**	**-2.9**	**0.009***
PQCM	**0.089**	**1.089**	**-22.2**	**0***
TBT (B)	6.572	6.572	0	1
Pre-ship Check (C)	2.75	2.75	0	1
Tariff	**0.122**	**0.172**	**-3.35**	**0.002***
Import (Lakh)	47281.664	66456.194	-1.6	0.126
Illicit Trade (Lakh)	10758.259	14720.82	-0.8	0.434
*No. of observations: 36, * statistically significant @ 5 percent level*				

Source: TARI research

Overall, the findings of the household and personal goods illicit trade model suggest that policy makers should lay emphasis on technical barriers to trade to control illicit trade, when financial incentives have significantly increased in the period post-GST. This will ensure that household and personal goods are properly labelled, and provide adequate information about the product such that consumers can make informed decisions about their use.

8

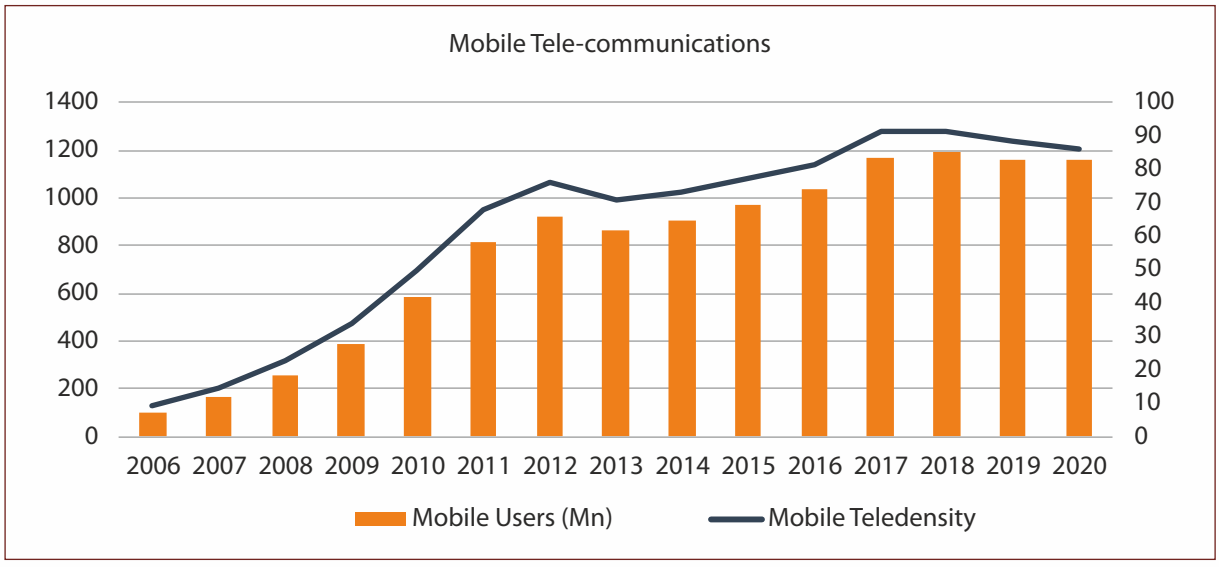
Mobile Phones

8

Mobile Phones

8.1 Mobile Phones: Industry Overview

India is the second-largest telecommunications market in the world after China with mobile telephony at the core at 98.28 percent of the total user base. By March 2020, India had 115.7 crore mobile users (with nearly 55 percent based at urban centres) and a tele-density of 86.68 percent. [164]



Source: Telecom Regulatory Authority of India (TRAI)

[164] Telecom Regulatory Authority of India (TRAI), Annual Report 2020-21 - footnote 135

Smartphones today, are essential for information access, communication and financial transactions. Mobile internet users have grown significantly in recent years, from 23.31 crores in 2014 to 72.02 crores in 2020 and are expected to reach 82.9 crores by 2022. Mobile data usage has also increased from 1.47 GB in 2016 to 12.33 GB in 2020 (per month per subscriber).[165] Availability of cheaper smartphones, affordable mobile data prices, the rise of mobile applications in regional languages and various government initiatives is pushing India towards a more digitally connected economy.[166]

Mobile telephony has also had a significant impact on efficiency and productivity of individuals, industry, services, and the government. An ICEA and KPMG report point out that digital transformation has the potential to create economic value of US$ 800 billion to US$ 1 trillion by 2025, giving rise to 6-6.5 crore jobs in the country, across various sectors.[167]

8.2 Mobile Phones: Regulatory and Policy Landscape

Domestic mobile phone manufacturing received a significant impetus and stood as a flagship sector under the government's "Make in India" initiative. India gradually built its mobile handsets manufacturing capability on the back of supportive policies like the Phased Manufacturing Programme (PMP) and Modified Special Incentive Package Scheme (M-SIPS). As a result, the sector is steadily moving from Semi Knocked down (SKD) to the Completely Knocked Down (CKD) level of manufacturing.

'Make in India' propelled the mobile manufacturing ecosystem in the country with over 250 manufacturing units of mobile phones and accessories creating almost 6.7 lakh direct and indirect jobs.[168] Consequently, some of the big global players like Samsung, Apple, Oppo, Vivo, and Xiaomi have either set up manufacturing facilities or have subcontracted manufacturing to Electronic Manufacturing Services (EMS) companies in India.

The industry is shifting from import substitution to large-scale manufacturing and exports. With focus on domestic manufacturing and curtail imports, the Government of India took several initiatives in 2018-19. The effects of some of the initiatives mentioned below are visible as India become a net mobile exporting country in 2019-20 :

i. Imposition of 20 percent basic customs duty (BCD) on mobile handsets to encourage domestic manufacturing; and

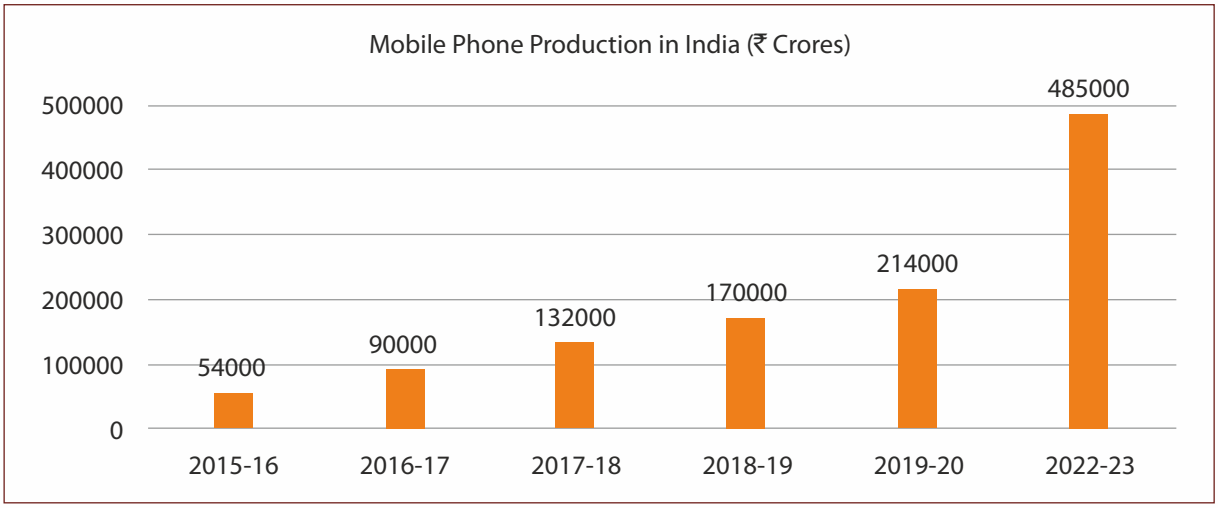
ii. Establishment and implementation of the Phased Manufacturing Programme (PMP) roadmap - imposition of BCD ranging from 10 - 20 percent on notified subassemblies of mobile handsets.

The National Policy on Electronics (NPE) 2019 lays even greater emphasis on propelling domestic manufacturing and making India a leading exporting country. The target of NPE 2019 is domestic

[165] Telecom Regulatory Authority of India (TRAI), Annual Report 2020-21
[166] Contribution of Smart Phones to Digital Governance in India - ICEA 2020
[167] Contribution of Smart Phones to Digital Governance in India - ICEA 2020
[168] MEITY Annual Reports, 2018-19

production of 1 billion mobile handsets valued at US$190 billion by 2025, of which 600 million handsets valued at US$100 billion could be exported. To attract large-scale investments, the Government of India started the Production Linked Incentive Scheme (PLI) on April 01, 2020. The scheme provides companies engaged in manufacturing of mobile phones and its components, with a financial incentive of 4 to 6 percent on incremental sales over a five year period.[169]

India is currently the second-largest mobile phone manufacturing nation globally in volume terms. Production of mobile phones has gone up from 6 crore units valued at ₹19,000 crores in 2014-15 to 33 crore units valued at ₹214,000 crores in 2019- 20.[170] According to ICEA, the value of mobile phone production is estimated to reach ₹485,000 crores by 2022-23, due to incentives and policy support.[171]



Source: MEITY Annual Reports, ICEA

Mobile phones are a specialised communication and information technology product and are included among the broader group of consumer electronics products. Therefore, the regulatory framework applicable to consumer electronics is also applicable to mobile phones.

The Ministry of Electronics and Information Technology (MEITY) latest notification - Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021 - makes it compulsory for the specified mobile phones to conform with prescribed standards and bear the "standard mark" under license from the Bureau of Indian Standards.[172] No person is allowed to import or manufacture or distribute any electronic items that do not conform to these standards. Similarly, the Legal Metrology (Packaged Commodities) Rules, 2011 require that goods must have certain declarations on their principal display panel like country of origin, product name, size, weight, quantity of the product, retail sale price etc.[173]

With regard to human safety and environmental concerns arising from the use of mobile phones, the Department of Telecommunications (DoT) has enforced one of the most stringent Electro

[169] MEITY Annual report 2020-21

[170] MEITY Annual Reports, 2017-18, 2018-19, 2019-20

[171] MEITY Annual report 2020-21, ICEA

[172] Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2021

[173] The Legal Metrology Act (Packaged Commodities rule) 2011 https://consumeraffairs.nic.in/sites/default/files/uploads/legal-metrology-acts-rules/8.pdf

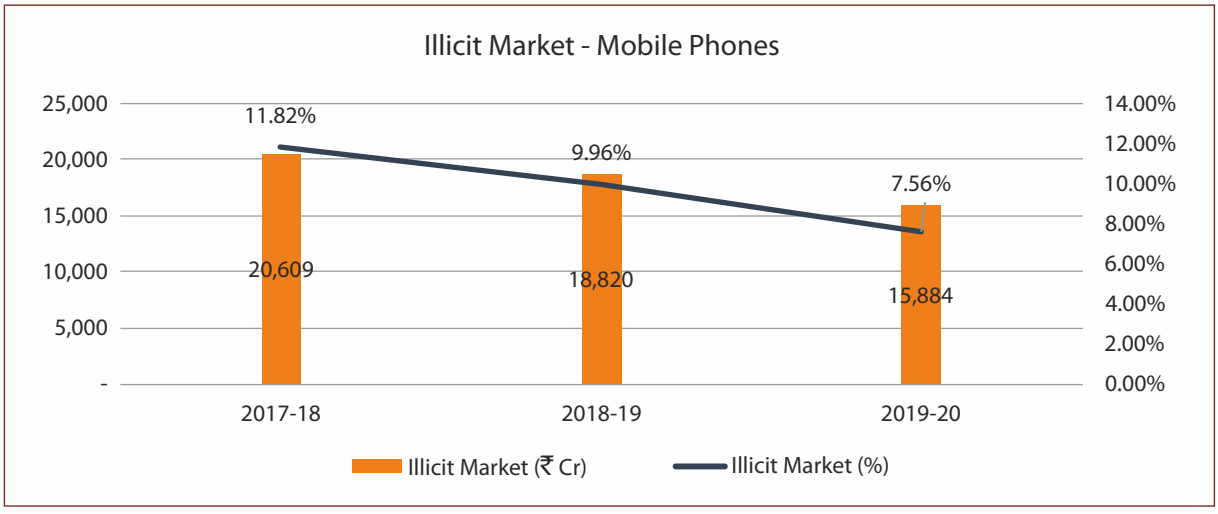
Magnetic Field (EMF) exposure norms prescribing Specific Absorption Rate (SAR) safe exposure limits for mobile handsets, based on the recommendations of the International Commission on Non-Ionizing Radiation Protection (ICNIRP). All mobile phones in India must comply with the SAR value of 1.6 watts/kg averaged over 1 gram of human tissue, and display the information on mobile handsets.[174] Environmental concerns are covered by the norms prescribed under the E-waste Management Rules, 2016 of the Ministry of Environment, Forest and Climate Change (MoEFCC). They include norms for the effective use, monitoring and disposal of hazardous substances used in mobile phones that cause pollution.

