FICCI CASCADE

INVISIBLE ENEMY

Impact of Smuggling on Indian Economy and Employment

2019

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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

Research Conceptualisation, Review and Industry Interface

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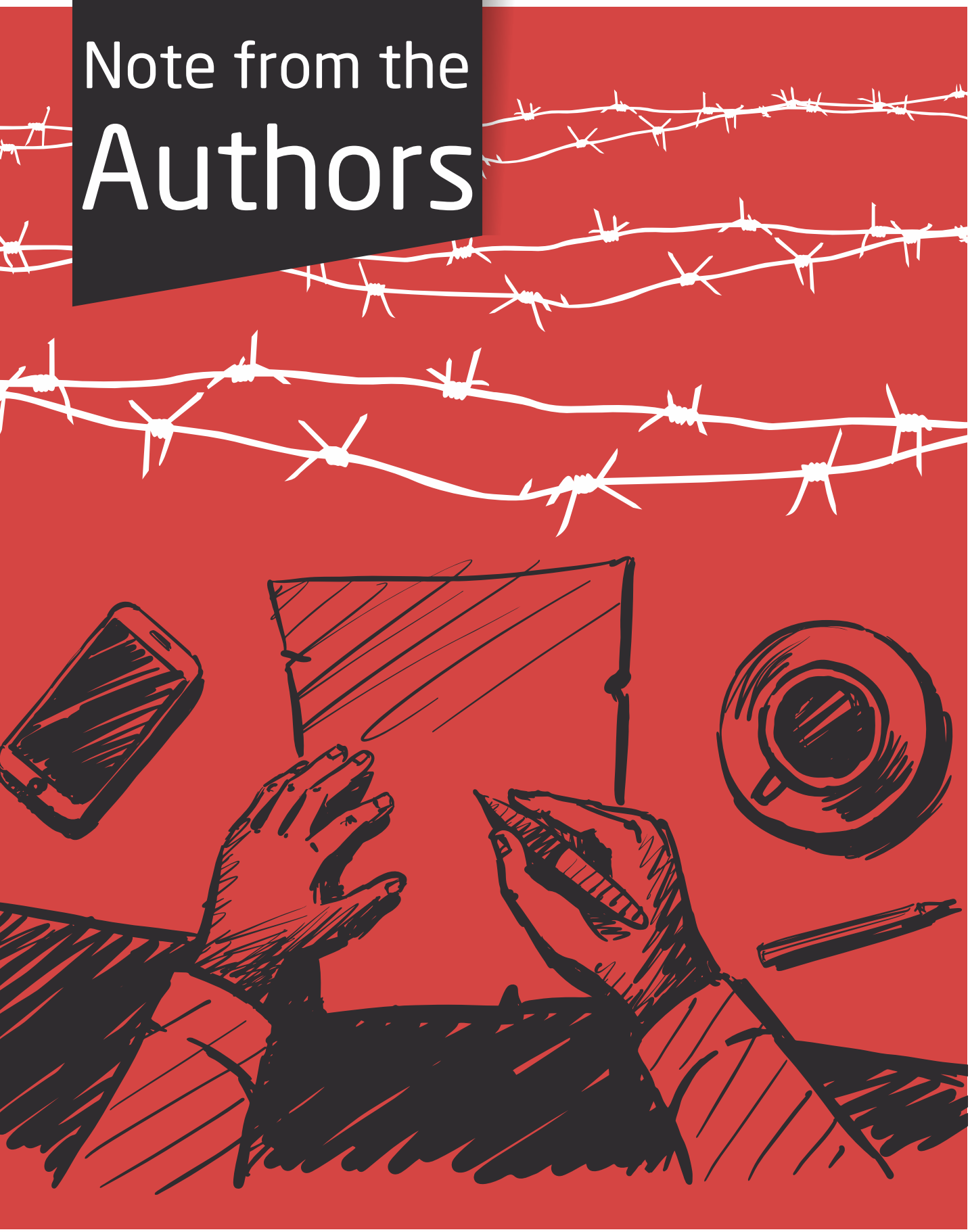
Note from the Authors



This report adopts a research approach and methodology that enables making estimates about revenue loss and direct employment loss in specific industries as well as in the economy. Our methodology for making estimates about illicit trade/ smuggling is through mirror trade statistics and estimation of multiplier effects using Input-Output model developed by Nobel economic laureate Wassily Leontief, methodologies that are widely accepted and used worldwide. The main purpose of this report is to highlight the consequences of smuggling on domestic industries.

Our findings are based on credible data sources from the International agency (UN COMTRADE from United Nations Statistics Division) and Government of India, Ministry of Statistics and Programme Implementation (MoSPI) such as Annual Survey of Industries, NSSO 67th Round Survey on Unemployment and employment Situation in India (2011-12), NSSO 73rd Round Survey on the Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, Parliamentary Questions and Reports, NCAER Input-Output tables(2013-14) dated 2016 / NSSO Input Output tables 2007-08.

One of the indicators of smuggling is the extent of seizures that occur in relation to a product or asset and we have used this indicator as one of the factors for selection of the industries for this study. The seizure of smuggled goods in India is low compared to larger economies, which makes reliance predominantly on such data for quantifying the extent of smuggling challenging.

We are aware of the fact that seizures happen both on the account of inward (coming into) and outward (going out) smuggling and certain industries driven by tax and export incentives, often overstate or understate the value of the goods for claiming such benefits. Seizure data includes such mis declared goods (both inward and outward) and to that extent for some industries have an effect on employment, which may be nulling. However, for the purpose of this report, we are estimating only the inward smuggling that affects domestic industries and employment. We do not quantify or comment on any effect of any smuggling using India as a source or transit.

UN Comtrade website states that: "The UN International Trade Statistics Database (UN Comtrade) contains detailed goods imports and exports statistics reported by statistical authorities of close to 200 countries or areas. ... UN Comtrade data covers trade in goods only and are compiled on a customs basis."

We believe that Mirror trade methodology takes into account both Type B and type C smuggling.

- 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 is passing through customs channels in exporting countries but not the customs channels channel 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.

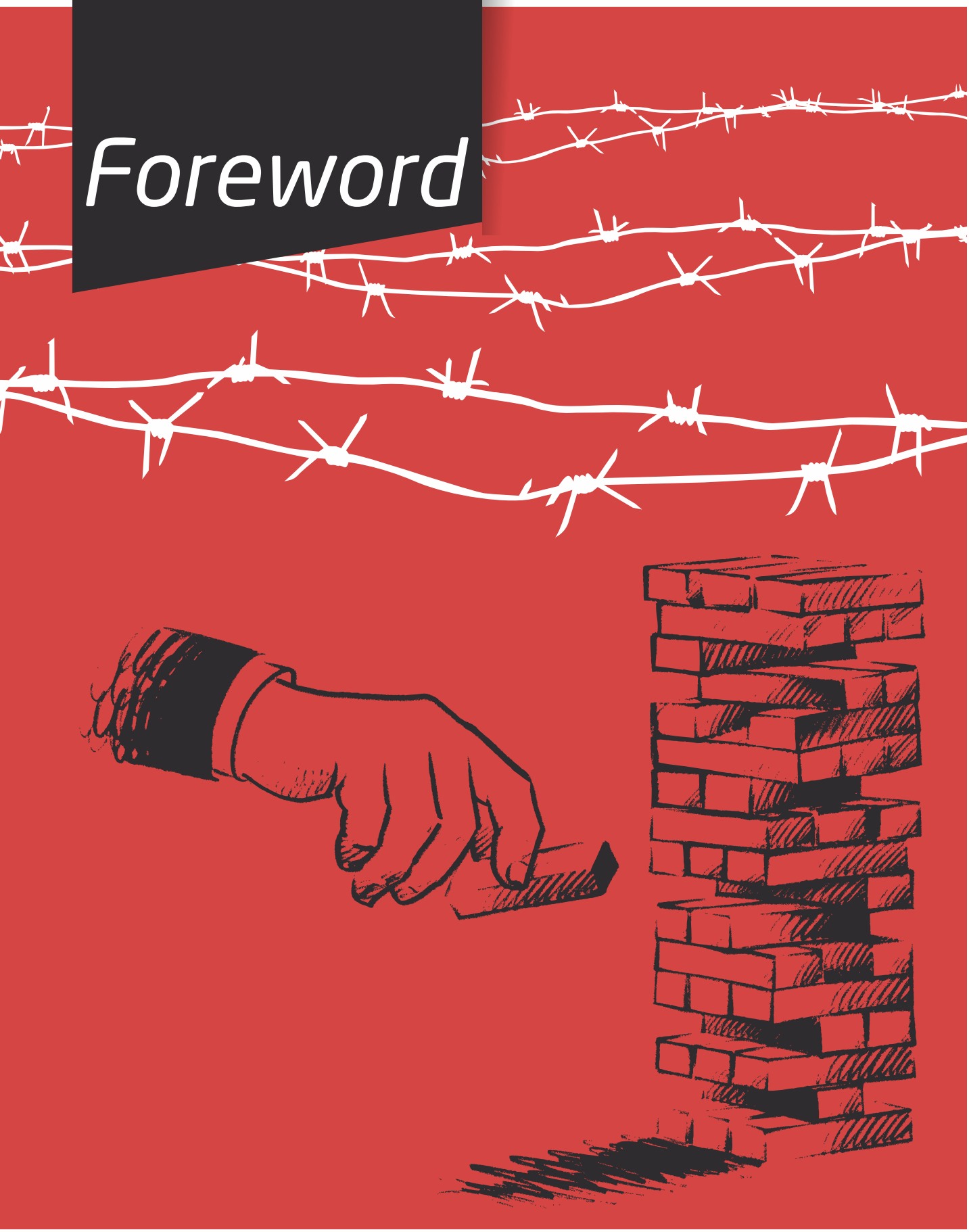
This research, as any data-based research has to, makes certain assumptions and works with limitations in the absence of reliable data, resources and time. We have highlighted these assumptions and limitations at appropriate places of the report.

- Estimates about smuggling and direct employment loss in the industry and in the economy is based on data analysis from three different sources: 4-digit HS Codes from UN Comtrade database, 3-digit NIC codes from Annual Survey of Industries, products in 130* 130 matrix of the Input-Output tables. Best efforts have been made to map these data sources appropriately.
- Mirror trade statistics after adjustment for CIF/FOB valuation and other gaps for missing/ unreported data provides estimates for smuggling.
- Quantum of the estimated smuggling in a given manufacturing industry has direct impact on these industries and is equal to their output loss.
- Direct employment loss in an industry because of smuggling is estimated taking into account output contribution and labour productivity of both formal and informal sectors of that industry.
- In the absence of data for a year, it is assumed that past trend is still continuing.
- 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 this report.

- Mr. Najib Shah, Former Chairman, Central Board of Indirect Taxes and Customs
- Mr.Justice Manmohan Sarin, Former Lokayukta, NCT of Delhi, Chief Justice, High Court of Jammu & Kashmir & Judge Delhi High Court
- Mr. Hem Kumar Pande, Former Secretary, Ministry of Consumer Affairs, Food and Public Distribution, Government of India
- Mr. Sanjeev Tripathi, Former Chief, Research and Analysis Wing (RAW), Government of India
- Ms. Kameshwari Subramanian, Former Chief Commissioner of Central Excise, Customs and Service Tax, Bangalore Zone
- Mr. Anil Sinha, Former Director, Central Bureau of Investigation
- Mr. Narendra Sabharwal, Chairman, FICCI - IP Committee and Former Deputy Director General, WIPO, Geneva
- Mr. P K Malhotra, Secretary, Ministry of Law & Justice, Government of India
- Mr. Anil Rajput, Chairman, FICCI CASCADE
- Mr. P C Jha, Former Chairman, Central Board of Indirect Taxes and Customs & Advisor, FICCI CASCADE
- Mr. Deep Chand, Former Special Commissioner of Police, New Delhi and Advisor, FICCI CASCADE

Foreword



Globalisation has been an important engine of economic growth, significantly enhancing trade facilitation. On the other hand, it has also provided opportunities to illegal business operators to engage in illicit trade across borders, posing challenges to government administrations.

Smuggling or illicit trade harms the economy of a country in a big way. Regardless of different approaches to this complex issue, the effects of smuggling are numerous and economically significant. It undermines the local industry, suppresses innovation and investment, discourages legal imports, reduces the volume of revenues collected from duties and levies by the government, fuels transnational crimes and hampers the health of citizens. Border and law enforcement officials, policymakers, and academicians agree that illegal trans-border trading results in major financial and social costs to economy and the society globally.

Federation of Indian Chambers of Commerce and Industry (FICCI) through its vision of widespread advocacy has been working diligently to outline the impact of smuggling and counterfeiting on the society as a whole.

FICCI's dedicated Committee against Smuggling and Counterfeiting Activities Destroying the Economy [CASCADE] has been working towards elimination of illicit trading activities. In furtherance of its agenda, CASCADE has prepared a study titled: 'Smuggling and its impact on Indian Economy and Employment'. This report adopts a research approach and methodology that estimates the revenue loss and employment loss in the following industries:

1. Textiles Industry
2. Readymade Garments Industry
3. Tobacco Products (Cigarettes) Industry
4. Capital Goods (Machinery and Parts) Industry
5. Consumer (Electronics) Durables Industry

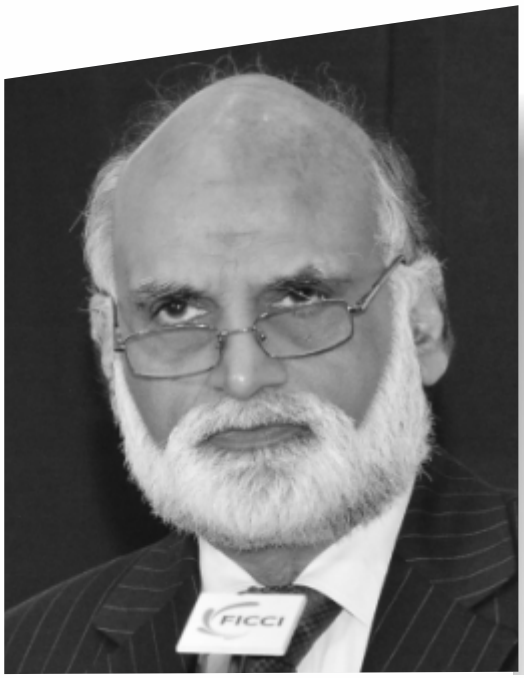
Estimates of smuggling in the five key industries and direct and indirect employment lost in the economy signal towards the criticality of the problem faced by the country. The report further attempts to highlight the key challenges posed by smuggling and the possible solutions needed to make compliance and processes more robust which will reduce the ensuing threat.

We would like to thank and congratulate all stakeholders who have contributed significantly towards this study particularly the Think Tank members of FICCI CASCADE. It is hoped that this study will stimulate deliberations to identify the issue as a critical problem that the nation is facing currently, and the challenges ahead if concerted efforts are not taken to curb this menace.

I wish FICCI CASCADE success in its future endeavours.

Dilip Chenoy
Secretary General
FICCI

Chair's Message



India is one of the fastest growing economies of the world, this makes it a target of choice for all those indulging in smuggling and counterfeiting. Combatting illicit trade is essential if economies and societies are to prosper, and FICCI CASCADE has been at the forefront in understanding this complex adversary. In 2012, FICCI CASCADE came out with a pioneering report titled: 'Socio-Economic Impact of Counterfeiting, Smuggling and Tax Evasion in Seven Key Indian Industry Sectors', it was a first of its kind report that was indeed an eye-opener when it came to the financial impact of illicit trade on India.

I am delighted that continuing with its legacy of being a torchbearer, FICCI CASCADE has prepared a report titled: 'Invisible Enemy: Impact of Smuggling on Indian Economy and Employment'. This is perhaps the first quantitative study in India, that estimates revenue and direct employment loss in five specific industries of the economy. I'm confident that the findings will help us enormously to blunt the impact of illicit trade, and chart our future course of action.

I would like to thank the Think-Tank members of FICCI CASCADE and TARI for their invaluable contributions, and I'm sure you will find this an interesting read.

Anil Rajput
Chairman, FICCI CASCADE

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Executive Summary

Invisible Enemy: Taking Away Livelihoods from Manufacturing

With the Government of India pledge to be a 5 US $ trillion economy by 2024-25, the country requires a sustained economic growth rate of 8 percent[1] that necessitates significant investment and structural economic transformation. India, however, faces a strange paradox riddled with conflicting choices. While on the one hand it is blessed with a huge demographic advantage – by 2020 the average age of its population at 29 years will be the youngest in the increasingly ageing world, which creates a huge domestic demand and consequently, consumption[2] – on the other, about 13 million youth will enter the labour force annually creating a huge demographic burden in the form of providing them employment and appropriate living conditions. The immediate challenge that India faces is how to bridge this huge gap of unemployment and underemployment and also to meet the increased aspirations of the millions of youth entering the workforce.