The Prevention of Tampering of the Mobile Device Equipment Identification Number (Amendment) Rules, 2022 makes it mandatory for all mobile phones to have a valid international mobile equipment identity (IMEI) number.[175] For safety purposes, mobile phones without IMEI numbers cannot be imported or sold in the country.

8.3 Mobile Phones: Illicit Market and Trade

The European Union Intellectual Property Office (EU IPO) reports that in 2015, globally 184 million counterfeit smartphones were sold resulting in a loss of €45.3 billion or 12.9 percent of the total sales, while for the EU the figures stood at €4.2 billion or 8.3 percent of sales.[176]

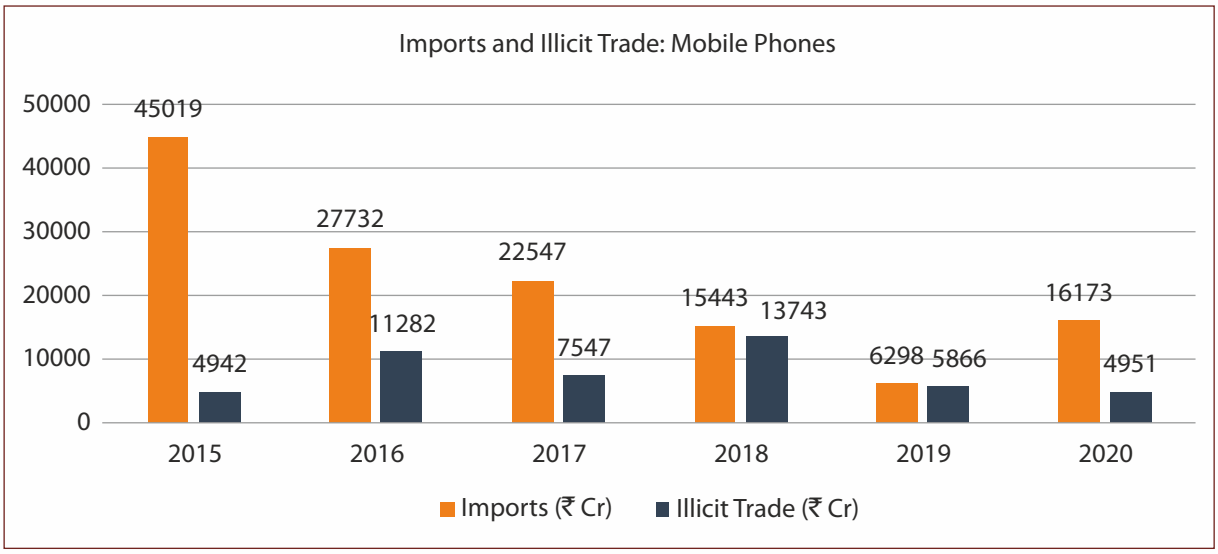
The illicit market estimates of mobile phones based on FICCI CASCADE's Illicit Market Report[177] 2022 show that it is gradually coming down, from 11.82 percent in 2017-18 to 7.56 percent in 2019-20. This reduction can be attributed to policy emphasis and incentives for domestic manufacturing with the objective of reducing dependence on imports. This is apparent from domestic mobile manufacturing accounting for 96 percent (in value terms) of the market in 2019-20.[178]



Source: Illicit Markets: A Threat to Our National Interests (2022)

[174] Department of Telecommunications, Government of India
[175] The prevention of tampering of the Mobile Device Equipment Identification Number (Amendment) Rules, 2022
[176] EU IPO (2017), The Economic Cost of IPR Infringement in the Smartphones Sector, February 2017
[177] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests
[178] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

With the increase in domestic manufacturing, reliance on imports to meet domestic demand for mobile phones has significantly come down. Imports decreased from ₹45,000 crores in 2015 to ₹6,300 crores in 2019. However, it rose in 2020 due to domestic supply chain constraints amid the Covid-19 pandemic.



Source: TARI research

Based on our methodology, illicit trade in mobile phones was fluctuating till 2018 and thereafter falling in absolute terms. Illicit trade in mobile phones was ₹13,743 crores in 2018 and ₹5,866 crores in 2019 almost at par with import levels in the same year. One of the main reasons for the increase in illicit trade of mobile phones is increase in the basic customs duty (BCD) from 15 percent to 20 percent in January 2018. Further, in April 2018 a BCD of 10 percent was imposed on printed circuit boards (PCBs)and other key components of smartphones in a bid to boost domestic production and restrict Chinese imports. Thus, providing illicit traders with the financial incentives to engage in unscrupulous activities.

8.4 Mobile Phones: Non-Tariff Measures and Indicators

Mobile phones have three import tariff lines (6-digit HS codes level). Analysis of applicable NTMs highlights 100 percent frequency and coverage ratio for all the years from 2015-2020. This means that each tariff line is subject to some type of NTMs.

Year	Import Tariff Lines #	Frequency Score	Coverage Ratio	Avg Import NTM Measures	Std Dev of Import NTM Measures	Min - Import NTM Measures	Max - Import NTM Measures
2015	3	100.0%	100.0%	19.00	0.00	19	19
2016	3	100.0%	100.0%	19.00	0.00	19	19
2017	3	100.0%	100.0%	19.00	0.00	19	19
2018	3	100.0%	100.0%	19.00	0.00	19	19
2019	3	100.0%	100.0%	20.00	0.00	20	20
2020	3	100.0%	100.0%	22.00	0.00	22	22

Source: TARI research

The table below shows average frequency distribution of the NTMs applied on Mobile phones. Technical measures including TBT (B)and pre-shipment inspection (C) have the highest prevalence and contribution in the total prevalence score. Technical TBT norms such as labelling requirements (B31), packaging requirements (B33), production or post-production requirements (B43, B49), product quality or performance requirements (B7) and conformity assessment related to TBT (B82, B83 and B84) measures are appliable to mobile phones. However, the contribution of technical NTMs has come down from 63.2 percent in 2015 to 54.5 percent in 2020 as other NTMs have increased over the years.

Year	TBT (B)	Price & Quantity Control Meas (D+E+F)	Competition Meas (G+H+I+J+K+L+M)	Pre-ship Check (C)	Total
2015	9	4	3	3	19
2016	9	4	3	3	19
2017	9	4	3	3	19
2018	9	4	3	3	19
2019	9	5	3	3	20
2020	9	6	4	3	22

Source: TARI research

Non-technical NTM like price and quantity controls measures (PQCM) and competition measures (CompM) also have significant prevalence score and increased after 2018 as a means to protect domestic markets.

8.5 Mobile Phones: Illicit Trade Model

The empirical model for mobile phones based on our research approach is given below. Model does not include 2020 year data being an outlier year due to Covid -19 pandemic. The dependent variable for this regression model is illicit trade (₹ lakhs), which is estimated for each of the HS codes in the industry.[179] Overall, the mobile phones illicit trade model is statistically significant with a F value of 5.305. Independent variables are able to explain 74 percent of the variations in illicit trade as indicated by R -square. Average industry illicit trade for model period from 2015-19 is ₹8,678 crores.

Illicit Trade (Lakhs)	Coeff	95% Confidence Interval		Rob Std Err	p value
Import	0.168	-0.073	0.41	0.094	0.133
All_NTMS_L1	-313508.69	-1067071.8	440054.48	293148.9	0.334
RuleLaw	-45816.771	-303340.72	211707.17	100181.2	0.667
Tariff	**37679.56**	**-2357.73**	**77716.84**	**15575.18**	**0.06***
Constant	8535767	-17106866	34178400	9975420	0.431
R - Squared		0.742	Number of observations		10
F- test		5.305	Prob>F		0.048
		*Statistical significance: ***(1 percent), **(5 percent), *(10 percent)*			

Source: TARI research

[179] Please refer to Annexure 2 for HS code for key industries and methodology for estimating illicit trade

Tariffs are statistically significant at a 10 percent level of significance and a one percent increase in tariffs can increase illicit trade by ₹376.79 crores [-23.57 to 777.16][180]. Product mis-classification is a key means of evading tariffs and taxes on mobile phones. In July 2022, the Directorate of Revenue Intelligence (DRI) issued a notice to Oppo for mis-classifying items and disclosing them incorrectly, while evading custom tariffs to the extent ₹4,389 crores.[181] The NTMs and rule of law have a negative impact on illicit trade, however, they are statistically insignificant.

Overall, the findings of the mobile phones illicit trade model suggest tariff evasion is the main motive for illicit trade as they increased significantly, particularly from 2018. The NTMs do not affect illicit trade as they have more or less remained constant and imported/illicit mobile phones easily conform with these technical NTM standards. Though rule of law and competition measures are not statistically significant, they can be effective in dealing with illicit trade in mobile phones.

[180] 95 percent confidence interval

[181] https://www.livemint.com/industry/manufacturing/centre-clears-air-on-customs-duty-on-mobile-phone-displays-11660922593062.html

9

Tobacco Products

9

Tobacco Products

9.1 Tobacco Products: Brief Overview

Tobacco is an important high-value commercial crop. Its socio-economic benefits include agricultural employment and farm incomes. The total economic value of tobacco was approximately ₹1.43 lakh crores in 2016-17.[182] Tobacco related economic activities are estimated to provide a livelihood to over 4.57 crore people viz farmers, farm labour, traders, manufacturers, distributors, retailers and tendu leaf workers.[183]

The tobacco industry contributed, an estimated ₹46,154 crores as taxes, a significant 2.7 percent of the total gross tax revenue of the Government in 2016-17.[184] India is the second-largest exporter of tobacco after Brazil, contributing nearly ₹6,000 crores to foreign exchange earnings. The country accounts for 6 percent by volume and 0.7 percent by value, of the world tobacco trade.[185]

The tobacco industry in India is divided into three distinct sectors: bidis (smoking products hand-rolled in tendu leaves), smokeless tobacco (mainly chewing tobacco), and cigarettes.[186] Production of beedi and other forms of tobacco SLT (smokeless tobacco) largely takes place in the unorganized sector[187] while the legal cigarette industry in the organized sector is regulated.

[182] TARI and ASSOCHAM Report, 2019: Economic Value of the Tobacco Sector in India

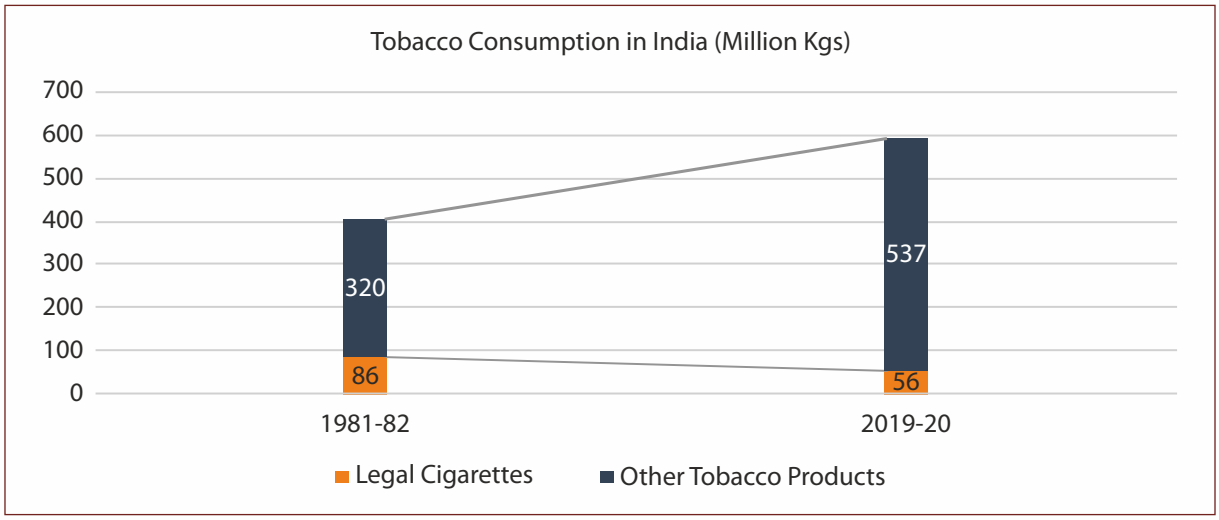
[183] Condition of Tobacco Growing Farmers, Rajya Sabha Unstarred Question No. 1799, December 28, 2018, Answered by Shri Gajendrra Singh Shekhwat, MoS in MOA&FW

[184] TARI and ASSOCHAM (2019). Report -Economic Value of the Tobacco Sector in India, 2019.

[185] Tobacco Board Exports Data

[186] Tobacco Industry Profile - India, available at, http://global.tobaccofreekids.org/files/pdfs/en/TI_Profile_%20India_Final.pdf

[187] Mohan, P., Lando, H. A., & Panneer, S. (2018). Assessment of Tobacco Consumption and Control in India. Indian Journal of Clinical Medicine. https://doi.org/10.1177/1179916118759289



Source: USDA, Tobacco Board; Parliament Committee Report, August 2020

India is the second-largest consumer of tobacco with 266.8 million adults or 28.6 percent of the population in 2016-17 using it in any form.[188] Unlike the rest of the world where cigarettes represent 90 percent of tobacco consumption, legal cigarettes account for only 10 percent of overall tobacco consumption in India, falling from 21 percent in 1981-82. The remaining consumption is represented by products like chewing tobacco, bidis, gutkha, etc., and illegal cigarettes.[189]

9.2 Tobacco Products: Regulatory Landscape

Tobacco products in India are regulated under the Cigarettes and Other Tobacco Products Act, 2003 (COTPA 2003) under the Ministry of Health & Family Welfare (MoHFW). The Act prohibits advertising of tobacco products, and regulates trade and commerce in production, supply and distribution of cigarettes and other tobacco products. It discourages the consumption of tobacco products to protect the public from the health hazards attributable to its use. Public health is a state subject; thus it is the primary responsibility of state governments to enforce the Act.

Section 6 of the COTPA, 2003 and the rules made thereunder mandate the prohibition of smoking in public places, bans the sale of tobacco products to and by minors below 18 years of age and prohibits the sale of tobacco products within a 100 yard radius of any educational institution, whether public or private.

Revised guidelines developed for Tobacco Free Educational Institutions (ToFEI) to implement Section-6 of COTPA, 2003 issued in 2019. The MoHFW in 2017 issued an advisory to states/UTs to introduce vendor licensing for the sale of tobacco products.

The COTPA 2003, prohibits direct and indirect advertising of tobacco products. With effect from 1st September, 2018, it is mandatory to display specific health warnings on 85% of the principal display area of tobacco product packs. The Cigarettes and Other Tobacco Products (Packaging and

[188] TGATS India, GATS 1- 2009-10 Survey and GATS 2- 2016-17 Survey
[189] Tobacco in India- Importance & Policy Challenges, Tobacco Institute of India

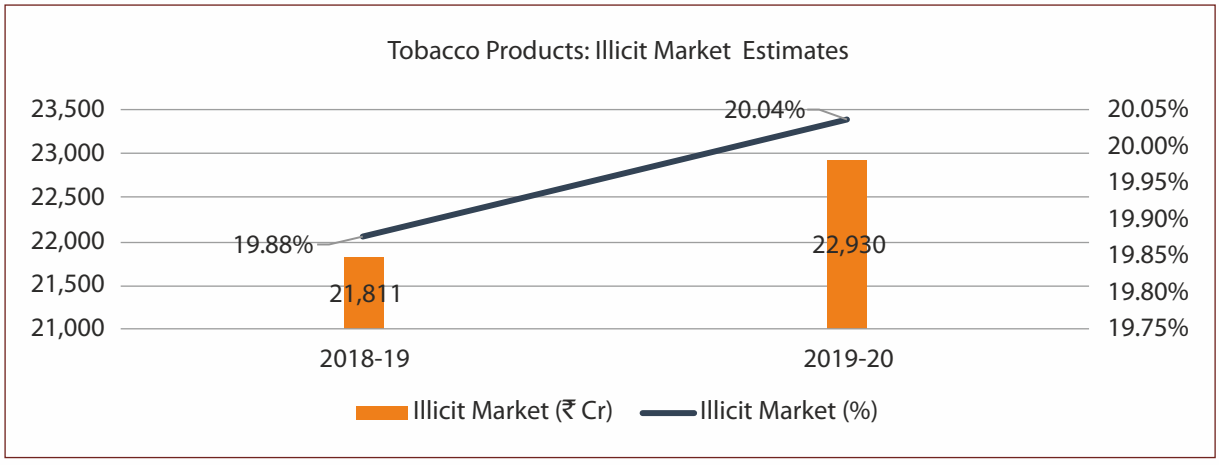
Labelling) Third Amendment Rules, 2020 notified a new set of images to be displayed on all tobacco product packs with effect from 1st December, 2020.

The Prohibition of Electronic Cigarettes (Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement) Act, 2019 notified on 5th December 2019, prohibits electronic-cigarettes and like devices, to reduce the harmful impact of e-cigarettes. The FSSA Regulations, 2011 prohibit the use of tobacco and nicotine as ingredients in food products.

9.3 Tobacco Products: Illicit Market

Illicit market estimates of tobacco products based on FICCI CASCADE's Illicit Market Report[190] 2022 shows that it has increased from ₹21,811 crores in 2018-19 to ₹22,930 crores in 2019-20. The illicit market percentage has also increased from 19.88 percent in 2018-19 to 20.04 percent in 2019-20. While both supply and consumption of tobacco products are increasing, the gap between legitimate production and illicit markets is also increasing.

Global consensus and estimates suggest that illicit cigarette consumption is 600 billion sticks or 10 percent of the total cigarette consumption.[191] According to Euromonitor International, India is now the 4th largest illegal cigarette market in the world, contributing more than 1/4th of the total market.[192]



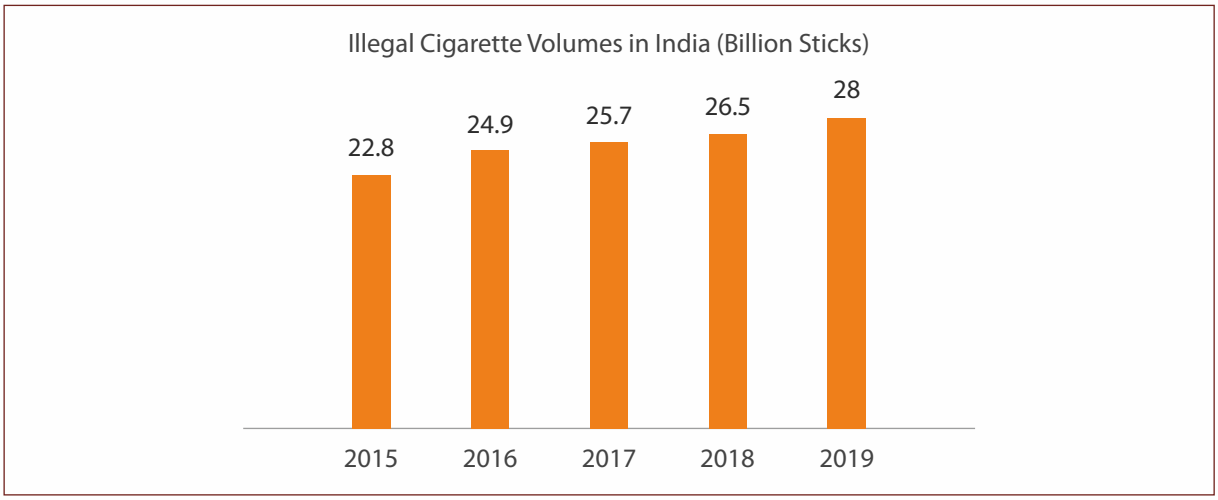
Source: Illicit Markets: A Threat to Our National Interests (2022)

The legal cigarettes industry has been bearing the brunt of the flourishing illicit market, with the consumption of legal cigarettes witnessing a drop in volumes. The illicit market for tobacco products on the other hand has been steadily increasing and reached 28 billion sticks in 2019-20.

[190] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

[191] S Dutta (2019), Confronting Illicit Tobacco Trade: A Global Review of Country Experiences, Technical Report of the World Bank Group Global Tobacco Control Program

[192] Refer to Tobacco Institute of India, Tobacco Fact Sheet India: January 2109



Source: Euromonitor International, 2020

Consumers gravitate towards cheaper alternatives or illicit supplies, which are normally smuggled or tax evaded goods, when taxes on a product are raised beyond a certain optimum level.

9.4 Tobacco Products (Cigarettes): Illicit Trade

Globally, illicit cigarette trade or smuggling is considered a low-risk, high-reward criminal activity as it is a high value product that can be hidden in small containers. Traffickers can make millions with little risk of detection or harsh punishments.

According to estimates, the illegal trade of cigarettes results in an annual tax loss of US$40-50 billion worldwide.[193] As per the Australia Crime Commission,[194] in 2011-12 the Australian Customs and Border Protection Service detected and seized 46 sea cargo importations of illegal tobacco, comprising a combined 175 tonnes of tobacco and 122 million cigarettes with duty evaded on these estimated at AU$128 million. A 2019 UK government report,[195] estimated the illicit cigarette market at 9 percent with a total tax revenue loss of £1 billion in 2017-18.

Studies[196] show that illicit trade in cigarettes also results from stringent regulations and a lack of control on the manufacture and movement of cigarettes and other tobacco products across international borders. Criminal organizations with sophisticated systems for distributing smuggled tobacco products engage in such trade and it is more common in low income countries than in high income ones.

9.4.1 Estimates of Illicit Trade based on Mirror Trade Statistics

Imports of cigarettes have remained the same between 2015 and 2020, with average imports at approximately ₹132 crores per annum. This is only a fraction of the total consumption in India

[193] Patrick Petit and Janos Nagy. How to design and enforce tobacco excises? International Monetary Fund 2016.

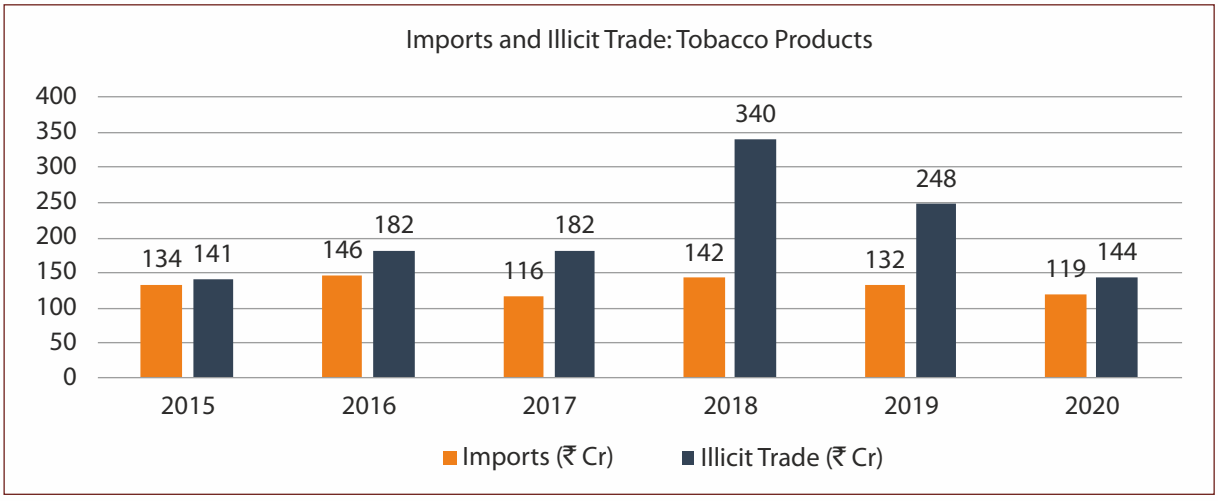
[194] Organised Crime in Australia, 2013, an assessment by the Australian Crime Commission

[195] Measuring tax gaps 2019 edition, Tax gap estimates for 2017-18, HM Revenue & Customs, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820979/Measuring_tax_gaps_2019_edition.pdf.