The most likely saviour for India will be the manufacturing industry – the Make in India initiative. Experts argue that the growth of manufacturing will be the key for growth in income and employment for multiple reasons including the huge multiplier effect it has on the economy and being scalable with higher labour absorption in comparison to services. TARI carried out a study[3]: Make in India 2015, to identify a few industries with marked competitive advantage for more focused action.

India needs its manufacturing sector to grow and provide the necessary space to accommodate its bulging labour force. Indian manufacturing sector is, however, affected by competition not only from legitimate international trade but equally from illicit trade/smuggling of the products across Indian borders.

However, India ranks low in the Global Illicit Trade Environment Index[4] and needs quantifiable actions to bring down the risks of illicit trade on the economy. In relation to three of the four elements viz. Government Policy, Supply and Demand and Customs environment of the index, India ranks in the third quartile of the 82 countries covered in the index and in terms of transparency and trade, it ranks 35 among 82.

With this perspective, this study was taken with following specific objectives:

- Identify and select five key industries that are significantly affected by smuggling
- Quantify the levels of smuggling in these industries during the period 2015-16 to 2017-18
- Estimate the direct employment loss in these industries due to revenue lost on account of smuggling
- Estimate total employment loss in the economy due to linkage of these industries with other sectors of economy

Smuggling: Definition, Ways and Its Economic Impact

Smuggling can be defined as “the clandestine import of goods from one jurisdiction to another.”[5] The World Customs Organisation (WCO) glossary defines smuggling as, “Customs offence consisting in the movement of goods across a Customs frontier in any clandestine manner, thereby evading Customs control.”[6] Smuggling of goods / products (herein “goods/products” means only “legal” or non-prohibited goods/ products) may take place through both legal channels of trade, i.e., normal movement of trade through designated customs

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[1] *Key Highlights of Economic Survey 2018-19, http://pib.nic.in/newsite/PrintRelease.aspx?relid=191213*

[2] *Economic Survey of 2014-15, Government of India*

[3] *Make in India, 2015, TARI and ASSOCHAM Report*

[4] *The Global Illicit Trade Environment Index- a report by Economic Intelligence Unit of The Economist, 2018*

[5] *Deflem, M. & Henry-Turner, K. (2001). Smuggling, the Encyclopaedia of Criminology and Deviant Behaviour, Clifton D. Bryant, Editor-in-Chief., Crime and Juvenile Delinquency, 2, 473-475*

[6] *http://www.aseansec.org/economic/customs/glos_wco.htm*

stations (port, air cargo, land custom stations) or illegal channels of goods movement by adopting different ways and means to evade customs duties. Smuggling taking place through illegal channels is referred to as outright smuggling and may be distinguished in two ways:

- Goods that do not undergo customs clearance in either the exporting country or in the importing country, India (Type A)
- Goods that pass-through customs clearance in the exporting country, but not in the importing country, India (Type B)

Within an institutional framework, firms may use legal trade to camouflage illegal trade. This illegal trade taking 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 and 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 (Type C). 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.

Regardless of different approaches to defining this complex issue, the effects of smuggling are numerous and economically significant. Smuggling is a serious problem and its impact are far reaching, affecting various stakeholders including Government, domestic industries and citizens of the country, such as:

Research Approach and Methodology

Due to its secretive nature and lack of verifiable data, it is never easy to calculate the quantum of smuggled goods with absolute precision. However, estimates can be made for broad conclusions on the risks and dangers that smuggling precipitates on India and for laying down basis for policy directions to counter such challenges. In order to meet objectives of the study and create reasonable basis for conclusions, we adopt a three-staged approach.

1. Estimates of Smuggling and Output Loss

There are three critical steps in the first stage that enable us to have estimates of smuggling and revenue loss in key manufacturing industries:

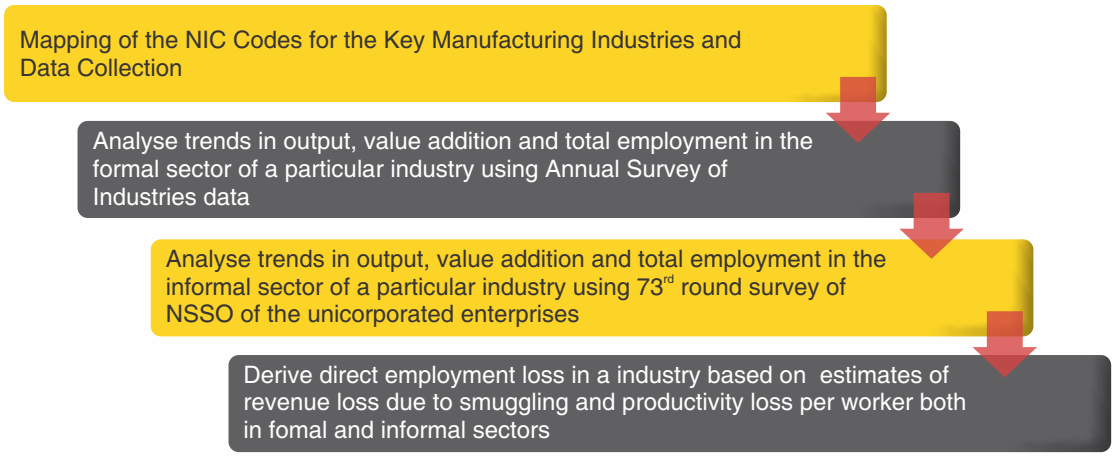
Our methodology based on the mirror trade statistics of the UN Comtrade database allows to make estimates about Type B and Type C smuggling. Following the checks and adjustments for any plausible reason for legitimate statistical differences in the trade discrepancy, the smuggling of a product A into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

As mentioned before, this study makes an implicit assumption that smuggling occurring from across the borders has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss for these domestic industries.

Smuggling of Product, A= Exports reported by World (partner countries) for Product A to India plus any adjustment made for unreported/missing exports during period i minus Adjusted imports reported by India for Product A during period i

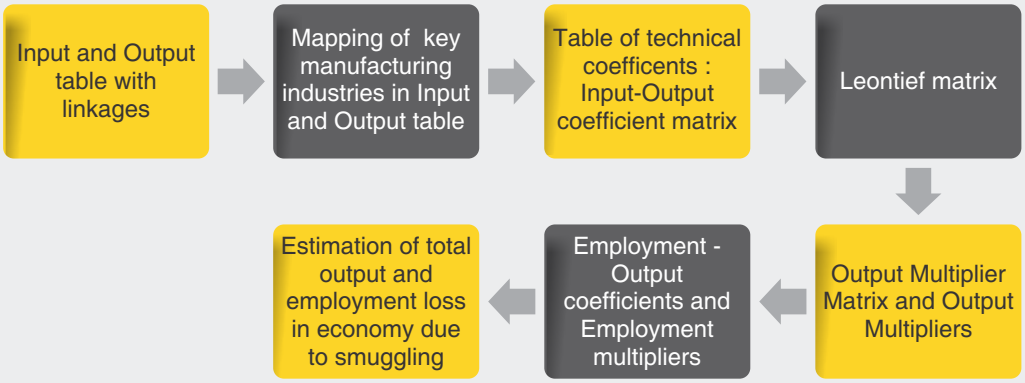
2. Assessment of Direct Employment Loss

The main focus of this stage of research is understanding general trends of key manufacturing industries and estimating the direct employment loss occurring in these industries because of revenue foregone due to smuggling. This stage of research involves the following steps:



3. Multiplier Effects and Assessment of Total Impact on the Economy

The third stage of our research approach computes multiplier effects and overall impact of output and employment loss in the economy because of linkage of selected manufacturing industries with other sectors. Higher is the multiplier effect, greater is impact on the economy. The process of employment multipliers and total loss of employment in the economy involves the following steps:



Identification and Selection of the Key Manufacturing Industries

We have used various indicators for identification and selection of key manufacturing industries for this study, as shown in the table below. One of the criteria for selection of the industries is the level of seizures of smuggled goods made by Customs department and the Directorate of Revenue Intelligence (DRI), which is an indicator of the quantum of smuggling that exists. Other important consideration for selection of industries include total number of enterprises, output and employment in these industries, as a proxy for the significance of the industry in relation to the economy and livelihood. *(The percentage shown in the brackets reflect the share of informal sector of these industries.[7])*

Key Indicators for Identification and Selection of the Key Manufacturing Industries[8]

Industry	Seizure Data[9] (Crore)	Total Number of Enterprises (Lakh)	Total Output (Crore)	Total Employment (Lakh)
Machinery and Parts	44.71	0.926 (86.9 %)	313935 (8.7 %)	12.73 (42.9 %)
Tobacco Products (Cigarettes)	162	32.79 (99.9%)	59666 (20.6%)	44.55 (88.6 %)
Textile Products (Silk, Yarn, Fabric)	41.48	26.21 (99.3 %)	448449 (16.4%)	65.43 (76.1 %)
Ready-made Garments	(included in textiles)	56.20 (99.8 %)	123397 (38.7 %)	89.48 (87.9 %)
Consumer Electronics	19.76	0.148 (96.0 %)	95170 (1.7%)	1.12 (32.3 %)

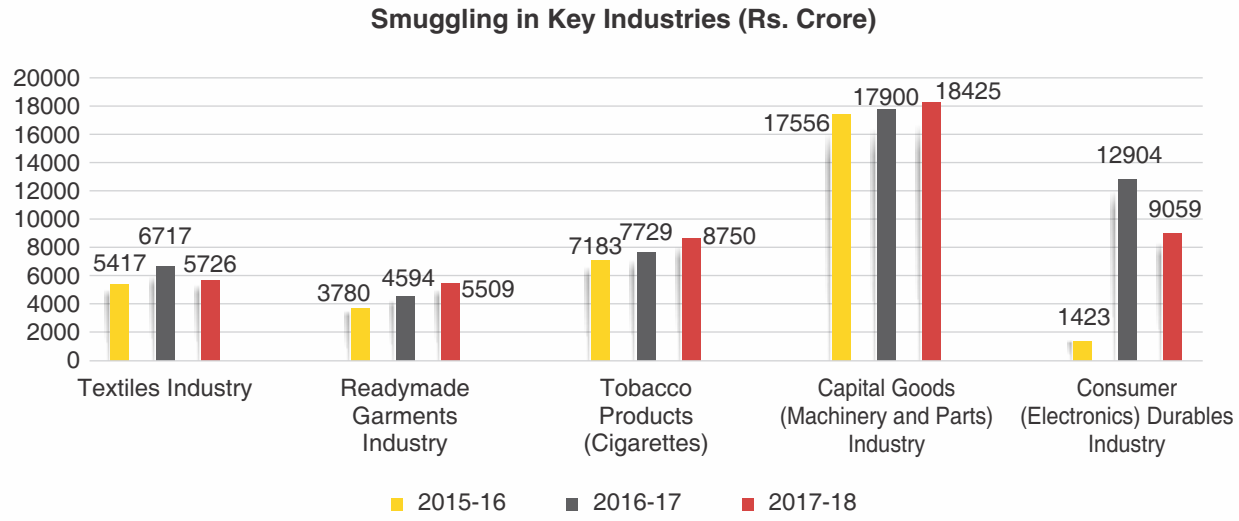
[7] *73rd Round NSSO Survey (2015-16) on Unincorporated enterprises (excluding construction) of India, NSSO, Government of India*

[8] *Source: Report No.5 of 2016 . Union Government (Indirect Taxes . Customs), CBEC, DRI data in NCRB Annual Reports, MoHA, Govt. of India, Annual Survey of Industries, MOSPI, Govt. of India, 73rd Round Unincorporated Enterprises of India, NSSO, Government of India*

[9] *This includes seizure done by DRI as well as customs officials. However, it is reasonable to say that seizures are just a minuscule fraction of actual smuggling (both outright and technical smuggling) taking place.*

Summary of Key Findings

Based on our research approach and methodology, we have estimated smuggling (equal to output loss to domestic manufacturing industry) in five key industries:



The direct loss of employment in these industries due to the revenue/output foregone, and the cascading effect of employment and output loss in other industries that get affected by its linkages to the industries which are impacted by smuggling. This is called the multiplier effect and is based on the tables generated by MoSPI and NCAER.

Summary of Key Findings						
Smuggling and Losses to Country	**Year**	**Textiles Industry**	**Readymade Garments Industry**	**Tobacco Products (Cigarettes)**	**Capital Goods (Machinery & Parts) Industry**	**Consumer (Electronics) Durables Industry**
Direct Employment Loss: Industry (Lakh)	2015-16	0.79	1.68	0.89	0.71	0.016
	2016-17	0.93	2.06	0.95	0.69	0.16
	2017-18	0.7	2.49	1.06	0.68	0.08
Total Output Loss: Economy (Crore)	2015-16	12974	9960	13248	50035	3370
	2016-17	16087	12105	14256	51015	35293
	2017-18	12636	14516	16138	52511	21452
Total Employment Loss: Economy (Lakh)	2015-16	2.51	2.32	2.8	6.39	0.25
	2016-17	2.96	2.85	2.98	6.22	2.31
	2017-18	2.21	3.44	3.34	6.12	1.25

Total employment loss in these five industries is about 5.01 lakh in 2017-18. Out of this 3.55 lakh jobs loss is readymade garments and tobacco products, being a largely a labour-intensive industry. Total estimated job loss in the economy is about 16.36 lakh because of the estimated smuggling in these five industries because of backward linkage and multiplier effects of these industries. However, these jobs losses are not absolute and are overlapping with one sector or other because of the linkage of one industry/sector with the other sectors of the economy

Textiles Industry: Estimates of Smuggling and Total Employment Loss

Fabrics, silk and yarn are core to the textiles industry, which is also considered to be the back-end industry of readymade garments industry. Textiles and apparel industry accounted for 12.65 percent of the manufacturing value addition and contributed to 2.3 percent to India GDP in 2016-17. The textile industry output is estimated at around Rs. 4.93 lakh crores (76.48 US $ billion) in 2017-18 and is expected to grow robustly. Textiles export is nearly 20 US$ billion and has a share of 6.5 percent in total country exports earnings in 2017-18. It provides livelihood to about 65 lakh people in 2017-18 of which 76 percent is in informal and traditional sectors such as handloom, handicrafts and small-scale power looms.

Key Findings

- Estimated smuggling based on the mirror trade statistics and output loss to domestic textiles industry is varying, increasing from Rs. 5,417 crores in 2015-16 to Rs. 6,717 crores in 2016-17, while coming down to Rs. 5,276 crores in 2017-18.
- Estimates for direct employment loss to domestic textile industry due to smuggling is also varying, increasing from 0.79 lakh in 2015-16 to 0.93 lakh in 2016-17 and coming down to 0.70 lakh in 2017-18.
- Textile industry has an output multiplier effect of 2.395, which leads to an economic value of loss in the wider economy due to smuggling of textile products. In 2015-16, it is valued at Rs. 12,974 crores which increased to Rs 16,087 crores in 2016-17 and reduced to Rs. 12,636 crores in 2017-18.
- For an employment multiplier effect of 3.172, the total employment loss in the economy because of smuggling of textile products increased from 2.51 lakh in 2015-16 to 2.96 lakh in 2016-17 and decreases to 2.21 lakh in 2017-18.

Readymade Garments Industry: Estimates of Smuggling and Total Employment Loss

Readymade garments (RMG) is the last stage of the textile and apparel value chain where the most value addition takes place. Textiles and apparel industry together accounted for 12.65 percent of the manufacturing value addition and contributed to 2.3 percent to India's GDP in 2016-17. The industry output is estimated at around Rs. 2.178 lakh crores (33.81 US $ billion) in 2017-18. Readymade garments export is nearly 17 US$ billion and has a share of 5.5 percent in the country exports earnings in the 2017-18. This industry provides employment and livelihood to 98.6 lakh strong labour force of which 87.9 percent are employed in the informal sector. This industry in India is growing at the rate of 13 percent since 2009 and estimated to be Rs. 6,48,400 crores in 2017-18.

Key Findings

- The estimated smuggling based on the mirror trade statistics and output loss to domestic readymade garments industry is showing a rising trend. It has increased from Rs. 3,780 crores in 2015-16 to Rs. 4,594 crores in 2016-17 and further rose to a level of Rs. 5,509 crores in 2017-18.
- Estimated smuggling results in the loss of about 1.88 percent to 2.53 percent of the total output of the domestic readymade garments industry.
- The direct employment loss to domestic readymade garments manufacturing industry estimates are 1.68 lakh in 2015-6, increasing to 2.06 lakh in 2016-17 and further rising to 2.49 lakh in 2017-18 due to increase in smuggling.

- Readymade garments have an output multiplier effect of 2.395, leading to total output loss in the economy of Rs. 9,960 crores in 2015-16, increasing to Rs. 12,105 crores in 2016-17 and further rising to Rs 14,516 crores in 2017-18 due to increase in smuggling in readymade garment industry.
- Total employment loss in the economy is 2.32 lakh in 2015-16 increasing to 2.85 lakh in 2016-17 and has further climbed to 3.44 lakh in 2017-18 due to increase in smuggling of readymade garments.