[196] Joossens L, Merriman D, Ross H, & M. Raw (2010). The impact of eliminating the global illicit cigarette trade on health revenue. Addiction, 105, 1640-95

which suggests that much of the trade is happening through illicit means to avoid high customs duties and earn huge profits. Estimates of illicit trade based on mirror trade statistics confirm this. Average illicit trade between 2015 and 2020 was ₹206 crores i.e., 157 percent of imports.

High taxes and duties provide smugglers an opportunity to earn huge profits by engaging in outright smuggling where illegal movement takes place through clandestine channels to avoid duties and taxes at the official ports of entry. Further, seizures of smuggled cigarettes have shown that outright cigarette smuggling is taking place in large containers through legal channels of trade by mis-declaring cigarettes as scrap iron and steel, toys or waste papers, which attracts very little or no customs duty.



Source: TARI research

Smuggling of cigarettes through legal channels though is very small compared to the large illegal market or total consumption in India. This suggests that outright smuggling is quite pervasive, and fills the gap between consumption, and production by licensed manufacturers. This is further established by the value of seizures of cigarettes. Seized cigarettes amounted to ₹130.1 crores which is very close to the estimated illicit trade value of ₹180 crores based on mirror trade statistics of 2016.

The low imports into India and mirror statistics estimates do not justify the levels of cigarette smuggling in India. Any estimates based on such data may not reflect the true picture and may lead to fallacious conclusions. Therefore, other corroborative methodologies are needed.

9.4.2 Estimates for Illicit Trade based on Consumption

Based on existing literature, this study determined the extent of smuggling based on the consumption of illicit and legal cigarettes in the country.

Global studies suggest that during the last decade smuggled cigarettes have ranged anywhere between 3 percent and 8.5 percent of total cigarette consumption.[197] However, these studies are at least a decade old, as, consumption patterns of legal and illicit/ smuggled cigarettes have changed considerably due to significant increases in taxes, particularly in the Indian context.

[197] TARI and FICCI CASCADE (2019), Invisible Enemy: A Threat to our National Interests, please refer detailed review

India has over the years improved its surveillance and border patrol efforts and seizure amounts have been increasing. However, the ratio of seizures to smuggled cigarettes varies from 0.3 percent in 2013 to 1.8 percent in 2015,[198] which is much lower than global levels. An OECD report on illicit trade finds that in the European Union in 2011, the average seizure rate was close to 10 percent.[199]

In line with global estimates, considering the growing proportion of illicit cigarettes in total cigarette consumption in India, along with weak enforcement infrastructure and vast porous borders, this study assumes that the percentage of smuggled cigarettes to total consumption in the period 2015-20, was in the range 8 -13 percent. The total volume of smuggled cigarettes and their respective values are estimated based on the given methodology. Results show that even though the output of the industry is declining, the smuggling of cigarettes is increasing because of increased consumption of illegal and smuggled cigarettes.

Year	Cigarette Valuation (₹ Crore/Mn Sticks)	Total Cigarette Consumption (Bn Sticks)	Smuggled Cigarettes (Mn Sticks)	Illicit Trade Cigarettes (₹ Cr)
15-16	0.817	109.9	8792.0	7183
16-17	0.811	105.9	9531.0	7730
17-18	0.805	108.7	10870.0	8750
18-19	0.807	109.0	11985.6	9669
19-20	0.810	115.0	13804.8	11181
20-21	0.808	101.9	13248.8	10707

Source: TARI research

Illicit tobacco products have increased from ₹21,811crores in 2018-19 to ₹22,930 crores in 2019-20. The illicit market percentage also increased from 19.88 percent in 2018-19 to 20.04 percent in 2019-20.[1] Smuggling or illicit trade contributes nearly 47 percent of the total tobacco products illicit market in 2019-20.

[1] FICICI CASCADE and TARI Report (2022), Illicit Markets: A Threat to Our National Interests

The unit price or value of smuggled cigarettes is derived from the implicit rate declared by the government in relation to the cigarettes seized (shown in the table below).

Year	Seizure Volume (Mn Sticks)	Seizure Value (₹ Cr)	Ratio of value to Volume (₹ Cr/ Mn Sticks)
2014-15	114.3	90.75	0.794
2015-16	198.3	162	0.817
2016-17	160.47	130.13	0.811
2017-18	42.6	34.29	0.805
2018-19			0.807*
2019-20			0.810*
2020-21			0.808*

Source: Lok Sabha answers on July 24, 2015, CBEC, * forecasted moving average (4)

[198] PTARI and FICCI CASCADE (2015), Invisible Enemy: A Threat to our National Interests

[199] OECD (2016), Illicit Trade: Converging Criminal Networks, OECD Reviews of Risk Management Policies, OECD Publishing, Paris

In the year 2019-20, based on ASI and other data cigarette consumption constitute nearly two-thirds of tobacco consumption (excluding bidi). Tobacco consumption(excluding bidi) for this year is estimated at ? 89,427 crores and the amount attributable to cigarette consumption in gross value is ₹56,000 crores.

Illicit markets for tobacco for 2019-20 based on our 2022 study, Illicit Markets: A Threat to Our National Interests is estimated at ₹ 22,930 crores and if such markets are apportioned based on consumption value, the illicit cigarette market, comprising of both domestic counterfeiting, tax evaded and other forms along with smuggled products is estimated at ₹15,133 crores.

The current study estimates illicit trade i.e. mainly smuggling of cigarettes based on seizure and other data at ₹11,181 crores which is about two-thirds of the total value of the illicit cigarette market in India. Cigarettes after GST is taxed on a composite basis of 58.14 percent and the Tobacco Institute of India estimates that cigarette contributes 80 percent of taxes to the government from tobacco products making it one of the most taxed commodity in India, which in turn fuels illicit markets and trade.

9.5 Tobacco Products: Non-Tariff Measures and Indicators

Tobacco products (cigarettes) have only two tariff lines (6-digit HS code level). Analysis of applicable NTM shows that the frequency and coverage ratio is 100 percent for all the years from 2015-2020. This means each tariff line in tobacco products is subject to some type of NTMs.

Year	Import Tariff Lines #	Frequency Score	Coverage Ratio	Avg Import NTM Measures	Std Dev of Import NTM Measures	Min - Import NTM Measures	Max - Import NTM Measures
2015	2	100.0%	100.0%	5.00	0.00	5	5
2016	2	100.0%	100.0%	5.00	0.00	5	5
2017	2	100.0%	100.0%	6.00	0.00	6	6
2018	2	100.0%	100.0%	8.00	0.00	8	8
2019	2	100.0%	100.0%	8.00	0.00	8	8
2020	2	100.0%	100.0%	8.00	0.00	8	8

Source: TARI research

The table below shows the average frequency distribution of the applicable NTMs. Technical TBT norms such as labelling requirement(B31), restricted use of certain substances (B22), and distribution and location of products after delivery (B85) apply to tobacco products. However, the contribution of technical NTMs has come down from 63.2 percent in 2015 to 54.5 percent in 2020 as other NTMs have increased over the years. Prevalence score and contribution of the PQCM NTMs have increased after 2016.

Year	TBT (B)	Price & Quantity Control Measures (D+E+F)	Competition Measure (G+H+I+J+K+L+M)	Others (C)	Total
2015	3.000	2.000	0.000	0.000	5.000
2016	3.000	2.000	0.000	0.000	5.000
2017	3.000	3.000	0.000	0.000	6.000
2018	4.000	4.000	0.000	0.000	8.000
2019	4.000	4.000	0.000	0.000	8.000
2020	4.000	4.000	0.000	0.000	8.000

Source: TARI research

9.6 Tobacco Products: Illicit Trade Model

The empirical model for tobacco products based on our research approach is given below. The dependent variable for this regression model is illicit trade (₹ lakhs). We excluded tariffs from our independent variables as it was highly correlated with NTM variables. Overall, the tobacco products illicit trade model is statistically significant with an F value of 86.5. Independent variables are able to explain 98.7 percent of variations in illicit trade as indicated by R -square. Average industry illicit trade for model period from 2015-20 is ₹9,203 crores.

Illicit Trade (Lakhs)	Coeff	95% Confidence Interval		Rob Std Err	p-value
All_NTM	**81572.192**	**54594.356**	**108550.03**	**6270.047**	**0.006*****
RuleLaw	**-28352.199**	**-51237.731**	**-5466.666**	**5318.936**	**0.033****
EODBT	1697.868	-5561.962	8957.698	1687.292	0.42
Constant	1788566.9	452026.32	3125107.5	310631.76	0.029**
R - Squared		0.987	Number of observations		6
F- test		86.449	Prob>F		0.011
					*Statistical significance: ***(1 percent), **(5 percent), *(10 percent)*

Source: TARI Research

The findings of our model highlight that All_NTM, (including PQCM and TBT measures) are statistically significant at a 1 percent level. A one-point increase in the All_NTM prevalence score increases illicit trade by ₹816 crores [546 to 1085].[200] These findings are in line with the increase in NTMs from 2018 following implementation of GST and also the implementation of pictorial warnings on cigarette packets. Cigarettes smuggled through illegal channels do not bear the brunt of heavy taxes and the labelling and packaging requirements.

Rule of law can be effective in reducing illicit trade in cigarettes as the RuleLaw variable has a statistically significant and negative impact on the illicit trade. Overall, the findings of the tobacco products illicit trade model suggest that tariff evasion and stringent non-tariff measures are the main motives for the increase of illicit trade.

[200] 95 percent confidence interval

10

Conclusions and Way Forward

10

Conclusions and Way Forward

The importance of international trade cannot be overemphasised. In this regard, globalization has been a key driver and engine of economic growth. Paradoxically, the increase in trade has also offered opportunities for criminal organizations to engage in illicit trade activities.

Illicit trade is a global phenomenon affecting nearly all countries in the world. Significant illicit flows takes place within the international commercial trade system causing substantial revenue loss to Governments. Given the humongous increase in international trade, this poses a considerable challenge to enforcement agencies across the world. It is among the main factors holding up the growth of legitimate manufacturing, harming economies in multidimensional ways.

Illicit markets/ trade, being a secretive, hidden and an inherently risky activity, is driven by several factors. Tariffs that provide significant financial incentives for illicit trade, and NTMs that have gained prominence in recent years also significantly raise trade costs. Researchers find that even though tariffs have generally fallen between 1997 and 2015, rise in applied NTMs highlight paradigm shift to regulatory measures to protect domestic markets.[201]

This study has considered and analysed various factors in the Indian context, particularly NTMs, and developed empirical models to assess how they impact illicit trade. Based on the empirical findings of the research models and our overall analysis of non-tariff measures, we discuss the possible way forward for India to tackle the problem and make recommendations for policy consideration.

[201] Niu Z, Liu C, Gunnessee S and Milner C (2017). Non-tariff and overall protection: evidence from across countries and over time. GEP series paper 2017/08.

10.1 Reducing Import Dependency

The consumption of illicitly traded goods is largely driven by demand-supply gaps. The domestic ecosystem is not able to bridge this gap due to factors like high prices and inadequate manufacturing, which results in greater dependence on imports. Increasing import dependence creates an opportunity for illicit traders to smuggle goods by circumventing legal channels and providing the same goods at relatively lower prices.

Our descriptive analysis of imports and illicit trade shows that both go together and have a significant correlation. For example, in case of the alcoholic beverages when imports increased from ₹1,828 crores in 2015 to ₹2,713 crores in 2020, illicit trade also increased from ₹873 crores to ₹2,666 crores during the same period. Overall, the correlation between import and illicit trade is statistically significant at a 5 percent significance level. Our empirical findings corroborate this. Imports are endogenous to illicit trade, and have a positive and statistically significant impact on illicit trade at a 1 percent level.

Import dependency should be seen as a policy measure to reduce illicit trade. In the case of mobile manufacturing for instance, a strong policy emphasis and incentives for domestic manufacturing reduced import dependence and also led to a decrease in illicit trade. Illicit trade in mobile phones fell from ₹11,282 crores in 2016 to ₹5,866 crores in 2019 while imports fell from ₹27,732 crores to ₹6,298 crores during the same period.

Reducing import dependency by strengthening domestic manufacturing and making it globally competitive and building a self-reliant ecosystem as envisioned by the Government can go a long way in curbing illicit trade.