Cigarettes: Estimates of Smuggling and Total Employment Loss

The size of tobacco products manufactured in India (either factory, home or unorganised units) is estimated to be around Rs. 1,42,731 crores in 2016-17. The economic activities related to tobacco and tobacco products are estimated to generate livelihood to over 4.57 crore people. The entire tobacco industry contributes a significant 2.7 percent of the total gross tax revenue to the Government. The estimated tax revenue from tobacco industry is Rs. 46,154 crores in the 2016-17.

Key Findings:

- Estimates of smuggling of cigarettes based on mirror trade statistics data ranges from Rs -2.68 in 2015-16 crores to Rs. 111 crores in 2017-18, given the low quantum of imports into India make such estimates biased and unreliable and hence use of UN data for such purpose leads to fallacious conclusions. Moreover, higher seizures of cigarettes in comparison to estimated smuggling from mirror statistics trade data also test the reliability of such methods for cigarettes. Additionally, high levels of illicit cigarette consumption suggest that cigarette smuggling takes place through outright smuggling.
- Estimates of cigarette smuggling based on consumption approach shows that smuggling of cigarettes has increased from Rs. 7183 crores in 2015-16 to Rs. 7729 Crores in 2016-17 and further to Rs. 8750 crores in 2017-18, which results in 14 to 20 percent of output loss to domestic tobacco manufactures.
- Estimated direct employment loss to domestic tobacco manufacturing because of smuggling in cigarettes increased from 0.89 lakh in 2015-16 to 0.95 lakh in 2016-17 and further increased to 1.06 lakh in 2017-18, where formal sector accounts for 81.4 percent of the total direct employment loss.
- Tobacco products have an output multiplier effect of 1.844, leading to total output loss in the economy of Rs. 13,248 crores in 2015-16, increasing to Rs. 14,256 crores in 2016-17 and further rising to Rs 16,138 crores in 2017-18 due to increase in smuggling of cigarettes.
- With an employment multiplier effect of 3.15, total employment loss in the economy is 2.805 lakh in 2015-16 increasing to 2.985 lakh in 2016-17 that has further increasing to 3.341 lakh in 2017-18 due to increase in quantum of cigarette smuggling.
- The penetration of smuggled products has been steadily improving judging my dispersion of seizures across India and increase in the volume of smuggling over the years in reference.

Capital Goods Industry: Estimates of Smuggling and Total Employment Loss

Capital goods industry has a weightage of 8.22 in IIP and contributes 12 percent to the manufacturing sector and around 2 percent to India's GDP. The capital goods industry output is estimated at around Rs. 3.95 lakh crores (61.26 US $ billion) in 2017-18. However, about 40 percent of the domestic demand is still met from imports while industry is able to export 27 percent of its produce. Industry provides direct employment to about 14.62 lakh people in 2017-18. Capital goods has a factor of change of 50 per unit of investment in terms of direct employment and it generates employment for about 7 million people indirectly. The imports of capital goods in

2018-19 was Rs. 288,415 crores that amounts to about 8.02 percent of India's import bill and is at fourth place in the India's import bill.

Key Findings

- The quantum of smuggling and output loss to capital goods (machinery and parts) industry is Rs 17,556 crores in 2015-16, increasing to Rs. 17,900 crores in 2016-17 and has further increased to Rs. 18,425 crores in 2017-18.
- The estimated smuggling accounts for about 8.5 to 8.9 percent of the total capital goods (machinery and parts) imports and results in 4.7 to 5.6 percent loss to local manufacturers.
- The direct employment loss in the capital goods industry is 0.71 lakh in 2015-16, declining to 0.69 lakh in 2016-17 and again coming down to 0.68 lakh in 2017-18. The estimated direct employment loss in the industry is declining even though estimates of smuggling is increasing because of improvement in productivity of the industry, which shows lower number of workers for each unit of production in the sector.
- Machinery and parts have an output multiplier effect of 2.85, leading to total value of loss in the economy of Rs. 50,035 crores in 2015-16 increasing to Rs. 51,015 and further increasing to Rs. 52,511 crores in 2017-18 due to surge in smuggling of machinery and parts.
- For an employment multiplier of 8.97, the total employment loss in the economy because of smuggling of machinery and parts moves from 6.39 lakh is 2015-16, to 6.22 lakh in 2017-18.
- For an employment multiplier of 8.97, the total employment loss in the economy because of smuggling of machinery and parts is 6.39 lakh is 2015-16, decreasing to 6.22 lakh in 2016-17 and to 6.12 lakh in 2017-18.

Consumer (Electronics) Durables Industry: Estimates of Smuggling and Total Employment Loss

India's share in the global electronics production is about 3 percent (Rs. 3,87,525 crores or about 59 US $ billion) and it contributes about 2.3 percent to India's GDP. Consumer (electronics) durables industry has estimated output of Rs. 1.45 lakh crores (22. 644 US $ billion) with a market size of Rs. 2.05 lakh crores (US $ 31.49 billion) in 2017-18. Smart phones with a share of around 56 percent are one dominating segment of the consumer electronics and durables industry of India with their market expected to increase from US $17.66 billion in the 2017-18 to US$ 26.87 billion in 2022-23. The demand for electronic products in India was Rs. 6.83 lakh crores (106 US $ billion) in 2017-18, which is increasing rapidly and expected to reach a level of Rs. 26 lakh crores (400 US $ billion) by 2025-26. Swelling demand necessitates import substitution and a focus on domestic manufacturing. The imports of consumer electronics (durables) was Rs 1,72,709 crores (US $ 28.77 billion) in 2017-18, which accounts for about 6.18 percent of the country's total imports.

Key Findings

- Quantum of smuggling and loss to consumer (electronics) durables is significantly varying. The value of smuggling is Rs. 1,423 crores in 2015-16 that increased significantly to Rs. 12,904 crores in 2016-17 while again coming down to level of Rs. 9,059 crores in 2017-18.
- Smuggling accounts for 1 to 10 percent of the consumer (electronics) durables imports and results in about 0.15 to 12.65 percent loss to the local consumer durable manufacturers depending upon quantum of smuggling.
- Consumer durables industry being the most capital-intensive industries, formal sector accounts for more than 98 percent of the output and 68 percent of the employment of the industry.

- Direct employment loss to domestic consumer (electronics) durables industry is also showing significant variation and estimated to be 1672 in 2015-16 increasing to 15559 in 2016-17 while coming to 8406 in 2017-18.
- On account of output multiplier effect of 2.368 of consumer electronics, total loss in the economy is Rs. 3, 370 crores in 2015-16 increasing to Rs. 35, 293 crores in 2016-17 while coming down to Rs. 21,452 crores in 2017-18 due to change in quantum of smuggling.
- For an employment multiplier of 14.97, total employment loss in the economy because of smuggling of consumer durables is also varying, increasing from 0.249 lakh in 2015-16 to 2.314 lakh in 2016-17 and then again decreasing to 1.25 lakh in 2017-18.

Conclusions and Way Forward

Smuggling or illicit trade is among one of the factors that is impeding growth of the manufacturing sector. It harms the economy of a country in multidimensional ways. The ill effects of smuggling are felt widely across industries directly. Estimates of smuggling in the five key industries and direct and indirect employment lost in the economy signal toward the criticality of the problem faced by the country. Globalisation has made possible vast increase in trade, more mobility and fast means of communication—all of which have made smuggling easier. Coordinated efforts of the government and industry bodies are therefore needed to control the spread of smuggling. The possible way forward for the country to tackle the problem of smuggling and the recommendations for consideration are:

Smuggling is all pervasive with industry, government and society directly bearing its brunt. The extent of smuggling in the country is a cause for great concern. The customs department is doing its bit to manage legal trade movement and the parallel illegal channel. It has had to move away from the "gatekeeper" approach and is now investing heavily in technology, simplifying processes and recognising information as the basic lever of control. However, to effectively tackle the growing menace of smuggling in India, a lot more needs to be done to make the compliance and processes more robust and detection of such crime easier. Naturally, concerted efforts of the government, industry, consumers and international bodies are needed to achieve this challenging and mammoth task.

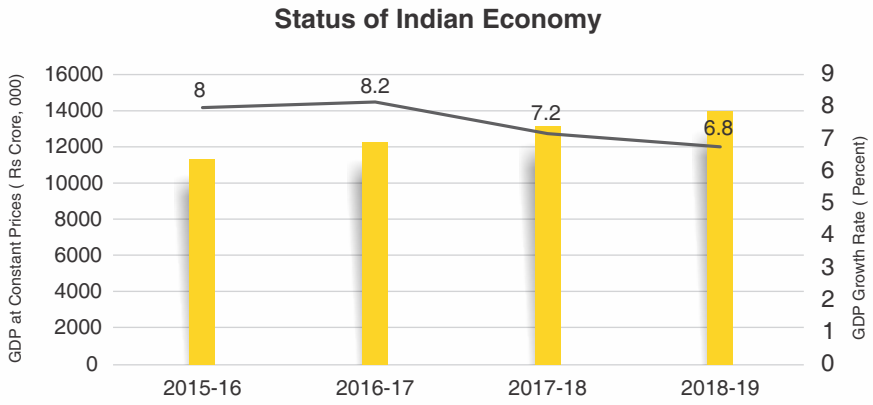
1

Invisible Enemy: Taking Away Livelihoods from Manufacturing

Invisible Enemy: Taking Away Livelihoods from Manufacturing

1.1 Indian Economy and Its Search for Sustainable Livelihood

Indian economy witnessed dramatic transformation and growth following its liberalisation in 1990s. The average annual growth rate, mainly led by a high proportion of services, of 8.4 percent from the period 1991 to 2016 has been impressive.[10] Indian economy has continued its growth trajectory despite global economic slowdown and is among the fastest growing economies of the world. In the volatile global environment, the Indian economy has shown a growth rate of 7.2 percent in 2017-18 and 6.8 per cent in 2018-19 whereas the world output growth has been only 3.8 per cent in 2017-18 and 3.6 per cent in 2018-19. India is the seventh largest economy in terms of Gross Domestic Product (GDP) in current US$ and with Purchasing Power Parity (PPP) adjustments, India's GDP at current international dollar, ranks third in the world.[11]



Source: *Economic Survey, 2018-19*

It is argued that economic growth is the most powerful tool to reduce poverty and improve the quality of life of people in developing countries. With the Government of India's pledge to be a 5 US $ trillion economy by 2024-25, the country requires an sustained economic growth rate of 8 percent[12] that requires significant investment and structural economic transformation.

Making in India: No longer a policy choice

India, however, faces a strange paradox riddled with conflicting choices. While on the one hand it is blessed with a huge demographic advantage – by 2020 the average age of its population at 29 years will be the youngest in the increasingly ageing world, which creates a huge domestic demand and consequently consumption[13] – on the other, about 13 million youth will enter the labour force annually creating a huge demographic burden in the form of providing them employment and appropriate living conditions.

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[10] *World Bank report in Indian Economic Outlook, cross reference in Primer on Employer Led Models of Job Creation, Perspectives and Case Studies, FICCI (2017)*

[11] *Economic Survey 2018-19, Government of India, Available at :https://www.indiabudget.gov.in/economicsurvey/ #statapp*

[12] *Key Highlights of Economic Survey 2018-19, http://pib.nic.in/newsite/PrintRelease.aspx?relid=191213*

[13] *Economic Survey of 2014-15, Government of India*

The immediate challenge that India faces is how to bridge this huge gap of unemployment and underemployment and also to meet the increased aspirations of the millions of youth entering the workforce. The changing demographic patterns suggest that today's youth is better educated, is probably more skilled than the previous generation and also is highly aspirational. Failure to engage them in productive work in the short and medium terms can easily disturb the delicate socio-economic balance, India has maintained so far and the fallout can be disastrous.

However, what we witnessed in the past is jobless growth, when 5 million jobs were lost between 2004-05 and 2009-10 while the economy was growing at an unprecedented rate of more than 8% annually. According to the Census India data, the number of people seeking jobs grew annually at 2.23% between 2001 and 2011, but growth in actual employment during the same period was only 1.4%, leaving a huge gap in the form of unemployment.[14] It is expected that about 109 million youths will enter into the labour market by 2022 and it will be an uphill task to productively employ them all.[15]

India's rapid economic growth during the past two decades or more has been driven mainly by the services, which has been heavily concentrated in the skill-intensive and organised segments, such as software development, financial services and other specialised work, and does not constitute the bulk of the employment.[16] The issue has also been highlighted in the economic survey of the 2018-19, which states that as compared to the 54 percent GVA contribution in Indian economy by the services sector its share in the employment is only 34 percent[17]. Clearly, services sector has not been able to absorb the burgeoning workforce. Development economists Amartya Sen and Jean Dreze say that even if India were to take over the bulk of the world's software industry this would still leave poor and illiterate masses untouched. It may be much less glamorous to make simple pocket knives etc. than to design state of the art computer programmes but the former gives the Chinese poor a source of income that the latter does not provide to the Indian poor.[18]

No less paradoxical is the condition of agriculture, which has been the mainstay of its workforce. In 2017-18, agriculture employed 50 percent of India's total workforce but its share of income was a mere 14 percent. Its share of both income and employment has been declining over the decades and it is highly unlikely that a large number of future jobs will come from it. One indication is that more than 36 million migrated from agriculture to non-agriculture jobs between 2004-5 and 2011-12.[19] Ground realities suggest that this trend will continue and will add more stress to the economy.

The World Bank data reveal that the average landholding shrunk from 0.33 hectare per capita in 1961 to 0.12 hectare per capita in 2016, increasing the burden on land and lowering productivity and income. Mechanisation of agriculture, which is about 40-45% now, is also increasing and will chip away more labour from farming. The landlessness in rural areas too is increasing. Clearly, agriculture can't provide future jobs.

The most likely saviour for India will, be the manufacturing industry – the Make in India initiative. Highlighting the importance of manufacturing sector, the 12th five-year plan pointed that, *"while the services sector has been growing fast, it alone cannot absorb the 250 million additional income-seekers that are expected to join the workforce in the next 15 years. Unless manufacturing becomes an engine of growth, providing at least 100 million additional decent jobs, it will be difficult for India's growth to be inclusive."*

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[14] *Make in India, 2015, TARI and ASSOCHAM Report*
[15] *Primer on Employer Led Models of Job Creation, Perspectives and Case Studies, FICCI (2017)*
[16] *What Ails Manufacturing?, N S Siddharthan, 2014.*
[17] *Economic Survey 2018-19, Volume 2*
[18] *An Uncertain Glory: India and its Contradictions, Jean Dreze and Amartya Sen, 2013*
[19] *Economic Survey of 2013-14, Government of India*

Experts argue that the growth of manufacturing will be the key for growth in income and employment for multiple reasons. One is the huge multiplier effect it has on the economy. For every job created in the manufacturing sector an additional three jobs are created in related activities.[20] The other important aspect is that manufacturing in India is scalable and has higher labour absorption in comparison to services.

While the importance of manufacturing is well understood, identifying specific industries for attention is not easy. The National Manufacturing Policy of 2011 and 'Make in India' initiative of the Government of India has identified a large number of industries (the latter has shortlisted 25 sectors which include a few from services) with the emphasis on drawing up an exhaustive list.

TARI carried out a study: Make in India 2015,[21] to select fewer industries with marked competitive advantage for a more focused action. This study is based on both external and internal reports to identify those industries which have inherent capacity to grow, add value to the economy and create more employment opportunities for the economy. It uses the five following parameters:

- Domestic market potential
- Labour absorption
- High productivity
- Total factor productivity growth and
- Export competitiveness and tradability

Based on the analysis of these parameters, the report identifies 14 industries as the potential leaders. These are:

- Textiles and Apparels
- Pharmaceuticals
- Metals and metal products
- Food processing
- Automotive industries
- Electronics and IT hardware
- Construction materials
- Gems and jewellery
- Chemicals
- Wood and furniture
- Leather products
- Capital goods
- Others: Handloom and handicrafts, Toys and Sports goods

Construction materials, chemicals, electronics and IT hardware, automotive, capital goods and textiles and apparels constitute 3/4th of domestic demand among all the industries taken for our analysis. Electronics and IT hardware, automotive, food processing, metals, wood and furniture and pharmaceuticals are among those industries which are expected to grow robustly with a CAGR of 15 percent or more.

Textile and apparel, automotive, construction materials and food processing industries provide maximum employment in the manufacturing sector. The sheer size of their employment makes them an automatic choice for labour absorption action plan.

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[20] *IBEF*

[21] *Make in India (2015), TARI and ASSOCHAM Report*

Textiles, leather, chemicals, pharmaceuticals, rubber and plastics, metals, electric and optical equipment and transport equipment have a TFP growth higher than the median value of 0.63 in the period of 2000-08, and hence, can significantly contribute to income.