10.2 Rationalising Tariffs

Tariff measures are a major reason for the flourishing illicit trade because it provides criminals with the opportunity to make enormous profits through evasion of the taxes and duties. Higher taxation and import duties on products like alcoholic beverages and tobacco products exacerbated the menace of illicit trade. An analysis of imports and illicit trade for these two industries shows that illicit trade is comparable to the levels of imports mainly due to financial incentives on account of significant tariffs. NTMs and other restrictions further increase financial costs and incentivise illicit traders.

Our analysis of imports and illicit trade of cigarettes suggests that outright smuggling is highly prevalent and nearly 100 times more than legal imports, leading to significant tariff revenue loss. In addition, overall illicit trade model finds that tariffs have a statistically significant and positive impact on illicit trade at 1 percent level.

Policy focus should therefore be on rationalising tariff measures to the extent that it is no longer profitable for criminals to smuggle illicit goods. More commodities should be brought under the legal purview of international trade so that they can be tracked systematically.

10.3 Nodal Agency for NTMs Data Collection

We have already mentioned how modern day trade is more affected by policy regulations rather than tariff regulations. Non-tariff measures (NTMs) are defined as policy measures, other than customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both. Our research also highlighted that NTMs significantly affect illicit trade.

NTMs applicable in India have been introduced through various laws, rules, orders and regulations. An analysis of NTMs by UNCTAD and ERIA[202] finds that there are a total of 4,618 NTMs covered in 479 regulations promulgated in India by 17 different ministries and institutions.

The database on NTMs provided by UNCTAD is not regularly updated and largely focuses on SPS and TBT NTMs. Considering the significant impact of NTMs on international and illicit trade, it is important to have a central repository of NTMs for all tariff lines. This may be undertaken by a nodal agency that can coordinate with various ministries and institutions, seeking changes in their regulatory framework and updating the applicable NTMs on given tariff lines from time to time. A comprehensive and updated NTM database can help in extensive research, benchmarking with international NTMs, developing strategies for international trade and identifying areas of improvement.

10.4 Cost-Benefit Analysis of Regulatory Interventions

Regulatory interventions are increasingly using NTMs designed to address a wide array of both trade related objectives, such as limiting trade with import quotas, export restrictions, etc., and non-trade, public policy objectives, such as product and food safety, environmental protection, or national security.[203]

[203] UNCTAD, G. (2013). Non-tariff measures to trade: economic and policy issues for developing countries. Developing Countries in International Trade Studies.

[202] UNTCAD and ERIA. (2020). Non-Tariff Measures in Australia, China, India, Japan, New Zealand and the Republic of Korea: Preliminary Findings

[203] UNCTAD, G. (2013). Non-tariff measures to trade: economic and policy issues for developing countries. Developing Countries in International Trade Studies.

The primary regulatory objectives of NTMs make them indispensable. They also play an important role in trade through greater transparency by reducing information asymmetry in the marketplace, mitigating risks in consumption, improving the sustainability of ecosystems, and inducing competition or decision to import/export.[204]

Regulatory interventions through altering NTMs have some impact on trade as well as on illicit trade, i.e. smuggling, as it directly affects the trade cost. Increase in NTMs can increase fixed costs (e.g. upgrade of practice codes and facilities, acquisition of certificates, conformity in marketing requirements), as well as variable costs (e.g. prolonged delivery time due to inspection and testing procedures at customs points, rejection of certain shipments).[205]

In this report, we analysed the causal effect of the NTM on illicit trade. We proposed that applied NTMs increases trade cost that creates an arbitrage which is exploited by unscrupulous elements. However, as shown in the table below, the direction and level of impact of illicit trade varies from one industry to other, indicating that NTMs can both impede and promote illicit trade.

Price and quantity control measures (PQCM) have positive impact, while competition measure (CompM) have negative impact on illicit trade in all the key industries. The direction and level of impact of technical NTMs including SPS, TBT and C varies within an industry and across the industries.

Impact of NTMs on Illicit Trade: Direction and Impact Level		
Industry	**Non-Tariff Measures**	**Impact on Illicit trade**
Alcoholic Beverages	SPS, TBT & C	Negative ***
	PQCM	Positive
	CompM	Negative
Consumer Electronics	CompM	Negative *
	PQCM & TBTC	Positive
FMCG -Packaged Foods	SPS	Negative *
	TBTC	Positive
	PQCM	Positive
	CompM	Negative
FMCG- Household and Personal Goods	TBTC	Negative ***
	PQCM	Positive
Mobile Phones	ALL NTMS (CompM, TBT,C, PQCM)	Negative
Tobacco Products	ALL NTMS (TBT & PQCM)	Positive ***
where, SPS stands for sanitary and phytosanitary measures, TBTC stands for technical barriers to trade & Pre Shipment Check, CompM stands for competition measures, PQCM stands for price and quantity control measure		Statistical Significance Level : *** p<.01, ** p<.05, * p<.1

Source: TARI research

[204] R, Singh, S. Sharma & D. Tandon (2018). Non Tariff Measures in Indian Context and the European Union. International Journal of Economics and Finance; 10 (9); doi:10.5539/ijef.v10n9p54

[205] Xiong, B., & Beghin, J. (2014). Disentangling demand-enhancing and trade-cost effects of maximum residue regulations. Economic Inquiry, 52(3), 1190-1203.

Different type of NTMs have different objectives and can have different impacts in a given context, illicit trade, in our case. Therefore, regulatory interventions should be taken achieve key policy objective. Further, a regular cost benefit analysis of all NTM's needs to be done to ascertain whether the NTM has achieved the purpose for which it was put in place. If benefits (for this study, reduction in illicit trade could be considered as benefit) are substantial and outweighs the cost, it may be worthwhile to continue interventions.

10.5 Harmonising Food NTMs with International Standards

Demographic transitions including a rising young workforce, a rising middle class and increasing disposable incomes especially among urban residents are some of the factors driving a paradigm shift towards packaged foods in India.

Import distribution, licensing provisions, onerous regulatory standards and the absence of uniform food safety standards create opportunities for criminals to engage in the illicit food trade, putting consumer lives at risk. NTMs strengthen consumer confidence in imported products as they need to abide by the highest safety standards and are safe for consumption.[206] For instance, alcoholic beverages and packaged foods are subject to various sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT measures) since they are meant for human consumption, and exposure to harmful ingredients and unhygienically processed products can put consumer health at risk.

The empirical findings of alcoholic beverages and food products suggest that NTMs such as SPS measures are statistically significant and have a negative impact on illicit trade. Stricter NTMs will thus act as an effective method for controlling illicit trade in these industries, sending a message that sub-standard products have no place in the Indian market.

India is experiencing a rise in health-conscious consumers that is driving this change. Therefore, policy makers must focus on harmonizing the safety standards of packaged foods. India is still highly dependent on imports of packaged foods due to the sheer size of the population, hence ensuring that standards are at par with international standards will ensure consumer safety and help to curb illicit trade. This will also minimize the risk of such regulations becoming barriers to trade. It will encourage new technology and tools to improve the safety, availability and quality of food, and bridge the information gap among consumers.[207] India's untapped export potential for food products will also be unlocked.

10.6 Enforcement and Rule of Law

Illicit trade thrives due to poor compliance and monitoring, and weak law enforcement. Higher levels of enforcement lead to lower tax evasion and hence better tax compliance. Thus, any delays in investigations only make the entire exercise worthless.

[206] https://www.oecd.org/trade/topics/non-tariff-measures/ - Non-Tariff measures -OECD

[207] The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS): https://www.fao.org/3/X3452E/x3452e06.htm#:~:text=It%20is%20noteworthy%20that%20the,standards%20becoming%20barriers%20to%20trade.

Direct financial costs like higher penalties have a significantly negative impact on the absolute amount of under-invoicing of imports, i.e., the risk of high penalties is a dis-incentive to importers to resort to under-invoicing and evade customs duties. Buehn and Eichler (2011) find that by increasing the level of fines to GDP by one percent, the share of under-invoiced imports reduces by 17 to 18 percent.[208]

India is ranked a low 51 on the Government Policy Parameter of the Global Illicit Trade Environment Index that measures the availability of policy and monitoring and prevention of illicit trade.[209] On the World Bank's Rule of Law indicator India has remained in the same position for the last few years. It is imperative to improve on this front to control illicit trade.

The empirical findings of all models show a negative relationship between rule of law and illicit trade and are statistically significant at a 5 precent significance level, particularly for tobacco products. Efficient implementation of laws i.e., an effective monitoring system, strict enforcement and stringent punishments, can thus curb illicit trade.

The Customs Department by virtue of their location at the point of entry and exit have a critical role to play in enforcing all the Tariff and Non-Tariff Measures. Given that the constant challenge of ensuring a balance between enforcement and facilitation it is important that their hands are strengthened both in terms of manpower and technology.

10.7 Capacity Building and Better Risk Management

Research shows that product mis-classification is one of the tools used to engage in illicit trade with the objective of reducing the cost of compliance with border NTMs.[210] In our empirical models for packaged foods and consumer electronics, which have a number of product categories (tariff lines), TBT measures have a positive impact on illicit trade even though it is statistically insignificant. In the case of mobile phones and related parts, a large fraud was recently detected where there was significant tariff evasion through product mis-classification.

Capacity building of customs officials, use of better risk management tools and leveraging technology are some of the tools to curb product mis-classification and prevent, detect and deter illicit trade.

Customs authorities can use advanced technologies, such as embedded sensors and actuator solutions in transport assets, cargo shipment data mining with risk analytics, next-generation surveillance cameras, x-ray technologies, and robotics to detect smuggling, thereby deterring the flow of illicit trade.[211] Induction of non-intrusive inspection technologies such as container scanners, X-Ray scanners, etc., needs to therefore be expedited. The Directorate of Logistics needs to be strengthened and the required expertise in technology, procurement, and contract management needs to be created and sustained.

[208] Buehn, A., & Eichler, S. (2011). Trade mis-invoicing: The dark side of world trade. World Economy, 34(8), 1263-1287.

[209] The Economist Intelligence Unit Limited (2018), The Global Illicit Trade Environment of 2018. Available at: https://www.tracit.org/global-illicit-trade-index.html

[210] Kee, H.L. and Nictia, A. (2022), Trade Fraud and Non-Tariffs Measures. Policy Research working paper ; no. WPS 10112 Washington, D.C. : World Bank Group.

[211] Basu, G. (2014). Combating illicit trade and transnational smuggling: key challenges for customs and border control agencies. World Customs Journal, 8(2), 16-25

The Risk Management Division (RMD) of the customs department needs to be strengthened to enable it to support the development of programmes and policies to handle trade. At the same time risk assessment needs improvement, to such levels of accuracy that legitimate traders are not affected, and illegitimate transactions are tracked down easily. A risk profile of target inspections may be developed, which should be based on the detailed analysis of the declaration patterns as well as the characteristics of the operators. High-risk economic activities should be identified, and regularly monitored with a sharper focus on the quality of investigations.

10.8 International Coordination and Cooperation

Illicit trade is organized crime that involves people across international boundaries. To effectively deal with this global menace, coordination and cooperation are required among governments of various countries. The Central Board of Indirect Taxes and Customs (CBIC) has cooperation and sharing of information arrangements with more than 25 customs administrations of various countries, apart from following the letter rogatory route in serious cases.

An international framework for cooperation among countries needs to be established for sharing information on the quantity, quality, and value of exports between countries and their respective trading partners to effectively counter the transnational crime of smuggling.

Annexures

Annexure 1

NTM- Non-Tariff Measures Classification

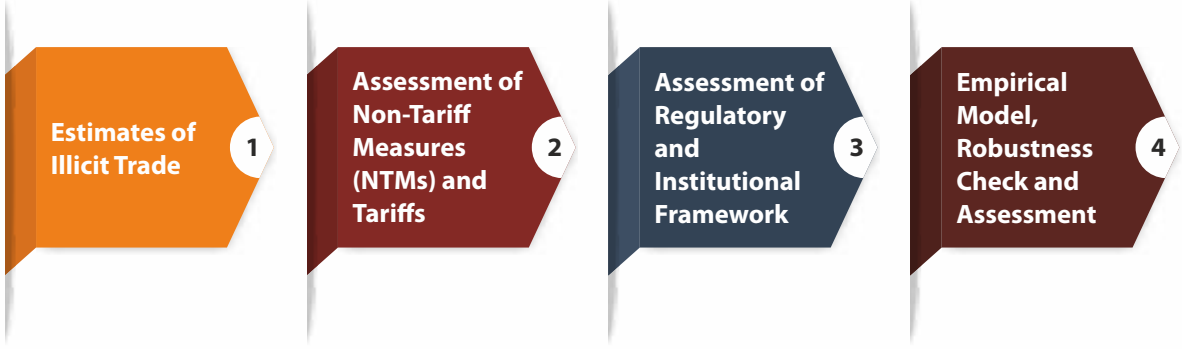
This annexure provides a detailed explanation of various NTM measures provided by UNCTAD classification.