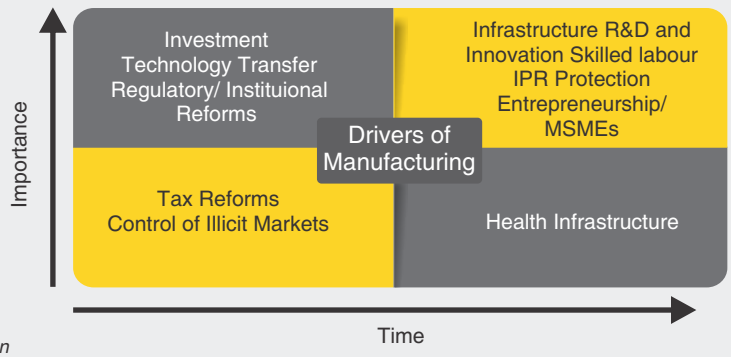
Chemical and textiles and apparels industries have fairly large domestic and exports markets. India also holds a competitive edge in these sectors but they require constant attention of the policy makers to maintain their competitive advantage.

Food and automotive sectors, which are quite large in terms of employment and export market, need to be strengthened with sound policy initiatives. Automotive industry in particular builds its own ecosystem of a large supply chain, including those from the MSMEs, which acts as a force multiplier for creating jobs and economic growth. India is replete with examples of suppliers to automotive companies in India which turned into large global players. Food processing also has the same capability to bring transformational changes.

Pharmaceuticals, gems and jewelry, and metals are the other high growth industries which should attract the attention of the policy makers because of their high export earning potential. They enjoy comparative advantage in export and are expected to maintain their leading positions for some years to come. Electronics and IT, along with capital goods, are among the highly productive, efficient and faster growth industries having large domestic as well exports markets. Handloom and handicrafts, toys and sports good and leather are high labour absorbing, require less capital, have large presence in the MSME sector, create significant exports, rural jobs and go a long way in preserving the arts and culture of India.

1.2 Drivers for 'Make in India'

TARI used the Quadrant Scenario Development Tool used by the economists worldwide to arrange these factors in different quadrants, on a matrix of relative importance and time continuum. This analysis identifies the drivers of growth in short and long run. TARI's analysis show that in the short run, boosting investment, facilitating technology transfer through FDI, easing of doing business through lower administrative burden and faster clearances, tax reforms that increase industry competitiveness and control of illicit markets will drive India's manufacturing sector.



Source: *Authors' Representation*

In the long run, factors like infrastructure development, improvement in R&D and innovation, higher skilling development, tighter intellectual property rights regime, promotion of entrepreneurship, MSMEs and an improvement in health infrastructure will boost manufacturing growth.

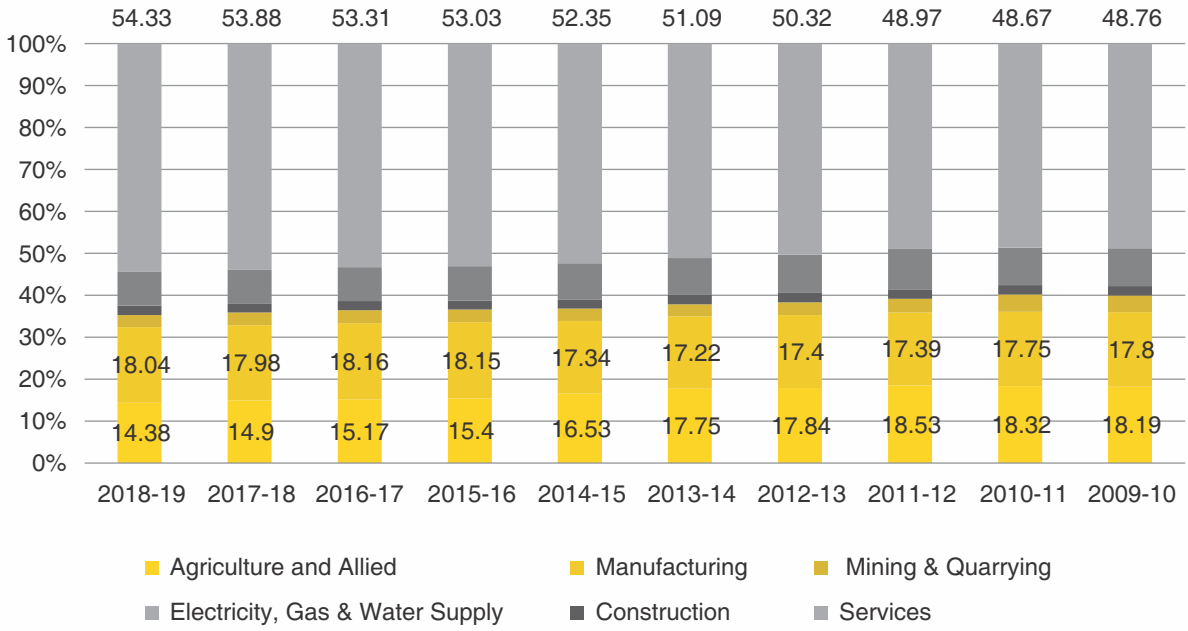
1.3 Putting the Objectives of The Study into Perspective

Manufacturing sector, as mentioned before, is crucial in dealing with the immediate challenge that India faces is how to bridge this huge gap of unemployment and underemployment and also meet the increased aspirations

of the millions of youth entering the workforce. The Government of India emphasis on this sector can be understood from the National Manufacturing Policy, 2011 and the Make in India initiative.

India needs its manufacturing sector to grow and provide the necessary space to accommodate its bulging labour force. However, the share of manufacturing in generating income and employment has been low. While the share of manufacturing sector in GDP, with base year 2011-12, is increasing slowly, it still hovers around 18 %, while majority of share still lies with services sector. This share of manufacturing is still very low compared to the developed economies, as the accompanying graph makes it clear.

Changing Sectoral Composition of GDP in India



Source: *RBI Database*

The manufacturing sector has potential and can be a game changer in fulfilling the dream of a 5 US $ trillion economy, while realising aspirations of millions of the people. While referring to "The 'Make in India' the President of India, speaking at a SCOPE conference in November 2014 said, *"we have one for the largest markets in the world and there is no dearth of demand for competitively priced, quality products."*

Indian manufacturing sector is, however, affected by competition from international trade and also afflicted by illicit trade/smuggling of the products across Indian borders. All this results in losses to domestic manufacturing industry and less demand of their products ultimately leading to downsizing or closure of these industries. This aspect has been highlighted in the 145th report presented in the Rajya Sabha,[22] "Impact of Chinese Goods on Indian Industry", which points that Chinese imports have played a negative role for domestic industry. The issue

[22] *145th report of the Rajya Sabha: Impact of Chinese Goods on Indian Industry, Parliamentary Standing Committee Report, July 2018. Available at : 164.100.47.5/committee_web/ReportFile/13/97/145_2018_7_13.pdf*

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. This has adverse impact on a number of domestic industries, particularly labour-intensive industries like textiles which traditionally have large employment generators in India, have been adversely affected.[23]

Seizure of Smuggled Chinese Goods		
Year	**Number of Cases**	**Value (Rs. Crore)**
2014-15	867	11747.45
2015-16	839	520.06
2016-17	1300	1024.40
2017-18 (till Dec,17)	1127	543.51
Total	4133	13835.4

Source: *CBIC, 145th report of the Rajya Sabha: Impact of Chinese Goods on Indian Industry*

The total instances of seizure of the smuggled Chinese goods during the period between 2014 and 2017 is 4133 with quantum of seized goods valued at Rs. 13835.4 crores. The Parliamentary Standing Committee in the Report on Impact of Chinese Goods on Indian Industry points that "the value of seized smuggled goods from China as seen in the Table above is quite high. The value must be much higher as a lot of goods may have been successfully smuggled into the Indian market."[24]

India ranks low in the Global Illicit Trade Environment Index[25] and needs quantifiable actions to bring down the risks of illicit trade on the economy. In relation to three of the four elements viz. Government Policy, Supply and Demand and Customs environment of the index, India ranks in the third quartile of the 82 countries covered in the index and in terms of transparency and trade, it ranks 35 among 82.

In this perspective, this study envisages to study smuggling or illicit trade and make an effort to analyse its impact on the domestic manufacturing industries and entire economy in terms of output and loss of employment.

This study has following specific objectives:

- Identify and select five key industries that are affected by smuggling
- Quantify the levels of smuggling in these industries during period 2015-16 to 2017-18
- Estimate the direct employment loss in these industries due to revenue lost on account of smuggling
- Estimate total employment loss in the economy due to linkage of these industries with other sectors of economy

[23] *145th report of the Rajya Sabha: Impact of Chinese Goods on Indian Industry, Parliamentary Standing Committee Report, July 2018. Available at : 164.100.47.5/committee_web/ReportFile/13/97/145_2018_7_13.pdf*

[24] *Page 15,145th report of the Rajya Sabha: Impact of Chinese Goods on Indian Industry, Parliamentary Standing Committee Report, July 2018. Available at : 164.100.47.5/committee_web/ReportFile/13/97/145_2018_7_13.pdf*

[25] *The Global Illicit Trade Environment Index- a report by Economic Intelligence Unit of The Economist, 2018*

2

Smuggling: Definition, Ways and Its Economic Impact

Smuggling: Definition, Ways and Its Economic Impact

Smuggling can be defined as "the clandestine import of goods from one jurisdiction to another."[26] The World Customs Organisation (WCO) glossary defines smuggling as, "Customs offence consisting in the movement of goods across a Customs frontier in any clandestine manner, thereby evading Customs control."[27] Smuggling, therefore, is a criminal offense of bringing into or removing from a country those items that are prohibited or upon which customs or excise (or GST) duties have not been paid.[28]

In context of the Customs Act, 1962 the term "smuggling" has vast connotations and means "any act or omission which will render such goods liable for confiscation under Sections 111 or 113 of the said Act."[29]

2.1 Smuggling of Products: Ways and Means

Whenever normal official trade gets obstructed on economic or non-economic considerations, especially between neighboring countries with long borders, unofficial or illicit trade becomes significant and occasionally even the dominant form of exchange of goods between/among such countries. Transnational smuggling is a common and rapidly growing problem in India as in most other parts of the world with prime motive of evading custom tariffs.

Smuggling of goods / products (herein "goods/products" means only "legal" or non-prohibited goods/ products) may take place through both legal channels of trade, i.e., normal movement of trade through designated customs stations (port, air cargo, land custom stations) or illegal channels of goods movement by adopting different ways and means to evade customs duties. Researchers have empirically proved that the legal and illegal trade takes place simultaneously.

Smuggling taking place through illegal channels is referred to as outright smuggling. Directorate of Revenue Intelligence (DRI) defines outright smuggling[30] as "the secret movement of goods across national borders to avoid customs duties or import or export restrictions."

Outright smuggling for goods coming across Indian borders may be distinguished in two ways:

- Goods that do not undergo customs clearance in either the exporting country or in the importing country, India (Type A)
- Goods that pass-through customs clearance in the exporting country, but not in the importing country, India (Type B)
- Smugglers fully evade the customs duty and trade restriction in the both A and B type of outright smuggling. In type A outright smuggling, smugglers need to undertake more risk and also high financial gains as they are able to fully evade inland taxes in exporting country. In type B smuggling, risk for smugglers are lower in the exporting country as it goes through legal channels and also, can avail some export incentives such as duty drawback.

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[26] *Deflem, M. & Henry-Turner, K. (2001). Smuggling, the Encyclopaedia of Criminology and Deviant Behaviour, Clifton D. Bryant, Editor-in-Chief., Crime and Juvenile Delinquency, 2, 473-475*

[27] *http://www.aseansec.org/economic/customs/glos_wco.htm*

[28] *M Merriman, D. (2002). Understand, Measure and Combat Tobacco Smuggling. World Bank, Economics of Tobacco Toolkit, Tool 7.*

[29] *Detailed connotation of what constitute smuggling under the Customs Act, 1962 is given in the Annexure 1*

[30] *http://dri.nic.in/main/whatwedo*

- Outright smuggling takes place through unauthorized channels are not covered under Customs Act 1962. Non-declaration (where no product is declared at port of entry) as well as not being in possession of any legal import documentation can also be considered as outright smuggling. Financial incentives for outright smuggling should be large enough for smugglers to avoid legal means and route. Outright smuggling is difficult to detect and among the main challenges for customs officials and DRI.
- Within an institutional framework, firms may use legal trade to camouflage illegal trade. This illegal trade taking 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 and can be referred to as "technical smuggling". This type of smuggling takes place through only authorized channels under the Customs Act, 1962. Under this kind of smuggling:
- Goods that pass-through customs clearance both in the exporting country and in the importing country, India (Type C)
- Importers may adopt different means to evade customs duty on goods and products. Ways and means of technical smuggling may be classified into four categories[31] based on seizure data of DRI:

Undervaluation	• under declaration of quantity or value
Mis-declaration	• mis-declare products from categories with high customs duty (including CVD, anti-dumping duty) to lower customs duty category
Misuse of End Use and Other Notifications	• mis-declaration of imports under such exemptions and not fulfilling pre-conditions
Other Means	• mis-declare country point of origin to avail certain benefits and avoid customs duties under these FTA/PTA • mis-use of Import-Export Code (IEC)

While different practices are involved in each case, each of these means of evading custom duties lead to shipments registered by the importer being lower than those registered by the exporter, for high-tariff products. The link with tariffs may arise from the higher pay-off of escaping normal taxation.

For purpose of this study, where we use trade data reported by the country from the UN COMTRADE, we will be evaluating following types of smuggling:

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

[31] *http://dri.nic.in/main/whatwedo*

2.2 Smuggling: Impact on the Economy and Employment

Regardless of different approaches to definitions of this complex issue, the effects of smuggling are numerous and economically significant. Smuggling is a serious problem and its impact are far reaching, affecting various stakeholders including Government, domestic industries and citizens of the country. Most customs, border and law enforcement officials, policymakers, and academicians agree that illegal trans-border trading results in major financial and social costs to economy and society - globally.

2.2.1 Loss of Government Revenue and Impact on Economy

Monetary costs arise from smuggling due to evasion of taxes and tariffs. Smugglers, by evading legal duties and taxes/tariffs, are an extra burden for the government's budget. A developing country relies more on indirect taxes as compared on direct taxes and low indirect tax collections may have harmful consequences for the government's ability to provide public goods. The provision of public goods increases productivity of economy[32], and thus not creating such public goods has a negative effect on productivity, development, and economic growth.[33] Smuggling may have a negative effect on official indicators such as growth and income distribution. It involves bribery and other forms of corruption and tends to promote criminal behaviour in the economy.

Customs duty forms a significant part of the Central Government revenues as accounts for 15 percent of the gross taxes and 34 percent of indirect taxes. Customs revenue has been coming down over the past few years because of the steady reduction in customs duties - the average MFN rate is about 10 percent now. Further there has been a proliferation of FTA's and consequential imports at preferential, lesser rates. In this context, when the impact of illicit trade or smuggling is contemplated, its impact on customs revenue further inhibits growth.

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[32] *Loayza, N.V. (1996) The economics of the informal sector: A simple model and some empirical evidence from Latin America, Carnegie-Rochester Conference Series on Public Policy, 45, 129-162; Johnson, S., Kaufmann, D. and Shleifer, A. (1997) The unofficial economy in transition, Brookings Papers on Economic Activity, 2, 159-221*

[33] *Norton, D. (1988). On the economic theory of smuggling, Economica, 55(217), 107-118. Deardorff, A. and Stolper, W. (1990) Effects of smuggling under African conditions: a factual, institutional and analytic discussion, Weltwirtschaftliches Archiv, 126(1), 116-41.*

Customs Revenue and Its Contribution to Indian Economy							
Year	GDP	Gross Tax Revenues	Gross Indirect Taxes	Customs Receipts	Customs Revenue as % of GDP	Customs Revenue as % of Gross tax	Customs as % of Indirect taxes
2011-12	77,95,314	7,93,307	3,45,371	1,35,813	1.74	17	40
2012-13	90,09,722	8,89,118	3,92,674	1,49,328	1.66	17	38
2013-14	1,01,13,281	10,36,235	4,74,728	1,65,346	1.63	16	35
2014-15	1,13,55,073	11,38,996	5,00,400	1,72,033	1.52	15	34
2015-16	1,25,41,208	12,45,135	5,49,343	1,88,016	1.50	15	34

Source: *Preface of Report No. 5 of Compliance Audit Customs Union Government Department of Revenue*

2.2.2 Impact on Domestic Industries and Employment

Smuggling may affect domestic industries by distorting prices of commodities. It affects domestic consumption pattern with supply of cheap or even contraband products. Smuggling drastically cuts prices of products, thereby significantly affecting the market for local products. Domestic industries become unviable in such a distorted market. Smuggling may result in mass lay-offs in domestic companies who are unable to counter cheap imports, leading to surge in unemployment in the country.

The 145th Parliamentary Standing Report presented in the Rajya Sabha[34] have clearly pointed how unfair or illicit imports from the China are affecting the domestic industries, particularly which are labour intensive such as textiles.

LOST OUPTUT

Smuggled goods are sold at prices cheaper than legitimate goods. This leads to lost sales and can even cause collapse of local industry

LESSER PROFITS

Smuggling deprives traders of free competition. Undercutting of prices by smugglers forces firms to lower their prices and impacts their demand negatively

Collapse or stunted growth of local industries causes low employment growth, or even worse, a loss of formal jobs

LOST EMPLOYMENT

Loss output and lesser profit reduces the direct and indirect tax collection for the Government from an industry or enterprise

LOWER TAX REVENUES

[34] *145th report of the Rajya Sabha: Impact of Chinese Goods on Indian Industry, Parliamentary Standing Committee Report, July 2018. Available at : 164.100.47.5/committee_web/ReportFile/13/97/145_2018_7_13.pdf*

2.2.3 Impact on Innovation and Investment

Innovation in the form of conception of new ideas for development of new products or processes and experimentation, has been recognised widely as an important driver of economic growth. Innovators protect their ideas through patents, copyrights, design rights and trademarks.

The 'Make in India' initiative of the Government of India is aimed at boosting manufacturing by facilitating investment, fostering innovation, enhancing skill development and protecting intellectual property rights. Without adequate protection of these intellectual property rights, the incentive to develop new ideas and products is reduced, thereby weakening the innovation process. In industries where product development requires significant investment and innovation, smuggling of counterfeit product impairs investments and innovation by undermining the efforts of innovators and discouraging them from further research and development, which ultimately hampers overall growth of the economy.

2.3 Identification and Selection of the Key Manufacturing Industries

We have used various indicators for identification and selection of key manufacturing industries for this study, as shown in the table below. One of the main bases for selection of the industries is the level of seizures of smuggled goods made by Customs department and the Directorate of Revenue Intelligence (DRI). Other important consideration for selection of industries include total number of enterprises, output and employment in these industries. The percentage shown in the brackets reflect the share of informal sector of these industries.[35]

Key Indicators for Identification and Selection of the Key Manufacturing Industries[36]

Industry	Seizure Data[37] (Crore)	Total Number of Enterprises (Lakh)	Total Output (Crore)	Total Employment (Lakh)
Machinery and Parts	44.71	0.926 (86.9 %)	313935 (8.7 %)	12.73 (42.9 %)
Tobacco Products (Cigarettes)	162	32.79 (99.9%)	59666 (20.6%)	44.55 (88.6 %)
Textile Products (Silk, Yarn, Fabric)	41.48	26.21 (99.3 %)	448449 (16.4%)	65.43 (76.1 %)
Ready-made Garments	(included in textiles)	56.20 (99.8 %)	123397 (38.7 %)	89.48 (87.9 %)
Consumer Electronics	19.76	0.148 (96.0 %)	95170 (1.7%)	1.12 (32.3 %)

The textiles products (silk, yarn, fabric), readymade garments and tobacco products are one of the most labour-intensive industries in the country, which have significant capacity to absorb labour and generate livelihoods, particularly in the informal sector. Capital goods (machinery and parts) and consumer (electronics) durables are future sectors of India, where there is significant demand and are among fast growing sectors. However, these industries have high reliance on the imports and have significant import substitution potential for 'Make in India' project.

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[35] 73rd Round NSSO Survey (2015-16) on Unincorporated enterprises (excluding construction) of India, NSSO, Government of India

[36] Source: Report No.5 of 2016, Union Government (Indirect Taxes, Customs), CBEC, DRI data in NCRB Annual Reports, MoHA, Govt. of India, Annual Survey of Industries, MOSPI, Govt. of India, 73rd Round Unincorporated Enterprises of India, NSSO, Government of India

[37] This includes seizure done by DRI as well as customs officials. However, it is reasonable to say that seizures are just a minuscule fraction of actual smuggling (both outright and technical smuggling) taking place.

3

Research Approach and Methodology: Estimation of Revenue and Employment Loss due to Smuggling

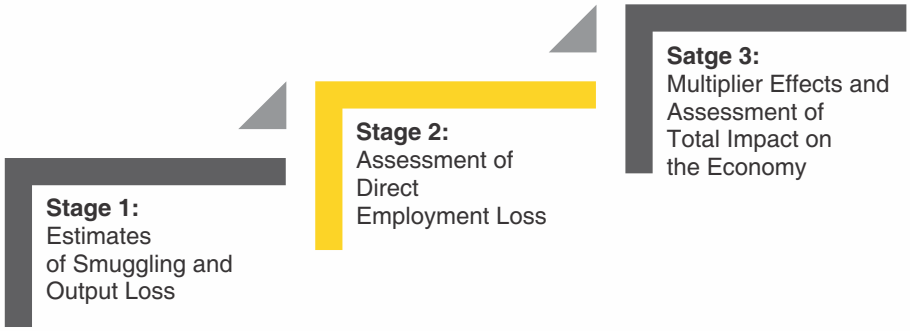
Research Approach and Methodology: Estimation of Revenue and Employment Loss due to Smuggling

This section focuses on the research approach and methodology that enables us to make estimates about revenue loss and direct employment loss in the industry as well as in the economy. This research, as each 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 of this report.

Our findings are based on credible data sources from the International agency (UN COMTRADE from United Nations Statistics Division) and Government of India, Ministry of Statistics and Programme Implementation (MoSPI) such as Annual Survey of Industries, NSSO 67th round and 73rd round survey. Our methodology for making estimates about illicit trade/ smuggling through mirror trade statistics and estimation of multiplier effects using Input-Output model developed by Nobel economic laureate Wassily Leontief, that are widely accepted and used worldwide. The main purpose of this report is only to highlight the consequences of smuggling on the domestic industries.

3.1 Research Approach

Due to its secretive nature and lack of verifiable data, it is never easy to calculate the quantum of smuggled goods with absolute precision. In addition, the literature review suggests there is no methodology available which can directly attribute loss of employment due to smuggling. This renders the assignment of making any estimates about smuggling and its impact on key manufacturing industries and the overall economy in terms of employment loss quite challenging and intricate. In order to meet objectives of the study, we adopt a three staged approach.



3.2 Estimates of Smuggling and Output Loss

The first stage of the study focuses on the estimation of output loss in five domestic manufacturing industries on the account of smuggling. Our study makes an underlying assumption that quantum of the estimated smuggling in a given manufacturing industry has direct impact on these industries and equal to their output loss. Therefore, the most important outcome of this stage is the estimation of smuggling in these industries.

Estimating smuggling is difficult and challenging because it is an illegal and hidden activity. Research has shown that different methods are available to estimate smuggling, but each one comes with 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 extent of smuggling. Further, indirect methods for estimating smuggling may be classified into four categories:[38]

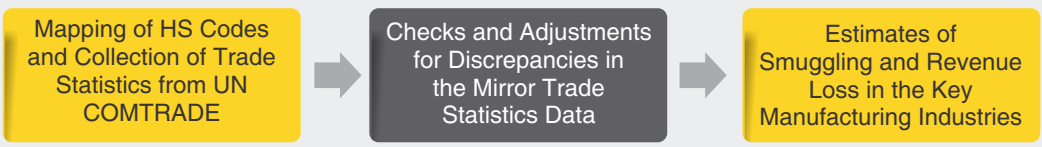
- Discrepancies between the sale of goods and the estimated consumption of those products by using household surveys
- Discrepancies between the sale of goods and the estimated consumption of those products by using econometric estimation
- Discrepancies between the trade figures of the target country with her trade partners
- Model approach or MIMIC (Multiple Indicators and Multiple Causes) method

This study based on its experience driven from its previous study[39] and in view of paucity of data availability adopts the methodology that estimates **"discrepancies between the trade figures of India with her trade partners"** for ascertaining the extent of smuggling in the goods of key manufacturing industries.

This method has its origin in the work of Morgenstern and is further developed by Bhagwati[40] who used this technique to compare the import data of Turkey from other countries with the recorded figures of export from trade partners of Turkey. This method has been widely used by the 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.

In international trade, each country records exports and imports of each product by country of destination. This methodology is able to capture observable smuggling (Type B and C)[41] with respect to custom clearance of imports done in India. The smuggling of a good/product into the country can be determined by assessing the gap between values of country's import from the reported amount of exports by all partner countries of the world. [42] While there could be several possible reasons[43] for this discrepancy, persistent discrepancies between these amounts that cannot be explained by other factors—provide an estimate of the amount of smuggling.[44] If the gap using this method is positive and consistent, then there is a reason to conclude that smuggling in a given good/product is taking place through various ways and means, such as outright smuggling, under-invoicing, mis-declaration, mis-classification etc.[45]

There are three critical steps in this research approach and methodology, which has been explained in the Annexure-II that enable us to have estimates of smuggling and revenue loss in key manufacturing industries:



Source: *Author's Representation*

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[38] *Merriman, D. (2002). Understand, Measure and Combat Tobacco Smuggling. World Bank, Economics Of Tobacco Toolkit, Tool 7. Available at: http://www1.worldbank.org/tobacco/pdf/Smuggling.pdf*

[39] *Invisible Economy- A study of the Top Five Products Smuggled into India, 2016, TARI and FICCI CASCADE*

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

[41] *As explained in the Section 2.1 Smuggling of Products: Ways and Means*

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

[43] *Possible reasons for discrepancy along with explanations discussed in the detail in the Annexure II*

[44] *Carrère, C. & Grigoriou, C. (2015). Can mirror data help to capture informal international trade ? Working Paper 123, Development Policies. Fondation Pour Les Études Et Recherches Sur Le Développement International.*

[45] *As explained in the Section 2.1 Smuggling of Products: Ways and Means*

Statistical Reasons for Discrepancies in the Mirror Trade Statistics Data

Ideally the mirror trade statistics for a country X, herein India, should reflect that exports from a country Y to a country X for a given product are equivalent to imports of the country X from country Y. However, the reported trade figures with 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. To have exact mirror statistics and make data comparable for analysing trade discrepancy due to smuggling related activities, the imports data needs to be checked and adjusted legitimate statistical for this difference. We have taken adequate steps to account for following reasons statistical discrepancy, that are well explained in the Annexure II:

- Different Nomenclature for Categorization of Products:
- Discrepancy due to valuations of exports (Free on Board- FOB) basis and Imports (Cost-Insurance Freight) basis
- Country of Origin/ Re-export Issue
- Timing Issue
- Exchange Rate Fluctuations
- Missing or unreported data on exports

Our methodology based on the mirror trade statistics of the UN Comtrade database allows 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 discrepancy, the smuggling of a product A into India can be estimated as given below:

As mentioned before, this study makes an implicit assumption that smuggling occurring from across the borders has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss for these domestic industries.

Smuggling of Product, A= Exports reported by World (partner countries) for Product A to India plus any adjustment made for unreported/missing exports during period i minus Adjusted imports reported by India for Product A during period i

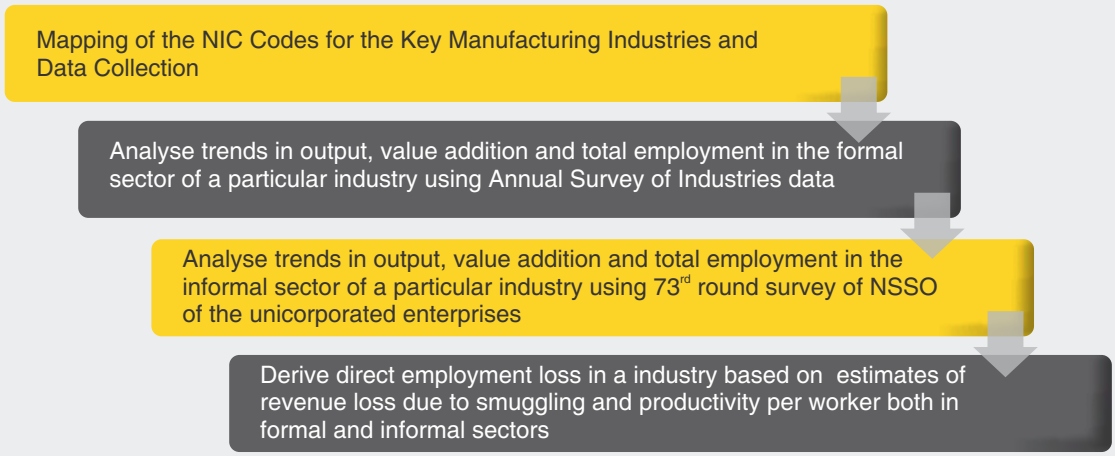
3.3 Assessment of Direct Employment Loss

The main focus of this stage of research is understanding general trends of key manufacturing industries in terms of the Output, Value Addition and Gross employment, and estimating the direct employment loss occurring in these industries because of revenue foregone due to smuggling. We have strived to arrive at holistic estimates of employment loss both in formal sector (incorporated/registered enterprises) and informal sector (unincorporated enterprises) of the industry with publicly available national level data from Annual Survey of Industries (ASI), MoSPI and 73rd round NSSO survey of the unincorporated enterprises of the India.

The important aspect of this research stage, assessment of employment generated in a given industry per Rs. crore of the output depending upon on the labour intensiveness and productivity of that industry. The final outcome

is assessment of employment that can be generated in the absence of forgone revenue loss to domestic manufacturing industry due to smuggling.

In this research stage, following steps (explained in Annexure II of the report) are undertaken to make estimates about direct employment loss due to smuggling in the both formal and informal sector of a manufacturing industry:



Source: *Authors Representation*

3.4 Multiplier Effects and Assessment of Total Impact on the Economy

The third stage of our research approach consists of multiplier effects and overall impact of output and employment loss in the economy because of linkage of selected manufacturing industries with other sectors. The major outcome of this stage is the estimation of multiplier effects using the Input-output (I-O) matrix technique, which through representation of interdependencies between different branches of a national economy allows to study inter-sector linkages.

Evaluating multipliers is an important tool in economic analysis, particularly for policy formulation, that measures how one factor changes in response to other factors and thereby estimates a sort of ripple effect on the overall economy. Multipliers are measured by the I-O model which incorporates the national-level multipliers used to measure the economy wide effect. An increase in demand has three effects, that add up to the '***total effect.*** It includes: direct, indirect, and induced effects."[46]

In the context of multiplier effects, ***Direct Effect*** is impact that an increase in final demand for a particular product/sector has, on the output of that product/industry, as producers react to meet the increased demand. ***Indirect Effect*** on the other hand measures the resultant increase in demand of their suppliers, etc. down the supply chain. ***Induced Effect*** combines effect of the direct and indirect effects, which lead to an increase in the level of household income throughout the economy as a result of increased employment. A proportion of this increased income will be re-spent on final goods and services, which is referred to as induced effect.

Another aspect of the multiplier application is linkages. ***Backward Linkages*** deal with the demand side of the production process. A rise in the demand by a sector/industry of inputs from other sectors/industries to meet its own production requirements, and its repercussions on the economy is termed as backward linkages. ***Forward Linkages*** deal with the supply side of the production process. A rise in the demand of a sector/industry to meet

[46] *https://labor.ny.gov/stats/PDFs/enys0405.pdf*

the input requirements of some other sector/industry and its repercussions on the economy is termed as forward linkages.

*For the purpose of this study, **Type I** multiplier will be calculated that measures the direct and indirect effects. Availability of data in the Indian context, with regard to compensation of employees for estimating the induced effect is not available for the period for which input-output tables are available. Further, we assess the backward linkages of a particular industry under consideration to check its linkage with down-the-line supply chain.*

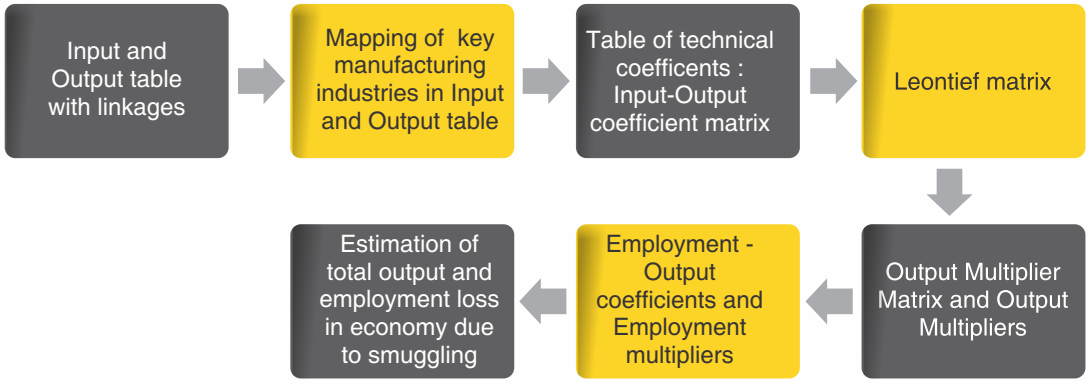
For the purpose of calculating the multiplier, a scientific and widely used method involving the "Input-Output (I-O) Table", originally developed by Nobel laureate, economist Wassily Leontief (1941) has been used. He developed quantitative economic technique based on input-output to represent interdependencies among different branches of a national economy or different regional economies.[47] The I-O model is a set of national-level multipliers that may be used to estimate the economy wide effect that an initial change in final demand has on an economy.[48]

An understanding of supply side economics tells us that in the absence of capacity constraints, a rise in demand leads to rise in output, which in turn increases employment, since, to produce more, manufacturers would need to employ more factors of production and labour is among the primary factors of production. The multiplier effect can therefore be calculated for these categories:

Multiplier Effect		
Output Multiplier	Value Added Multiplier	Employment Multiplier

We herein describe the steps (detailed methodology explained in the Annexure II) involved in the computation of multipliers for the output, value addition and employment in the key manufacturing industries based on the Input- Output tables and assessment of total impact on economy.