NTM CODE	NTM NAME	DESCRIPTION OF NTM
A	SANITARY AND PHYTOSANITARY MEASURES	Measures that are applied: to protect human or animal life from risks arising from additives, contaminants, toxins or disease-causing organisms in their food; to protect human life from plant- or animal-carried diseases; to protect animal or plant life from pests, diseases, or disease-causing organisms; to prevent or limit other damage to a country from the entry, establishment or spread of pests; and to protect biodiversity. These include measures taken to protect the health of fish and wild fauna, as well as of forests and wild flora. Measures classified under A1 through A6 are Technical Regulations while those in A8 are their Conformity Assessment Procedures.
B	TECHNICAL BARRIERS TO TRADE	Measures referring to technical regulations, and procedures for assessment of conformity with technical regulations and standards, excluding measures covered by the SPS Agreement. A "technical regulation" is a document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method. A "conformity assessment procedure" is any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled; Measures classified under B1 through B7 are Technical Regulations while those under B8 are their Conformity Assessment procedures. Among the Technical Regulations, those in B4 are related to production processes, while others are applied directly to products.
C	PRE-SHIPMENT INSPECTION AND OTHER FORMALITIES	
D	CONTINGENT TRADE PROTECTIVE MEASURES	Measures implemented to counteract particular adverse effects of imports in the market of the importing country, including measures aimed at "unfair" foreign trade practices, contingent upon the fulfilment of certain procedural and substantive requirements.
E	NON-AUTOMATIC LICENSING, QUOTAS, PROHIBITIONS AND QUANTITY CONTROL MEASURES OTHER THAN A or B	Control measures are generally aimed at restraining the quantity of goods that can be imported, regardless of whether they come from different sources or one specific supplier. These measures can take the form of non-automatic licensing, fixing of a pre-determined quota, or through prohibitions.
F	PRICE CONTROL MEASURES INCLUDING ADDITIONAL TAXES AND CHARGES	Measures implemented to control or affect the prices of imported goods in order to, inter alia,: support the domestic price of certain products when the import prices of these goods are lower; establish the domestic price of certain products because of price fluctuation in domestic markets, or price instability in a foreign market; or to increase or preserve tax revenue. This category also includes measures, other than tariff measures, that increase the cost of imports in a similar manner, i.e., by fixed percentage or by a fixed amount: they are also known as para-tariff measures.

NTM CODE	NTM NAME	DESCRIPTION OF NTM
G	FINANCE MEASURES	Financial measures are intended to regulate the access to and cost of foreign exchange for imports and define the terms of payment. They may increase import costs in the same manner as tariff measures.
H	MEASURES AFFECTING COMPETITION	Measures to grant exclusive or special preferences or privileges to one or more limited group of economic operators.
I	TRADE-RELATED INVESTMENT MEASURES	Trade-related investment measures in the form of export restrictions are included in category P1.
J	DISTRIBUTION RESTRICTIONS*	Distribution of goods inside the importing country may be restricted. It may be controlled through additional license or certification requirement.
K	RESTRICTION ON POST-SALES SERVICES*	Measures restricting producers of exported goods to provide post-sales service in the importing country. Example: After-sales servicing on exported TV sets must be provided by local service company of the importing country.
L	SUBSIDIES (excluding export subsidies under P)*	Financial contribution by a government or public body, or via government entrustment or direction of a private body (direct or potential direct transfer of funds: e.g., grant, loan, equity infusion, guarantee, government revenue foregone; provision of goods or services or purchase of goods, payments to a funding mechanism), or income or price support, which confers a benefit and is specific (to an enterprise or industry or group thereof, or limited to a designated geographical region). Example: The government provides producers of chemicals a one-time cash grant to replace antiquated production equipment.
M	GOVERNMENT PROCUREMENT RESTRICTIONS*	Measures controlling the purchase of goods by government agencies, generally by preferring national providers. Example: Government office has a traditional supplier of its office equipment requirement, in spite of higher prices than similar foreign suppliers.
N	INTELLECTUAL PROPERTY*	Measures related to intellectual property rights in trade: intellectual property legislation covers patents, trademarks, industrial designs, lay-out designs of integrated circuits, copyright, geographical indications and trade secrets. Example: Clothing with unauthorized use of a trademark is sold at a much lower price than the authentic products.
O	RULES OF ORIGIN*	Rules of origin cover laws, regulations and administrative determinations of general application applied by government of importing countries to determine the country of origin of goods. Rules of origin are important in implementing such trade policy instruments as anti-dumping and countervailing duties, origin marking, and safeguard measures to qualify for the reduced tariff rate of the importing country.
P	EXPORT RELATED MEASURES	Export-related measures are measures applied by the government of the exporting country on exported goods.

Annexure 2
Research Approach & Methodology

This annexure explains the methodology adopted in each research stage for estimating illicit trade, assessing non-tariff measures and the regulatory framework and developing an empirical model to determine the impact of NTMs on illicit trade.



Source: TARI research

2.1 Estimates of Illicit Trade

The first stage of the study focuses on the estimation of illicit trade in the six identified key industries. Estimating illicit trade or smuggling is challenging because it is an illegal and hidden activity. Research shows that there are different methods to estimate smuggling, but each method has its own limitations.

These methods may be classified into direct and indirect approaches. Direct methods are based on contacts with or observations of persons and/or firms, to gather direct information about smuggled products. Indirect approaches use secondary data to analyse and estimate the extent of smuggling.

This study, based on experiences drawn from previous studies[212] and due to the paucity of data has adopted the indirect methodology - **"discrepancies between trade figures of the target country with trade partners"** - to ascertain the extent of illicit trade in key manufacturing industries.

In international trade, each country records exports and imports of each product by country of destination. It captures observable smuggling (Type B and C) with respect to custom clearance of imports done in India. This illicit trade takes place along with legal trade is a kind of commercial fraud, where intention of importer is to reduce their custom duty burden by adopting different ways and means. Importers may adopt different means to evade customs duty on goods and products: Undervaluation, Mis-declaration, Misuse of End Use and Other Notifications, and Others Means.

This method has its origins in the work of Morgenstern and is further developed by Bhagwati[213] who used this technique to compare import data of Turkey from other countries with the recorded figures of exports from trade partners of Turkey. It has been widely used by researchers to assess the extent of smuggling and conducting empirical analysis as it relies on well documented information, and because its application is simple and uncomplicated. There are three critical steps in estimating illicit trade:

[212] Invisible Economy- A study of the Top Five Products Smuggled into India, 2016, TARI and FICCI CASCADE; Invisible Economy- Impact of Smuggling on Indian Economy and Employment, 2019, TARI and FICCI CASCADE

[213] Bhagwati, J. (1964). On the Under Invoicing of Imports. Bulletin of the Oxford University Institute of Statistics, November 1964.

Source: Author's representation

Mapping of HS Codes and Collection of Trade Statistics from UN COMTRADE

The first step to estimating illicit trade using this approach is mapping HS codes in each of the key industries. We have mapped HS Codes up to 4 digit HS codes level 2012. After mapping, both import data reported by India and exports data reported by trading partners for these 6 HS codes was collected from the UN Comtrade database for the period 2015 to 2020. As data is reported in US dollars, appropriate currency conversion rates suggested by UN Comtrade were applied to convert trade values to Indian rupees.

Industry	4 Digit HS Code (2012)	6 Digit HS Code 2012
Alcoholic Beverages	2203, 2204, 2205, 2206, 2207, 2208	All 6 Digit HS code except 220430
Consumer Electronics	8415, 8418, 8422, 8450	All 6 Digit HS code
	8508, 8509, 8510, 8513, 8516, 8517, 8518, 8519, 8521, 8522, 8523, 8528, 8539	All 6 Digit HS code, except 851711, 851712, 851718
FMCG – Household & Personal Good	3303, 3304, 3305, 3306,3307	All 6 Digit HS code
	3401	All 6 Digit HS code
FMCG -Packaged Foods	0901, 0902	All 6 Digit HS code
	1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518	15079010, 15089091, 15099010, 15099090, 15100091, 15119010, 15119020, 15119090, 15121910, 15121930, 15122910, 15131900, 15132910, 15132920, 15132990, 15141910, 15141920, 15149920, 15149930, 15149990, 15151910, 15152910, 15155091, 15159010, 15159020, 15159030, 15159040, 15159091, 15159099, 15162011, 15162021, 15162031, 15162039, 15162091, 15171021, 15179010, 15179020, 15179040, 15179090, 15180029, 15180031
	1701, 1702, 1704	All 6 Digit HS code
	1803, 1804, 1805, 1806	All 6 Digit HS code
	1901, 1902, 1903, 1904, 1905	All 6 Digit HS code
	2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009	All 6 Digit HS code
	2101, 2102, 2103, 2104, 2105, 2106	All 6 Digit HS code
	2201, 2202	
Mobile phones	8517	851711, 851712, 851718
Tobacco Products	2402	240210

Source: UN Comtrade, TARI representation

Checks and Adjustments for Discrepancies in the Mirror Trade Statistics Data

The possible reasons for gaps between the values of a country's imports and the reported value of exports by all partner countries are given below.[214]

Statistical Reasons for Discrepancies in the Mirror Trade Statistics Data

Ideally, the mirror trade statistics for country X, (in this case India), should reflect that exports from country Y to country X for a given product are equivalent to imports of country X from country Y. However, the reported trade figures with a partner country in the mirror trade statistics may not be equal on account of broadly two reasons: legitimate statistical reasons and unaccounted trade, i.e. smuggling. We have taken adequate steps to account for the following reasons for statistical discrepancies:

- Different Nomenclature for Categorization of Products
- Discrepancy due to valuations of exports (Free on Board- FOB) basis and Imports (Cost-Insurance Freight) basis
- Timing Issue
- Exchange Rate Fluctuations

Discrepancies due to valuations of exports (Free on Board- FOB) basis and imports (Cost-Insurance Freight) basis is a major issue of gap. Notification No. 91/2017- Customs (N.T.) dated 26th September 2017[215] allows for actual costs of transportation and insurance to be included when determining the customs value of imported products. If actual value of transportation or insurance is not ascertainable, a cost of a 20 percent FOB is to be used as the cost of transportation and insurance in determining the total customs value of imported goods. The study also takes into account customs rules and applies an adjustment of 20 percent on exports FOB values to remove data discrepancy in the mirror trade.

Estimates of Illicit Trade for Key Industries

The illicit trade of goods/products into the country can be determined by assessing the gap between values of reported exports by all partner countries of the world and country's imports from given partners.[216] If the gap using this method is positive and consistent, then it is reasonable to conclude that illicit trade is taking place through various ways and means, such as outright smuggling, under-invoicing, mis-declaration, mis-classification etc.

Our methodology based on the mirror trade statistics of the UN Comtrade database allows us to make estimates about Type B and Type C smuggling. Following the checks and adjustments for any plausible reason for legitimate statistical differences in the trade discrepancies, illicit trade of a product A into India can be estimated as described below:

Illicit Trade of Product, Yit

Adjusted exports reported by World (partner countries) for Product i (6 digit HS Code) to India during the period t minus imports reported by India for Product i during the period t

[214] Buehn, A., & Eichler, S. (2011). Trade mis-invoicing: The dark side of world trade. World Economy, 34(8), 1263–1287.

[215] India amended Rule 10(2) of Customs Valuations (Determination of Value of Imported Goods)

[215] Buehn, A., & Eichler, S. (2011). Trade mis-invoicing: The dark side of world trade. World Economy, 34(8), 1263–1287.