Process of Employment Multipliers and Total Loss of Employment in the Economy



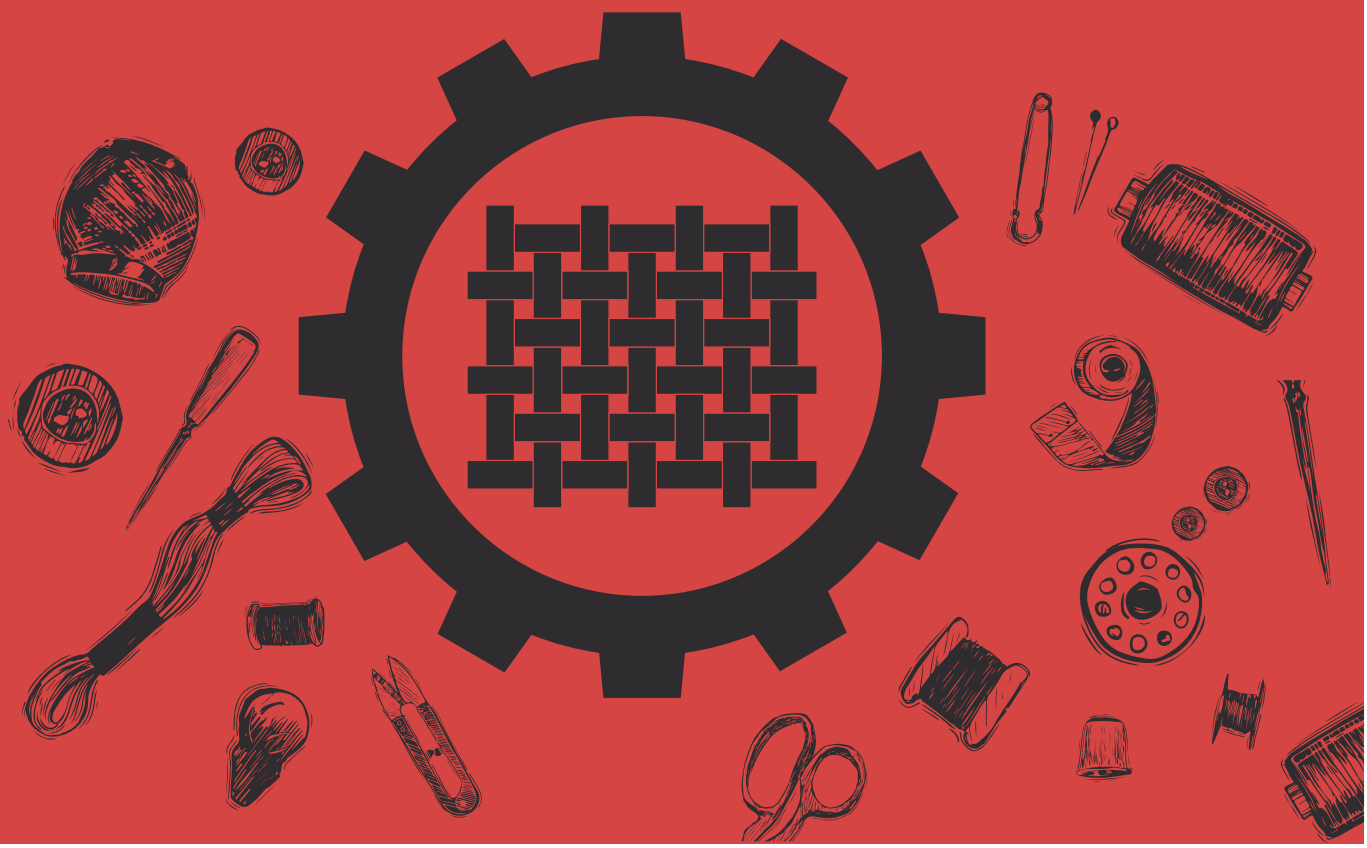
***Source:** Authors Representation*

[47] *Input-Output Economics: Theory and Applications - Featuring Asian Economies (Thijs ten Raa, 2010)*

[48] *Input-Output Models for Impact Analysis: Suggestions for Practitioners Using RIMS II Multipliers (Rebecca Bess and Zoë O. Ambargi - U.S. Bureau of Economic Analysis, Washington D.C) (2011)*

4

Textiles Industry



Textiles Industry

KEY HIGHLIGHTS

- *The textile industry output is estimated at around Rs. 4.93 lakh crores (76.48 US $ billion) in 2017-18 and is expected to grow robustly.*
- *Textiles exports is nearly 20 US$ billion and has a share of 6.5 percent in the country exports earnings in the 2017-18.*
- *It provides livelihood to about 65 lakh people in 2017-18 of which 76 percent is in the informal and traditional sectors such as handloom, handicrafts and small-scale power looms.*
- *Estimated smuggling based on the mirror trade statistics and output loss to domestic textiles industry increased from Rs. 5,417 crores in 2015-16 to Rs. 6,717 crores in 2016-17, coming down to Rs. 5,276 crores in 2017-18.*
- *Estimates for direct employment loss to domestic textile industry due to smuggling increased from 0.79 lakh in 2015-16 to 0.93 lakh in 2016-17, coming down to 0.70 lakh in 2017-18.*
- *Textile industry has an output multiplier effect of 2.395, which leads to an economic loss of value in the wider economy due to smuggling of textile products. In 2015-16, it is valued at Rs. 12,974 crores which increased to Rs 16,087 crores in 2016-17 and reduced to Rs. 12,636 crores in 2017-18.*
- *For an employment multiplier effect of 3.172, the total employment loss in the economy because of smuggling of textile products* increased from 2.51 lakh in 2015-16 to 2.96 lakh in 2016-17 and decreased to 2.21 lakh in 2017-18.

4.1 Textiles Industry: Overview

Fabrics, silk and yarn are core to the textile industry, which is also considered to be the back-end industry of the readymade garments industry. Textiles and apparel industry accounted for 12.65 percent of the manufacturing value addition and contributed to 2.3 percent to India's GDP in 2016-17. Textiles have a weightage of 3.29 in the Index of the Industrial Production (IIP) and have shown a growth of 1.1 percent on year to year basis in 2018-19.[49]

The textile industry value chain comprises of spinning, weaving, knitting and processing that produces different types of fibres, yarn and fabrics by consuming raw materials both from natural bases like cotton, wool, jute and silk and synthetic/man-made bases like polyester, viscose, nylon and acrylic, but it is predominantly cotton based. India stands top in production of jute yarn and is the second largest producer of cotton, cotton yarn, cellulosic fibre/yarn and silk. Moreover, India is the fourth largest producer of synthetic yarn/fibre.[50] However, in certain segments such as silk, India faces strong competition from countries such as China, with Chinese silk and yarn products flooding the Indian market. Cotton and man-made fibres, yarn and fabric which have a major share in both domestic consumption and exports (89 percent) have shown moderate growth in recent years.

[49] *Ministry of Textiles, Available at: http://texmin.nic.in/textile-data*
[50] *Golden Decades for India's Textile and Apparel Industry, Alok Industries, 2014*

Estimated Production of Cotton and Man-Made Fibre, Yarn and Fabric (in Million)								
Year	**Fibre and Yarn Production**					**Cloth Production**		
	Man-made fibre	Man-made filament yarn	Cotton yarn	Blended & 100% Non - cotton yarn	Total Spun Yarn	Mill sector	Decentralized sector	Grand Total (Exc. Khadi, Wool & Silk)
	Kg	Kg	Kg	Kg	Kg	Sq. mtr	Sq. mtr	Sq. mtr
2015-16	1347	1164	4138	1527	5665	2315	62269	64584
2016-17	1364	1159	4055	1604	5659	2264	61216	63480
2017-18	1319	1187	4064	1616	5680	2157	64688	66845

Source: *Ministry of Textiles*

The textile industry output is estimated at around Rs. 4.93 lakh crores (76.48 US $ billion)[51] in 2017-18 and is expected to grow robustly both on account of domestic demand and exports. Rising disposable incomes and evolving lifestyles of India's increasingly prosperous urban consumer, are broadening their clothing needs. Family celebrations and weddings in India continue to eat up an enormous share of Indian consumers' clothing budgets, especially silk. India has a 5 percent share of the global trade in textiles and apparel.[52] Textiles exports is nearly 20 US$ billion and has a share of 6.5 percent in the country exports earnings in the 2017-18.

Exports of Textiles (US $Mn)			
Segment	**2015-16**	**2016-17**	**2017-18**
Cotton Textiles	11134	10429	11910
Man-made Textiles	5213	5152	5388
Wool and Woollen Textiles	197	175	186
Silk Products	98	76	69
Handloom Products (including Carpets)	1811	1789	1785
Jute Products	577	321	342
Total	19030	17942	19680
Percentage of India's Exports	7.3%	6.5%	6.5%

Source: *Ministry of Textiles*

The criticality of this industry, however, can be understood from employment generation capacity, which gives livelihood to about 65 lakh people in 2017-18 and about 76 percent of employment is accounted for in the informal sector of industry. Traditional sectors of the industry including handloom, handicrafts and small-scale

[51] *Based on estimated data of informal and formal sector data from ASI and 73rd round NSSO on unincorporated non-agricultural enterprises, refer to textile industry tables in Annexure IV, exchange rate of 64.45 for US$ billion*

[52] *http://pib.gov.in/PressReleaseIframePage.aspx?PRID=1578534*

power loom are the biggest source of employment for millions of people.[53] With majority of inputs such as cotton, jute, silk and wool for textile industry coming from agriculture and allied sectors, growth of this industry has strong employment multiplier effect on this sector.[54]

To improve the employability of youths while creating jobs in the organised textile sector and promoting skilling and skill up-gradation in the traditional sectors, Government of India has approved a new skill development scheme named 'Scheme for Capacity Building in Textile Sector (SCBTS)' with an outlay of Rs 1,300 crore (US$ 202.9 million) from 2017-18 to 2019-20.[55]

The Government of India allows foreign direct investment up to 100 percent in the textiles sector and have several schemes including Amended Technology Up-gradation Fund Scheme (A-TUFS) that focuses investment, productivity and growth of the sector. The amended A-TUFS scheme has an outlay of Rs. 17,822 crores for technology upgradation and expected to mobilize new investment of about Rs. 95,000 crore and employment for 35 lakh persons by the year 2022.[56]

4.2 Estimates of Smuggling and Revenue Loss: Research Findings

Under the Harmonized Commodity Description and Coding System (HS Code 2012), textile products are recorded under the 2-digit HS codes 50, 51, 52, 53, 54, 55, 56, 58 and 60.[57] Textiles products account for nearly 1 percent of the India's total imports and its imports has been growing continuously in the last 5 years.

Source: *Authors Calculations, data from DGFT, Ministry of Commerce and Industry*

The Indian textiles industry faces shortage of raw materials in the form of cotton and man-made fibres and filaments that account for over 50 percent of the textiles imports. The 145th Parliamentary Standing Committee Report highlights imports of the cheap man-made fabrics from China have increased significantly on account of the GST structure on synthetic fibres have impacted domestic power looms adversely.[58]

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[53] *http://pib.nic.in/PressReleseDetail.aspx?PRID=1556841*

[54] *Estimates based calculations from Annual Survey of Industries and NSS Report 582, MoSPI*

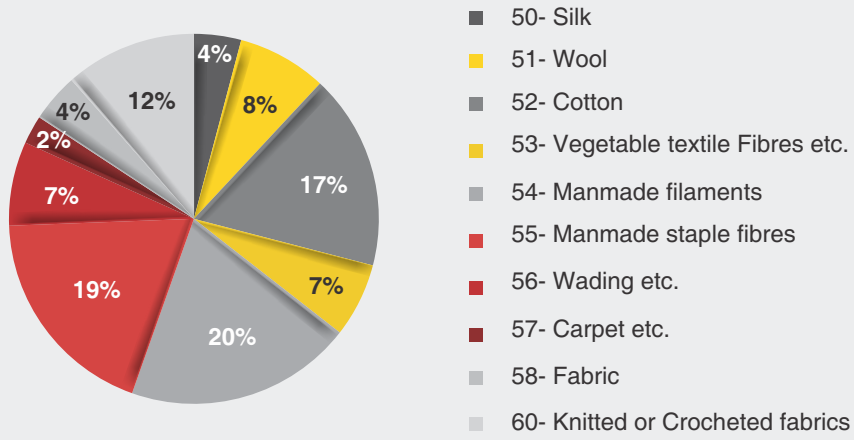
[55] *Ministry of Textiles*

[56] *http://pib.gov.in/PressReleaseIframePage.aspx?PRID=1578534*

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

[58] *145th report of the Rajya Sabha: Impact of Chinese Goods on Indian Industry, Parliamentary Standing Committee Report, July 2018. Available at : 164.100.47.5/committee_web/ReportFile/13/97/145_2018_7_13.pdf*

Sectoral Composition of Textile Imports



Source: *Authors Calculations, data from DGFT, Ministry of Commerce and Industry*

The estimated smuggling based on the mirror trade statistics and output loss to domestic textiles industry[59] increased from Rs. 5417 crores in 2015-16 to Rs. 6717 crores in 2016-17, coming down to Rs. 5276 crores in 2017-18.[60] Textiles imports is continuously rising in the recent years and based on adopted methodology smuggling is about 17.6 percent to 23.1 percent of the imports. China which accounts for about 35 to 40 percent of textiles imports, shows significant discrepancy in the mirror trade statistics.

Smuggling and Output Loss to Domestic Textiles Industry

Year	Smuggling (Rs. Crore)	Imports (Rs. Crore)	Smuggling (Percentage)	Total Industry Output (Rs. Crore)	Output Loss (Percentage)
2015-16	5417	26172	20.7%	448449	1.21%
2016-16	6717	29077	23.1%	470160	1.43%
2017-18	5276	30233	17.5%	492922	1.07%

Source: *Smuggling based on Data from UN Comtrade, Industry output based on ASI and & 73rd round NSSO Survey*

Estimated smuggling results in total output loss of 1.21 percent in 2015-16, 1.43 percent in 2016-17 and 1.07 percent in 2017-18 to the textiles industry,[61] which has a detrimental effect on industry itself in terms of sluggishness in industry growth, closure of industries and direct employment loss.

[59] *Based on implicit assumption that smuggling has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss*

[60] *Detailed calculations are given in the Annexure III*

[61] *Total industry output taking into account both formal sector data from Annual Survey Industry and informal sector data from the NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, MOSPI*

4.3 Direct Employment Loss in Textile Industry

The estimation of direct employment loss in the domestic textile industry is done based on the assessment of the both formal and informal sectors of this industry using methodology given in the Annexure II.[62]

The formal sector of textiles industry in 2017-18 is estimated to be around Rs. 4,12,000 crores with an employment of 15.5 lakh strong labour force. Reduction in employment capacity along with increase of the gross value addition (GVA) is implying that industry is becoming more capital intensive, more technological adoptive and having better employee productivity.

Textile Industry: The Formal Sector				
Year	**2015-16**	**2016-17**	**Growth**	**2017-18**
Number of Enterprises	17669	17714	0.25%	17759
Total Persons Engaged	1565090	1560102	-0.32%	1555130
Output (Rs. Crore)	374803.1	392948.8	4.84%	411973.1
Output Per Enterprise (Rs. Crore)	21.2	22.2	4.58%	23.2
GVA (Rs. Crore)	115892.4	124737.2	7.63%	134257.1
GVA Per Enterprise (Rs. Crore)	6.6	7.0	7.36%	7.6

Source: *Authors Calculation, Annual Survey of Industries, MoSPI*

The informal sector of the textile industry is largely dominated by rural enterprises (53 percent), but urban enterprises have major contribution both in output (82.2 percent) and employment (54.5 percent). The total employment in the informal sector of the textile industry is 49.8 lakhs.

Textile Industry: The Informal Sector, 2015-16							
Rural/ Urban	**Rural**		**Urban**		**Both**		**All**
Establishment (Type)	OAE	Estab.	OAE	Estab.	OAE	Estab.	
No. of Enterprises	1313239	64819	1014993	210484	2328233	275303	2603535
No. of Enterprises (%)	50.4%	2.5%	39.0%	8.1%	89.4%	10.6%	100.0%
Employment	1944090	323486	1566144	1144193	3510233	1467678	4977912
Employment (%)	39.1%	6.5%	31.5%	23.0%	70.5%	29.5%	100.0%
GVA (Rs. Cr.)	5359	2492	6934	15044	12294	17535	29829
GVA (%)	18.0%	8.4%	23.2%	50.4%	41.2%	58.8%	100.0%
Total Receipts (Rs. Cr.)	7620	5493	11085	49448	18705	54941	73645
Total Receipts (%)	10.3%	7.5%	15.1%	67.1%	25.4%	74.6%	100.0%
GVA per Enterprise (Rs.)	40810	384424	68318	714734	52802	636971	114572
Total Receipts per Enterprise (Rs.)	58022	847433	109212	2349248	80338	1995652	282867

Source: *Authors Calculation, NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India*

[62] *Methodology explained in Annexure II and calculation given in Annexure IV*

The direct employment loss in the textile industry because of smuggling is estimated taking into account output contribution and labour productivity of both formal and informal sectors of this industry.[63] Estimates for direct employment loss to domestic textile industry due to smuggling increased from 0.79 lakh in 2015-16 to 0.93 lakh in 2016-17, coming down to 0.70 lakh in 2017-18.

Direct Employment Loss in the Textiles Industry							
Year	Total	Formal	Informal	Informal			
				Rural -OAE	Rural - Estab.	Urban-OAE	Urban- Estab.
2015-16	79031	18904	60127	23482	3907	18917	13820
2016-17	93185	22290	70895	27687	4607	22305	16295
2017-18	69593	16647	52946	20678	3441	16658	12170

Source: *Authors Calculation based on assessment of formal and informal sectors*

The informal sector of the textile industry accounts for nearly 76 percent of the total employment loss. This reflects that smuggling can really impact these unincorporated enterprises. It could be difficult for the government to ascertain the exact quantum of loss in absence of robust information gathering systems.

4.4 The Multiplier Effect of Textile Industry – Total Employment Loss

The study has estimated backward linkages and multiplier effects of the textile industry for Output, Gross Value addition (GVA) and Employment, results of which are given in the following table. An output multiplier of 2.395 and value-added multiplier of 2.963 of the textiles industry suggests economic value addition in the economy from increased demand/output (per rupee) of the domestic textile products. Textile Industry has a multiplier effect of 1.2 on industry itself as per rupee increase in demand/output further increases the output of the sector.

Backward Linkages and Multiplier Effects: Textiles Industry			
Sectors	**Output**	**GVA**	**Employment (Per lakh Output)**
Agriculture and allied Sector	0.258	0.198	0.220
Mining	0.128	0.073	0.006
Textiles	1.200	0.405	0.187
Other Manufacturing	0.435	0.106	0.025
Construction	0.021	0.007	0.004
Electricity and Water Services	0.053	0.013	0.001
Trade	0.120	0.085	0.031
Services	0.179	0.111	0.021
Public administration	0.000	0.000	0.000
Total Backward Linkage	**2.395**	**0.999**	**0.495**
Coefficients	**1.000**	**0.337**	**0.156**
Multipliers (No.)	**2.395**	**2.963**	**3.172**

Source: *Authors' Calculations from NCEAR Input-Output table 2013-14, NSSO 2011-12*

[63] *Refer to Annexure II for detailed methodology and Annexure IV for calculations*

The textile industry has strong backward linkages in the economy on account of both output and employment. While the effect of backward linkage on output of feeding or input sectors is at par with the textile sector, the effect on employment is very significant.

The textile industry has an employment multiplier of 3.17 on the overall economy with a strong employment multiplier effect of 1.41 in the agriculture and allied sectors alone in comparison to other sectors. Therefore, any loss of employment in the textile industry has a severe impact on the agriculture sector particularly in inputs such as silk, cotton, wool, and jute.

Multiplier Effects and Overall Loss in Economy: Textiles Products		
Year	**Output (Rs. Crore)**	**Employment (Lakh)**
2015	12974	2.51
2016	16087	2.96
2017	12636	2.21

Source: *Authors' Calculations from multiplier effects from NCEAR input-output table 2013-14*

Textile industry has an output multiplier effect of 2.395, which leads to an economic loss of value in the wider economy due to smuggling of textile products. In 2015-16, it is valued at Rs. 12,974 crores which increased to Rs 16,087 crores in 2016-17 and reduced to Rs. 12,636 crores in 2017-18. Similarly, with an employment multiplier effect of 3.172, the total employment loss in the economy because of smuggling of textile products increased from 2.51 lakh in 2015-16 to 2.96 lakh in 2016-17 and decreased to 2.21 lakh in 2017-18.

5

Readymade Garments: Estimates of Smuggling and Total Employment Loss

Readymade Garments: Estimates of Smuggling and Total Employment Loss

KEY HIGHLIGHTS

- *The readymade garments industry output is estimated at around Rs. 2.178 lakh crores (33.81 US $ billion) in 2017-18.*
- *Readymade garments export is nearly 17 US$ billion and has a share of 5.5 percent in the country exports earnings in the 2017-18.*
- *Industry provides employment and livelihood to 98.6 lakh strong labour force of which 87.9 percent are employed in the informal sector.*
- *Industry in India growing at rate of 13 percent since 2009 and estimated to be Rs. 6,48,400 crores in 2017-18.*
- *The estimated smuggling based on the mirror trade statistics and output loss to domestic readymade garments industry is showing a rising trend. It has increased from Rs. 3,780 crores in 2015-16 to Rs. 4,594 crores in 2016-17 and further rose to the levels of Rs. 5,509 crores in 2017-18.*
- *Estimated smuggling results in a loss of about 1.88 percent to 2.53 percent of the total output of the domestic readymade garments industry.*
- *The direct employment loss to domestic readymade garments manufacturing industry estimates are 1.68 lakh in 2015-6, increasing to 2.06 lakh in 2016-17 and further rose to 2.49 lakh in 2017-18 due to increase in smuggling.*
- *Readymade garments have an output multiplier effect of 2.395; total output loss in the economy is Rs. 9,960 crores in 2015-16, increasing to Rs. 12,105 crores in 2016-17 and further rising to Rs 14,516 crores in 2017-18 due to increase in smuggling of readymade garment.*
- *Total employment loss in the economy is 2.32 lakh in 2015-16 increasing to 2.85 lakh in 2016-17 that has further risen to 3.44 lakh in 2017-18 due to increase in quantum of smuggling of readymade garments.*

5.1 Readymade Garments Industry: Overview

Readymade garments (RMG) is the last stage of the textile and apparel value chain where the most value addition takes place. Textiles and apparels industry together accounted for 12.65 percent of the manufacturing value addition and contributed to 2.3 percent to India GDP in 2016-17. Readymade garments have a weightage of 1.32 in the Index of the Industrial Production (IIP) and have shown a growth of 10.8 percent on year to year basis in 2018-19.[64]

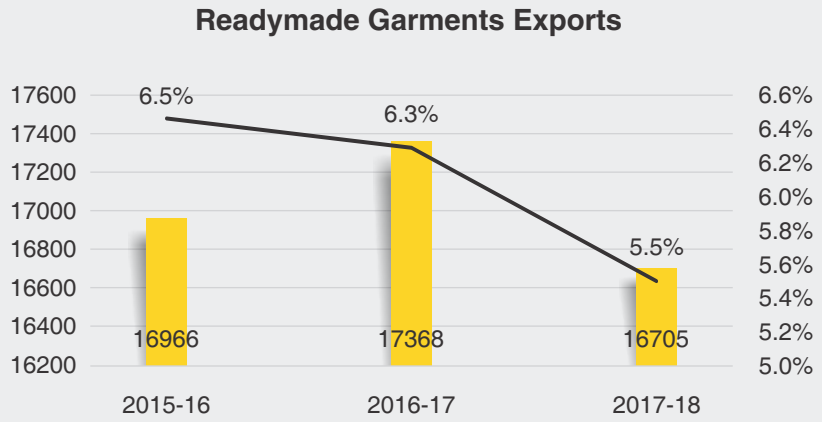
The readymade garments industry output is estimated at around Rs. 2.178 lakh crores (33.81 US $ billion)[65] in 2017-18 is expected to grow robustly both on account of domestic demand and exports. The domestic demand

[64] *Ministry of Textiles, Available at: http://texmin.nic.in/textile-data*

[65] *Based on estimated data of informal and formal sector data from ASI and 73rd round NSSO on unincorporated non-agricultural enterprises, refer to readymade garments industry tables in Annexure IV, exchange rate of 64.45 for US$ billion*

accounts for nearly three-fourth of the readymade garment industry and which has been driven by rising disposable income of population, increasing urbanisation, growth of service class and penetration of the retail sector in India. The industry in India has following segmentation: men's wear (41 percent), women's wear (38 percent) and kids wear (21 percent). The Indian metro centres contribute over 20 percent of the demand.[66]

India is the 5th largest exporter of readymade garments with a share of 4.1 percent in the global trade in apparels.[67] Readymade garments export is nearly 17 US $ billion and has a share of 5.5 percent in the country exports earnings in 2017-18. Unites States (US) and European Union (EU) accounts for nearly 60 percent of these exports. Indian readymade garments export is however declining due to global weak demand and strong competition from low manufacturing bases such as Bangladesh and Vietnam.[68]



Source: *Ministry of Textiles*

Readymade garments manufacturing being the least capital-intensive segment of the textile value chain is characterised by low entry barriers and is hence highly fragmented. The process of manufacturing a garment comprises of several steps: cutting, stitching, embroidery, fixing of accessories, dyeing etc.[69] All these processes are labour-intensive and requires skilled, unskilled and semi-skilled manpower. As per our analysis, the readymade garments industry is providing employment and livelihood to 98.6 lakh strong labour force of which 87.9 percent being employed in the informal sector.[70]

In order to boost employment and export potential in the apparel and made up segments, the Government of India has given a special package of Rs 6000 crores in June 2016 that consists of Remission of State Levies for garmenting and made-ups; additional production and employment linked subsidy of 10% under ATUFS for garmenting.[71] In addition, incentive for readymade garments with Enhancement of rates under Merchandise Exports from India Scheme (MEIS) interest rates from 2% to 4% is given for apparel to further boost exports of apparel w.e.f. 1st November, 2017.

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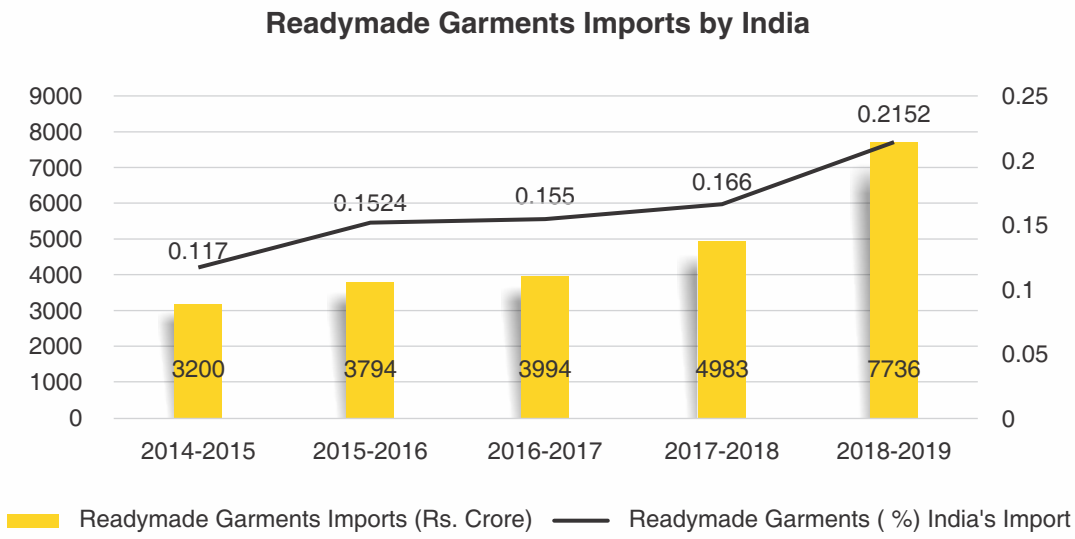
[66] *Indian Readymade Garments (Apparel) Industry Overview, CARE Ratings, April 17, 2019| Industry Research*
[67] *http://pib.gov.in/PressReleaseIframePage.aspx?PRID=1578534*
[68] *Indian Readymade Garments (Apparel) Industry Overview, CARE Ratings, April 17, 2019| Industry Research*
[69] *S Ray (2019), What explains India's poor performance in garments exports, ICRIER Working Paper 376, https://icrier.org/pdf/Working_Paper_376.pdf*
[70] *Estimates based calculations from Annual Survey of Industries and NSS Report 582, MoSPI*
[71] *http://pib.gov.in/PressReleaseIframePage.aspx?PRID=1578534*

To improve the employability of youths while creating jobs in the organised textile sector and promoting skilling and skill up-gradation in the traditional sectors, Government of India has approved a new skill development scheme named 'Scheme for Capacity Building in Textile Sector (SCBTS)' with an outlay of Rs 1,300 crore (US$ 202.9 million) from 2017-18 to 2019-20.[72]

5.2 Estimates of Smuggling and Revenue Loss: Research Findings

Under the Harmonized Commodity Description and Coding System (HS 2012), readymade garments are recorded under the 2-digit HS codes: 61 and 62.[73] The readymade garments imports of the India have growing continuously from 2014-15 and has more than doubled Rs. 7, 736 crores in 2018-19 that accounts for 0.21 percent of the country's total imports. Apparel imports have shown significant surge after 2017-18.



Source: *Authors Calculations, data from DGFT, Ministry of Commerce and Industry*

The estimated smuggling based on the mirror trade statistics and output loss to domestic readymade garments industry[74] is showing an increasing trend. It increases from Rs. 3, 780 crores in 2015-16 to Rs. 4, 594 crores in 2016-17 and further rises to levels of Rs. 5, 509 crores in 2017-18.[75]

It is interesting to note that while readymade garments imports have been growing continuously, smuggling has grown even faster with smuggling being 103 percent of imports in 2015-16 which rose to 124 percent in 2017-18. Significant domestic demand for readymade garments has given favourable arbitrage for smuggling to take place. China which accounts for nearly 40 percent of readymade garments imports, shows significant trade discrepancy based on mirror trade statistics, resulting in major cause for estimated smuggling. Further,

[72] *Ministry of Textiles*
[73] *Refer to Annexure II for detailed 4-digit HS code*
[74] *Based on implicit assumption that smuggling has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss*
[75] *Detailed calculations are given in the Annexure III*

neighbouring Bangladesh, which accounts for 23-25 percent of readymade garments imports of the country and with whom we share open land borders and have bilateral trade agreements, has not reported exports to India in 2016 and 2017. This route could, therefore, be vulnerable to illicit trade/ smuggling.

Smuggling and Output Loss to Domestic Readymade Garments Industry					
Year	**Smuggling (Rs. Crore)**	**Imports (Rs. Crore)**	**Smuggling (Percentage)**	**Total Industry Output (Rs. Crore)**	**Output Loss (Percentage)**
2015	3780	3668	103.0%	201271	1.88%
2016	4594	4031	114.0%	209407	2.19%
2017	5509	4437	124.1%	217871	2.53%

Source: *Smuggling based on Data from UN Comtrade, Industry output based on ASI and & 73rd round NSSO Survey*

Estimated smuggling results in the loss of about 1.88 to 2.53 percent of the total output of the domestic readymade garments industry.[76] This has a detrimental effect on industry itself in terms of sluggishness in industry growth, closure of industries and direct employment loss.

5.3 Direct Employment Loss in Readymade Garments Industry

The estimation of the direct employment loss in the domestic readymade industry is done based on the assessment of the both formal and informal sectors of this industry using methodology given in the Annexure II.[77] The formal sector of the readymade garments industry in 2017-18 is estimated to be around Rs. 133, 574 crores growing at rate of nearly four percent and employing 11.94 lakh strong labour force.

Readymade Garments Industry: The Formal Sector				
Year	**2015-16**	**2016-17**	**Growth**	**2017-18**
Number of Enterprises	10197	10049	-1.45%	9903
Total Persons Engaged	1083149	1137020	4.97%	1193570
Output (Rs. Crore)	123396.6	128384.6	4.04%	133574.1
Output Per Enterprise (Rs Crore)	12.1	12.8	5.57%	13.5
Gross Value Addition (Rs. Crore)	63622.0	65273.5	2.60%	66967.9
Gross Value Addition Per Enterprise (Rs. Crore)	6.2	6.5	4.11%	6.8

Source: *Authors Calculation, Annual Survey of Industries, MoSPI*

[76] *Total industry output taking into account both formal sector data from Annual Survey Industry and informal sector data from the NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, MOSPI*

[77] *methodology explained in Annexure II and calculation given in Annexure IV*

The informal sector of the readymade garments industry is able to generate livelihood for about 78.65 lakh population of the country as it is largely dominated by Own Account Enterprises (OAE) that accounts for nearly 90.7 percent of informal enterprises and 75 percent of labour force of the informal sector. However, it is only urban area readymade garments factory manufacturing enterprises that has significant contribution to informal sector output (49 percent) of readymade garments industry even though accounting for even less than 10 percent of enterprises.