2.2 Non-Tariff Measures (NTM) and Tariff Measures

Non-Tariff Measures (NTMs) and Descriptive Analysis

NTMs vary greatly in type, intent and scope and NTM classification in UN TRAINs is divided into chapters, A to O (for imports) and P (exports). For this research, we focused only on import NTMs that impose some trade costs on imported products and therefore increase instances of smuggling.

We used direct measures of NTMs to provide a descriptive analysis of NTMs in each selected industry. Direct measures calculate the incidence dimension of NTMs and include indicators such as, frequency ratio, coverage ratio, and prevalence score.

Frequency Index accounts only for the presence or absence of an NTM and summarizes the percentage of products to which one or more NTMs are applied. The Frequency Index (Fi) captures the share of products of the country i covered by NTMs. It is a ratio calculated using two dummy variables in the numerator: Ds, the presence (or absence) of an NTM on the tariff line item.

Coverage Ratio is the percentage of trade subject to NTMs for the importing country and provides a measure of the importance of NTMs on overall imports. It is the share of trade subject to NTMs for a country i (or for a region), or a group of products. It is similar to the Frequency Index, but instead of the dummy for each product imported, the trade value (Vs) for each product is used (more commonly, imports).

Prevalence Score represents the number of distinct NTMs (at a 3-digit level) that a country i has in product p of selected HS aggregation level (typically HS 6) applied to imports from a country or world. It is calculated using the ratio: sum total of different NTMs on tariff lines items to sum total of all tariff lines.

NTM Classification and Prevalence Score

Our research approach focuses on analysing the impact of applicable NTMs across products (6 digit or 4 digit HS codes) for a key industry. Frequency and coverage ratio can be calculated only on an aggregate level; hence, they do not fulfil the requirements for developing the empirical model. In view of this, prevalence score, which provides the count of number of NTMs against each product category or tariff line (HS codes), has been used as an indicator for the purpose of our empirical analysis.

For our research and empirical modelling purposes, we used prevalence scores for each of the selected industries. Further, to analyse the impact of different types of NTMs on illicit trade, we classified these NTMs into four groups and estimated their prevalence score.

NTMs related to health and product safety	Price & quantity control NTMs	Competition NTMs	Other NTMs
A, B,C	D, E, F	G,H, I, J, K, L, M	N,O

Source : UN TRAIN, TARI analysis

- **Health and product safety NTMs:** The first group of NTMs include includes technical NTMs from A to C. These are important measures that aim to ensure food safety for human consumption, protect plant, and animal health, prohibit and regulate trade in hazardous substances, chemical and waste meant for human use and any other policy area.
- **Price and quantity control NTMs:** These NTMs are covered in Chapters D, E, and F and are alternative measures in relation to tariffs. When applied on a product category, they impose significant restrictions to trade and offer financial incentives for illicit trade.
- **Competition NTMs:** NTMs in chapters G, H, I, J, K, L and M are certain behind border NTMs that aim to provide preferential treatment to domestic products and reduce competition with imported products.
- **Other NTMs:** Intellectual property (Chapter N) and rules of origin (Chapter N) are NTMs that may be classified in as Other Measures. However, in our analysis, the prevalence score for these NTMs were nil and did not have any significance. Therefore, these NTMs were not used in our empirical model.

2.3 Assessment of Regulatory Governance and Institutional Framework

We have assessed and analysed regulatory governance and institutional framework measures and indicators collected from the World Bank database. These indicators based on our analysis have an impact on illicit trade. We have used them in our empirical model only after taking into account the multicollinearity issue.

Regulatory Governance Measures

We have considered Regulatory Governance indicators in our analysis and used them in our empirical models. Three World Governance Indicators (WGI) that describe regulatory governance include Government Effectiveness, Regulatory Quality and Rule of Law that come from the World Bank database.

The percentile rank of these indicators points to the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to the lowest rank, and 100 to the highest rank. Percentile ranks have been adjusted to correct for changes over time in the composition of the countries covered by the WGI.

Government Effectiveness captures perceptions of the quality of public services, the quality of the civil services and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

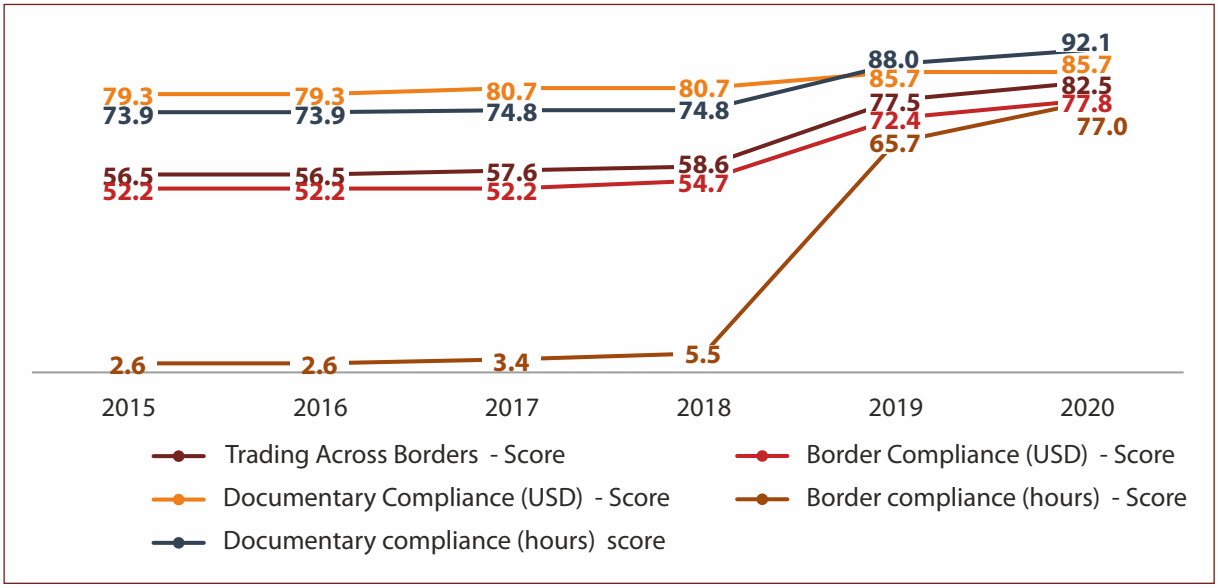
Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

Ease of Doing Business Across Borders Measures

We have considered the Doing Business Score for Trading across Borders in our analysis and empirical model from the World Bank database. Doing Business measures the time and cost associated with two sets of procedures of importing goods -documentary compliance and border compliance-within the overall process or importing a shipment of goods.

It is the simple average of the scores for the time and cost for documentary compliance and border compliance to import. The score ranges from 0 to 100, where 0 represents the worst regulatory performance and 100 the best regulatory performance, and is computed based on the methodology in the DB16-20 studies.



Source: World Bank Database

2.4 Empirical Model and Robustness Check

The fourth stage in our research is the development of an empirical model to assess the impact of NTMs, tariffs, regulatory and institutional framework indicators. Our empirical model is based on the theoretical arguments and literature review presented in Section 2 of this report.

We use the linear regression technique to find the relationship between the regulatory environment and illicit trade. The dependent variable in the regression model is illicit trade for each product/ tariff line in the selected key industries calculated in stage 1. Our approach for modelling has similarities to the study done by Kee and Nicita (2016, 2022) for World Bank and UNCTAD.

Kee and Nicita (2016, 2022)also use a model to show how the differences between imports and exports statistics, referred to as trade discrepancy, could be related to tariff and non-tariff measures, The researchers postulate that trade policy changes may not induce the same responses in imports and exports, the error term is increasing with tariff and non-tariff measures. The discrepancy between

imports and exports depends on an error term that could be determined by trade policies. Researchers use indirect measures of NTMs, i.e., Ad Valorem Equivalents (AVE) in the empirical model. They have analysed impact of AVEs of tariffs and non-tariffs for industries at country levels on trade discrepancy.

Empirical Model

In our regression model, as mentioned earlier, we use a count indicator, NTM prevalence score. Our modelling approach in this sense is different from Kee and Nicita. It is based on estimating the impact of different classes of NTMs as well as tariffs for all tariff lines (HS product codes) in a given industry.

Dependent Variable Yit = Illicit Trade Y for a product with HS code i for time t

The Linear Regression Equation with independent variables in the empirical model :

$$\mathbf{Y}_{it} = \beta 0 + \beta 1 * \mathbf{NTM}_{it} + \beta_2 * \mathbf{Tariff}_{it} + \beta_3 * \mathbf{Imports}_{it} + \beta_4 * \mathbf{RG}_t + \beta_5 * \mathbf{EDB}_t + e$$

Details of independent variables in the linear regression model :

- **NTM_{it} = NTM-prevalence score for product i for previous year t-1 (HS 6 digit code level)**. We used the prevalence score of count NTMs for classified NTMs - health and product safety NTMs, price and quantity control NTMs, and competition NTMs. These NTMs are clubbed in specific models whenever there were multi-collinearity issues. We use lag value NTMs (previous year) as we believe applicable NTMs takes some time to effect illicit trade and imports.
- **$Tariff_{it}$ = Custom tariff for product i for current year, t.** Along with NTMs, tariff is another main independent variable that significantly affects illicit trade.
- **$Imports_{it}$ = Import for the product i for year, t**. Imports have a direct relationship with illicit trade in our empirical model. It therefore includes imports (₹ lakhs) as a control variable as imports are endogenous to the level of illicit trade in a particular industry.
- **RG_t = Regulatory Governance score for the current year, t**
- **EDB_t = Ease of doing trading across border score for current year , t**

These two indicators are used as control variables in our empirical model. In our literature, we have highlighted that they may have a significant bearing on trade as well as illicit trade. These indicators are at country level, therefore remain the same for all industries and only change over a period of time.

Model Robustness and Checks

All our models are significant and robust. Overall, the model significance is reported through the F-test. All our models are robust vis-à-vis multi-collinearity and heteroskedasticity issues as indicated below:

Pearson Correlation: A Pearson's pairwise correlation matrix is constructed to determine the magnitude of co-relation between the variables. The threshold for maximum permissible collinearity

between two variables is 0.75. Any two highly correlated variables can result in a biased interpretation of the results due to multicollinearity. Correlations are shown as * at 5 percent significance level.

Variance inflation factor (VIF) & Tolerance Limit : This is another check for multicollinearity among independent variables in the multiple linear regression models. The maximum permissible limit for VIF is 10 and for tolerance is 1.

Heteroskedasticity : We presented coefficients and 95 percent confidence limits of all independent variables. Robust standard errors are presented here which take care of any heterogeneity present in the independent variables.

[10] ICRIER (2021). Developing Principles for Regulations Alcoholic Beverages Sector in India

[11] Indian Alcohol Consumption - The Changing Behavior

Annexure 3
Model Results – Robustness Checks

This annexure presents the results of robustness checks including correlation matrix and variance inflation factors of all the models for illicit markets and trade developed in these reports and finding presented at appropriate sections of the report.

Before developing our empirical model, we developed a correlation matrix including dependent variables and all independent variables to check for multicollinearity. Based on the correlation matrix, the independent variables were merged or excluded to obtain robust and reliable results.

Regulatory Quality and Ease of Doing Business (EODB) are highly correlated which can result in a biased interpretation of the results due to multicollinearity. Therefore, the variable Regulatory Quality has been excluded from the correlation matrix and empirical models to obtain robust results.

1. Illicit Market Model - All Key Industries

The variables viz. rule of law and government effectiveness are highly correlated, above the threshold limits of .75. Therefore, the variable government effectiveness has been excluded from the final model to obtain robust results. All the non-tariff measures excluding price quantity and control measures have been merged to obtain statistically significant results.

Variables	ILCTMKT	Consump	SPS	TBTC	PQCM	CompM	GovEff	RuleLaw	EODBT
Consump	0.935*								
SPS	0.575*	0.575*							
TBTC	-0.136	0.015	-0.523						
PQCM	0.062	0.36	0.25	-0.035					
CompM	0.121	0.433	0.001	0.686*	0.637*				
GovEff	-0.008	-0.003	-0.071	-0.1	0.161	-0.007			
RuleLaw	-0.018	-0.029	-0.031	-0.043	0.024	-0.003	**0.851***		
EODBT	0.022	0.05	-0.046	-0.065	0.19	-0.005	-0.144	-0.642*	
AvgTariff	-0.182	-0.233	0.634*	-0.747*	0.096	-0.431	-0.003	-0.001	-0.003

** p<.05 - significant at @ 5 percent level*

In our model, mean VIF is 2.058 and maximum VIF is 3.218 (tolerance - 0.311). As all VIF are within the permissible limits, our models are robust vis-a-vis multicollinearity issues.

Variance Inflation Factor and Tolerance		
Indicator	**VIF**	**Tolerance**
Consump	3.218	0.311
SUM_NTMS	3.17	0.315
AvgTariff	1.692	0.591
PQCM	1.206	0.829
RuleLaw	1.005	0.995
Mean VIF	**2.058**	**.**

2. Illicit Trade Model - All Key Industries

The correlation between all the independent variables is well within the permissible collinearity limit of .75. In the final model, none of the variables have been excluded from the correlation matrix.

Variables	ILCTTRD	Import	SPS_L1	TBTC_L!	Comp_L1	PQCM_L1	RuleLaw	GovEff	EODBT
Import	0.578*								
SPS_L1	-0.093*	-0.158*							
TBTC_L1	0.134*	0.158*	-0.345*						
CompM_L1	-0.079*	-0.021	0.070*	-0.015					
PQCM_L1	0.101*	0.101*	0.165*	0.203*	0.290*				
RuleLaw	-0.014	-0.004	-0.004	-0.004	-0.028	-0.179*			
GovEff	0.023	0.009	0.008	-0.001	0.039	0.266*	0.242*		
EODBT	0.016	-0.001	0.007	-0.001	0.100*	0.447*	-0.564*	0.273*	
Tariff	-0.014	-0.074*	0.581*	-0.268*	-0.123*	-0.017	-0.009	0.028	0.023
									** p<.05 - significant at @ 5 percent level*

In our model, mean VIF is 1.587 and maximum VIF is 2.266 (tolerance - .441). As all VIF are within the permissible limits, our model is robust vis-à-vis multicollinearity issues.

Variance Inflation Factor/ Tolerance		
Indicator	**VIF**	**Tolerance**
EODBT	2.266	0.441
RuleLaw	1.957	0.511
SPS_L1	1.842	0.543
PQCM_L1	1.654	0.605
Tariff	1.612	0.621
GovEff	1.476	0.678
TBTC_L1	1.282	0.78
Comp_L1	1.138	0.879
Import	1.058	0.945
Mean VIF	1.587	.

3. Alcoholic Beverages: Illicit Trade Model

The variables viz. technical barriers to trade and other pre shipment checks (TBTC) and SPS have a high correlation, above the threshold limit of .75, hence SPS(A), TBT(B) and pre-shipment (C)have been merged and incorporated into the final model to obtain robust and reliable results. Government effectiveness has been excluded from the final model to obtain statistically significant results.

Variables	ILCTTRD	Import	SPS_L1	TBTC_L1	ComP_L1	PQCM_L1	GovEff	RuleLaw	EODBT
Import	0.154								
SPS_L1	-0.841*	0.124							
TBTC_L1	-0.841*	0.124	1.000*						
CompM_L1	0.148	0.189	-0.081	-0.081					
PQCM_L1	0.411*	-0.001	-0.428*	-0.428*	0.388*				
GovEff	0.047	0.053	0	0	0.131	0.767*			
RuleLaw	-0.057	-0.029	0	0	-0.397*	-0.077	0.242*		
EODBT	0.06	0.06	0	0	0.688*	0.622*	0.273*	-0.565*	
Tariff	0.04	0.106	-0.073	-0.073	-0.148	-0.162	-0.163	0.011	-0.124

** p<.05 - significant at @ 5 percent level*

In our model, mean VIF is 2.409 and maximum VIF is 5.375 (tolerance - .186). As all VIF are well within the permissible limits, our model is robust to multicollinearity issues.

Variance Inflation Factor/ Tolerance		
Indicator	**VIF**	**Tolerance**
EODB	5.375	0.186
PQCM_L1	3.377	0.296
CompM_L1	2.149	0.465
RuleLaw	1.995	0.501
NTM_ABC	1.753	0.57
Import	1.107	0.904
Tariff	1.104	0.906
Mean VIF	**2.409**	**.**

4. Consumer (Electronics) Durables Industry: Illicit Trade Model

The variables viz. price quantity control measure (PQCM) and technical barriers to trade and other pre shipment checks (TBTC) have a high correlation, above the threshold limit of 0.75. In order to deal with multicollinearity, PQCM and TBTC have been merged to obtain robust and reliable results. Government effectiveness is excluded from the final model to obtain statistically significant results.

Variables	ILCTTRD	Import	TBTC_L1	Comp_L1	PQCM_L1	GovEff	RuleLaw	EODBT
Import	0.486*							
TBTC_L1	0.194*	0.147*						
CompM_L1	-0.180*	-0.104*	-0.295*					
PQCM_L1	0.173*	0.144*	**0.833***	-0.258*				
GovEff	0.027	0.033	-0.013	0.141*	0.061			
RuleLaw	-0.028	-0.017	0.008	-0.085	-0.184*	0.236*		
EODBT	0.031	0.013	-0.009	0.111*	0.321*	0.278*	-0.562*	
Tariff	-0.058	-0.217*	0.001	0.024	-0.012	0.210*	-0.136*	0.319*

** p<.05 - significant at @ 5 percent level*

In our model, the mean VIF is 1.27 and maximum VIF is 1.634 (tolerance - .612). As all the VIFs are within the permissible limits, our model is robust vis-à-vis multicollinearity issue.

Variance Inflation Factor/ Tolerance		
Indicator	**VIF**	**Tolerance**
EODBT	1.634	0.612
RuleLaw	1.467	0.682
Tariff	1.183	0.845
PQCM_L1	1.126	0.888
CompM_L1	1.124	0.89
Import	1.087	0.92
Mean VIF	**1.27**	.

5. FMCG - Packaged Foods: Illicit Trade Model

The correlation between all the independent variable is well within the permissible collinearity limits. Hence none of the variables have been excluded from the correlation matrix and the final model to obtain robust and reliable results.

Variables	ILCTTRD	Import	SPS_1	TBTC_L1	Comp_L1	PQCM_L1	GovEff	RuleLaw	EODBT
Import	**0.879***								
SPS_L1	0.139*	0.159*							
TBTC_L1	0.177*	0.182*	0.591*						
CompM_L1	0.003	-0.001	0.134*	0.194*					
PQCM_L1	-0.028	-0.037	0.096*	0.06	0.253*				
GovEff	0.027	-0.006	0.009	0.004	-0.018	0.510*			
RuleLaw	0	-0.018	-0.006	-0.001	0.006	-0.259*	0.245*		
EODBT	-0.006	0.001	0.007	0.001	0.114*	0.725*	0.271*	-0.567*	
Tariff	0.236*	0.230*	0.535*	0.302*	0.104*	-0.119*	0.047	0.007	0.024

** p<.05 - significant at @ 5 percent level*

In our model, mean VIF is 2.005 and maximum VIF is 3.336 (tolerance – .3). As all the VIFs are within the permissible limits, our model is robust vis-à-vis multicollinearity issues.

Variance Inflation Factor/ Tolerance		
Indicator	**VIF**	**Tolerance**
PQCM_L1	3.336	0.3
EODBT	3.31	0.302
RuleLaw	2.005	0.499
SPS_L1	1.998	0.501
GovEff	1.891	0.529
Tariff	1.615	0.619
TBTC_L1	1.602	0.624
CompM_L1	1.214	0.824
Import	1.076	0.93
Mean VIF	**2.005**	.

6. FMCG - Household and Personal Goods: Illicit Trade

The correlation between independent variables is well within the permissible collinearity limits, excluding the high correlation between price quantity control measure and ease of doing business. However, none of the variables have been excluded from the correlation matrix and the final model to obtain robust and reliable results.

Variables	ILCTTRD	Import	TBTC_L1	PQCM_L1	GovEff	RuleLaw	EODBT
Import	0.373*						
TBTC_L1	-0.241*	0.004					
PQCM_L1	0.13	0.259*	0.181				
GovEff	0.08	0.146	0.037	0.155			
RuleLaw	-0.048	-0.053	-0.069	-0.470*	0.242*		
EODB	0.101	0.131	0.03	**0.814***	0.273*	-0.565*	
Tariff	0.056	-0.052	-0.032	0.328*	0.510*	-0.312*	0.410*
							** p<.05 - significant at @ 5 percent level*

In our model, mean VIF is 2.592 and maximum VIF is 4.797 (tolerance – .208). As all the VIFs are within the permissible limits, our model is robust vis-à-vis multicollinearity issues.

Variance Inflation Factor/ Tolerance		
Indicator	**VIF**	**Tolerance**
EODBT	4.797	0.208
PQCM_L1	3.736	0.268
RuleLaw	2.58	0.388
GovEff	2.57	0.389
Tariff	2.085	0.48
Import	1.232	0.812
TBTC_L1	1.143	0.875
Mean VIF	**2.592**	**.**

7. Mobile Phones: Illicit Trade Model

All the non-tariff measures have been merged (SUM_NTMS). (SUM_NTMS) has a high correlation with ease of doing business (EODB), above the threshold limit, hence EODB have been excluded from the final model to obtain robust and reliable results. Government effectiveness has been excluded from the final model to obtain statistically significant results.

Variables	ILCTTRD	Imports	SUM_NTMS_L1	RuleLaw	GovEff	EODBT
Imports	0.601					
SUM_NTMS_L1	-0.149	-0.291				
RuleLaw	0.065	0.272	-0.574			
GovEff	0.187	-0.271	0.189	0.242		
EODBT	-0.13	-0.316	0.995*	-0.565	0.273	
Tariff	0.624	0.071	0.292	-0.15	0.447	0.336

In our model, mean VIF is 1.365 and maximum VIF is 1.669 (tolerance – .599). As all the VIFs are within the permissible limits, our model is robust vis-à-vis multicollinearity issues.

Variance Inflation Factor/ Tolerance		
Indicator	**VIF**	**Tolerance**
SUM_NTMS_L1	1.669	0.599
RuleLaw	1.52	0.658
Import	1.145	0.873
Tariff	1.126	0.888
Mean VIF	**1.365**	**.**

8. Tobacco Products: Illicit Trade Model

The variables viz. technical barriers to trade and price quantity control measures have a high correlation. Hence, they have been merged and incorporated into the final model to obtain robust results. Similarly, government effectiveness has a high correlation with technical barriers to trade and price quantity control measures above the threshold limit. Hence, government effectiveness has been excluded from the final model. Ease of doing business has a high correlation with price quantity control measure but has not been excluded from the final model.

Variables	Illicit Trade (Lakhs)	Import	TBT	PQCM	Goveff	RuleLaw	EODBT
Import	0.987*						
TBT	0.899*	**0.882***					
PQCM	0.944*	**0.905***	**0.928***				
GovEff	0.638	0.572	**0.853***	**0.824***			
RuleLaw	-0.598	-0.657	-0.237	-0.375	0.152		
EODBT	0.854*	0.910*	0.739	0.699	0.296	-0.66	
Tariff	0.844*	0.787	0.707	**0.919***	0.664	-0.462	

In our model, mean VIF is 2.618 and maximum VIF is 3.627(tolerance – .276). As all the VIFs are within the permissible limits, our model is robust vis-à-vis multicollinearity issues.

Variance Inflation Factor		
Indicator	**VIF**	**Tolerance**
EODB	3.627	0.276
All_NTM	2.3	0.435
RuleLaw	1.928	0.519
Mean VIF	**2.618**	

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Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

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In the recent past India's economic growth story has attracted world's attention bringing new challenges for the domestic economy. One of the challenges currently faced is the growing illicit trade in counterfeits, pass offs and smuggled goods. These activities are also threatening brands not only in every region of the country but across the globe.

Contraband and counterfeit products hurt the integrity of the brand, further diluting the brand owner's reputation. This not only results in erosion of sales of the legitimate product but further [CASCADE]s onto affect the consumers in the form of health and safety hazards.

With the above insight the Federation of Indian Chambers of Commerce and Industry (FICCI) took the initiative to dedicate a forum by establishing the Committee Against Smuggling and Counterfeiting Activities Destroying the Economy - CASCADE on 18th January, 2011 at FICCI Federation House, New Delhi.

FICCI Committee Against Smuggling and Counterfeiting Activities Destroying the Economy (CASCADE)

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