Readymade Garments Industry: The Informal Sector (2015-16)

Rural/ Urban	Rural		Urban		Both		All
Establishment (Type)	OAE	Estab.	OAE	Estab.	OAE	Estab.	
No. of Enterprises	2713957	147025	2382563	366751	5096520	513776	5610296
No. of Enterprises (%)	48.4%	2.6%	42.5%	6.5%	90.8%	9.2%	100.0%
Employment	3072253	536336	2692278	1563612	5764531	2099949	7864479
Employment (%)	39.1%	6.8%	34.2%	19.9%	73.3%	26.7%	100.0%
GVA (Rs. Cr.)	12762	4051	16346	18554	29109	22604	51713
GVA (%)	24.7%	7.8%	31.6%	35.9%	56.3%	43.7%	100.0%
Total Receipts (Rs. Cr.)	17330	5368	22408	32768	39738	38136	77874
Total Receipts (%)	22.3%	6.9%	28.8%	42.1%	51.0%	49.0%	100.0%
GVA per Enterprise (Rs.)	47025	275500	68608	505897	57115	439965	92175
Total Receipts per Enterprise (Rs.)	63856	365080	94051	893472	77972	742264	138806

Source: *Authors Calculation, NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India*

The direct employment loss in the readymade garments industry because of smuggling is estimated taking into account output contribution and labour productivity of both formal and informal sectors of this industry.[78] The direct employment loss to domestic readymade garments manufacturing industry estimates are 1.68 lakh in 2015-16, increasing to 2.06 lakh in 2016-17 and further rising to 2.49 lakh in 2017-18 due to increase in smuggling. However, estimated direct employment loss in the industry is showing a declining trend even though smuggling is increasing because of improvement of productivity of the industry, which shows lower number of workers for each unit of production in the sector.

Direct Employment Loss in Readymade Garments Industry

Year	Total	Formal	Informal	Informal			
				Rural-OAE	Rural-Estab.	Urban-OAE	Urban- Estab.
2015-16	168021	20340	147682	57692	10071	50556	29362
2016-17	206078	24947	181131	70759	12353	62007	36012
2017-18	249308	30180	219129	85602	14944	75015	43567

Source: *Authors Calculation, ASI and 73 Round and NSSO survey on unincorporated enterprises*

[78] *Refer to Annexure IV for calculations*

The informal sector of the readymade garments industry accounts for nearly 87.9 percent of the total employment loss. This suggests that smuggling can really impact these unincorporated enterprises. It could be difficult for the government to ascertain the exact quantum of loss in absence of robust information gathering systems.

5.4 The Multiplier Effect of Readymade Garments Industry – Total Employment Loss

The study has estimated backward linkages and multiplier effects of the readymade garments industry for Output, Gross Value Addition (GVA) and Employment, results of which are given in the following table. An output multiplier of 2.635 and value-added multiplier of 3.305 of the readymade industry suggest economic value addition in the economy from increased demand/output (per rupee) of the domestic readymade garments.

Backward Linkages and Multiplier Effects: Readymade Garments Industry

Sectors	Output	GVA	Employment (Per lakh Output)
Agriculture and allied Sector	0.131	0.101	0.111
Mining	0.170	0.097	0.007
Readymade Garments	**1.006**	**0.293**	**0.621**
Other Manufacturing	0.884	0.221	0.048
Construction	0.029	0.010	0.005
Electricity and Water Services	0.075	0.018	0.002
Trade	0.125	0.089	0.032
Services	0.216	0.134	0.025
Public administration	0.000	0.000	0.000
Total Backward Linkage	**2.635**	**0.962**	**0.853**
Coefficients	**1.000**	**0.291**	**0.617**
Multipliers	**2.635**	**3.305**	**1.381**

Source: *Authors Calculations*

The results show that increase in the demand and output of the readymade garments industry can significantly impact the output of the other manufacturing sector, with backward linkage of 0.884. This other manufacturing sector is primarily the textile industry, which acts as back-end industry for readymade garments.

Multiplier Effects and Loss in Economy: Readymade Garments

Year	Output (Rs. Crore)	Employment (Lakh)
2015-16	9960	2.32
2016-17	12105	2.85
2017-18	14516	3.44

Source: *Authors Calculation*

Readymade garments have an output multiplier effect of 2.395, leading to total output loss in the economy of Rs. 9,960 crores in 2015-16, increasing to Rs. 12,105 crores in 2016-17 and further rising to Rs 14,516 crores in 2017-18 due to increase in smuggling of readymade garments.

The readymade garments industry is a high labour-intensive industry, that generates an employment of 62 persons per rupees crore of output and has an employment multiplier of 1.381 on the overall economy. Total employment loss in the economy is 2.32 lakh in 2015-16 increasing to 2.85 lakh in 2016-17 that has further risen to 3.44 lakh in 2017-18 due to increase in quantum of smuggling of readymade garments.

6

Cigarettes: Estimates of Smuggling and Total Employment Loss

Cigarettes: Estimates of Smuggling and Total Employment Loss

KEY HIGHLIGHTS

- *The size of tobacco products manufactured in India (either factory, home or unorganised units) is estimated to be around Rs. 1,42,731 crores in 2016-17.*
- *The economic activities related to tobacco and tobacco products are estimated to generate livelihood for over 4.57 crore people.*
- *The entire tobacco industry contributes a significant 2.7 percent of the total gross tax revenue to the Government. The estimated tax revenue from tobacco industry is Rs. 46,154 crores in the 2016-17.*
- *Estimates of smuggling of cigarettes based on mirror trade statistics data ranges from Rs -2.68 in 2015-16 crores to Rs. 111 crores in 2017-18. But higher seizures of cigarettes in comparison to estimated smuggling from mirror statistics trade data and levels of illicit cigarette consumption suggests that cigarette smuggling is taking place through outright smuggling.*
- *Estimates of cigarette smuggling based on consumption approach shows that smuggling of cigarettes has increased from Rs. 7183 crores in 2015-16 to Rs. 7729 Crores in 2016-17 and further to Rs. 8750 crores in 2017-18, which results in 14 to 20 percent of output loss to domestic tobacco manufactures.*
- *Estimated direct employment loss to domestic tobacco manufacturing because of the smuggling in cigarettes increased from 0.89 lakh in 2015-16 to 0.95 lakh in 2016-17 and again increased to 1.06 lakh in 2017-18, where formal sector accounts for 81.4 percent of the total direct employment loss.*
- *Tobacco products have an output multiplier effect of 1.844, leading to total output loss in the economy of Rs. 13,248 crores in 2015-16, increasing to Rs. 14,256 crores in 2016-17 and further rose to Rs 16,138 crores in 2017-18 due to increase in smuggling of cigarettes.*
- *For employment multiplier effects of 3.15, total employment loss in the economy is 2.805 lakh in 2015-16 increasing to 2.985 lakh in 2016-17 and further increasing to 3.341 lakh in 2017-18 due to increase quantum of cigarette smuggling.*

6.1 Tobacco (Cigarettes) Products Industry: Overview

The ASSOCHAM- TARI report estimates that the economic value chain of tobacco comprising of smokeless and smoking tobacco whether from factory, home or from unorganised units is approximately Rs. 1,42,731 crores in the fiscal year 2016-17.[79] The economic activities related to tobacco and tobacco products are estimated to generate livelihood to over 4.57 crore people viz farmers, farm labour, traders, manufacturers, distributors, retailers and tendu leaf workers.[80]

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

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

Unlike the rest of the world where cigarettes represent the 90 percent of the tobacco consumption, consumption of legal cigarettes account for only 11 percent of overall tobacco consumed in India. The balance consumption is represented by products like chewing tobacco, bidis and gutkha etc. and illegal cigarettes.[81] The total tobacco consumed in manufacturing of various tobacco products for the last 3 years has remained stagnant.

Quantity of Tobacco Consumed (Metric Tons)	
2015-16	69705.655
2016-17	64406.965
2017-18	66348.205

Source: *Lok Sabha Question 2907, Tobacco Board*

The entire tobacco industry contributes a significant 2.7 percent of the total gross tax revenue to the Government. The estimated tax revenue from tobacco industry is Rs. 46,154 crores in the 2016-17.[82] However, in terms of tax contribution, while cigarette consumption by volume is only 11 percent, it contributes about 87 percent of the tax revenue of the entire tobacco industry. This is because effective taxes on licit cigarettes on per kg of consumption is as high as 51 times than other tobacco products. Hence, this drives consumption towards illicit products, both homegrown and smuggled.[83]

6.2 Cigarette Smuggling: Impact and Estimates

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. The traffickers can make millions with little risk of detection or harsh punishments. Smuggling also leads significant loss of customs revenue to national Governments. According to estimates, illegal trade of cigarettes results in annual tax loss of US 40-50 billion worldwide.[84]

For instance, in Australia, according to an assessment by the Australia Crime Commission[85] in 2011-12 the ACBPS (Australian Customs and Border Protection Service) detected and seized 46 sea cargo importations of illegal tobacco, comprising a combined 175 ton of tobacco and 122 million cigarettes with duty evaded on these estimated at 128 million Australian dollars. According to a recent UK government report of 2019,[86] the cigarette illicit market is estimated to be 9 percent with total tax revenue lost in 2017-18 of 1 billion pounds.

Illicit cigarette trade or smuggling allows traffickers and their networks to circumvent borders; proceeds can be used to finance insecurity and instability.[87] In absence of data or research, the same might not be said about India but the threat cannot be ignored.

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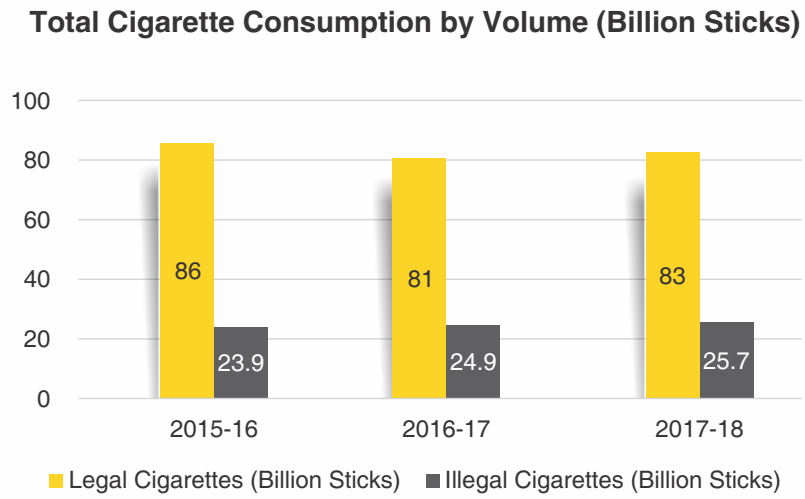
[81] *Tobacco in India- Importance & Policy Challenges, Tobacco Institute of India*
[82] *TARI and ASSOCHAM Report, 2019: Economic Value of the Tobacco Sector in India*
[83] *The severe Consequences of high Cigarette Taxation in India, Second edition, Tobacco Institute of India*
[84] *Patrick Petit and Janos Nagy. How to design and enforce tobacco excises? International Monetary Fund 2016.*
[85] *Organised Crime in Australia, 2013, an assessment by the Australian Crime Commission*
[86] *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.*
[87] *The Global Illicit Trade in Tobacco: A Threat to National Security, Department of State, US, December 2015*

The illicit cigarette trade pose serious security threat as there is evidence, globally, that organized transnational criminal groups are involved in it and money earned through it is used to fund serious criminal activities, including terrorism.[88] International Consortium of Investigative Journalists (ICIJ)[89] reports that some of the world's most feared terror outfits like Hezbollah, Taliban and al-Qaeda have been found to be involved in smuggling cigarettes, as are the Real Irish Republican Army (Real IRA) and the Kurdistan Workers' Party (PKK).

The legal cigarettes industry in India has been bearing the brunt of the flourishing illicit market, with consumption of legal cigarette witnessing a massive 25 percent drop in volume, getting to levels of 83 billion sticks in 2017-18 from the levels of 110 billion sticks in 2011-12. Illicit market on the other hand has been increasing constantly. A major driver for the rampant increase of smuggling is due to high taxes which create a significant arbitrage to fuel such activities. The following graph depicts the trend in consumption of legal and illicit cigarettes in India from 2015-16 to 2017-18:



Source: *Euromonitor International, 2018 for illicit cigarettes and GOI data on Excise from Cigarettes Shipments from Factories for legal cigarettes*

6.2.1 Estimates of Smuggling based on Mirror Statistics Trade Analysis

Under the Harmonized Commodity Description and Coding System, cigarettes are classified under the 4-digit HS code 2402. Last five-year data shows that cigarettes imports is showing a varying trend with a value of Rs. 173 crores in 2018-19. However, such a low value of imports in comparison to large domestic for cigarettes suggests that much of the trade is taking place in illicit ways to avoid high customs and make huge profits.

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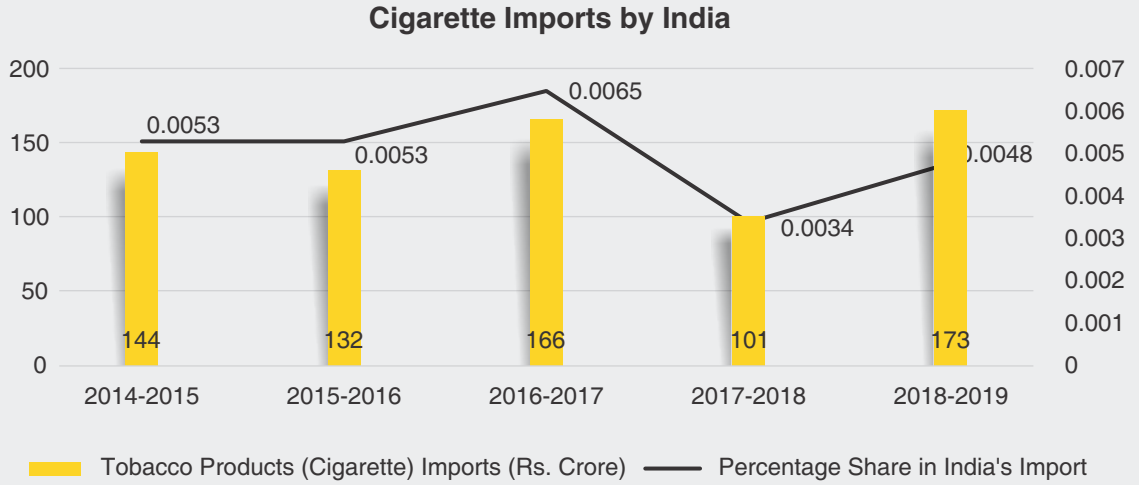
[88] *United States General Accounting Office, 'Terrorist Financing: US Agencies Should Systematically Assess Terrorists Use of Alternative Financing Mechanisms', Report to Congressional Requesters GAO-04-163, available at http://www.gao.gov/new.items/d04163.pdf and http://www.fctc.org/what-is-the-fctc/the-work-of-the-fca/illicit-trade/the-facts*

[89] *Terrorism and tobacco (2009), International Consortium of Investigative Journalists, available at http://www.icij.org/project/tobacco-underground/terrorism-and-tobacco*



Source: *Authors Calculations, data from DGFT, Ministry of Commerce and Industry*

Estimates based on mirror trade statistics data shows that smuggling in cigarettes is showing increasing trend in the recent years.[90] The value of smuggling which was Rs -2.68 crores[91] in 2015-16 has increased to Rs. 111 crores in 2017-18. Given the low quantum of imports into India estimates based on mirror trade statistics makes it biased and un reliable and hence use of this UN data for estimating smuggling will lead to fallacious conclusions.[93] Smuggling has increased in recent years as exports reported by partner countries is quite high as compared imports. This is in line with the significant customs duty as well countervailing duty on cigarettes imports and smuggling through under-declaration (value/ weight) of shipments is undertaken to evade taxes. Further, it is highlighted from the seizures of smuggled cigarettes that outright cigarette smuggling is taking place in the large containers through legal channels of customs trade by misdeclaration of cigarettes to scrap iron and steel, toys or waste papers that attract very little or no customs duty.

Cigarette Smuggling based on Mirror Statistics and Seizures

Year	Smuggling (Rs Crore)	Seizure (₹ crore)[93]
2015-16	-2.68	162.0
2016-17	45.13	130.1
2017-18	110.93	34.29[94]

Source: *Authors' Calculations, UN COMTRADE Database*

According to Tobacco Institute of India, the incidence of taxes on cigarettes has trebled in the last 6 years. These high taxes and duties provides smugglers an opportunity to earn huge profits by engaging in outright smuggling where illegal movement takes place through clandestine channels so as to avoid duties and taxes at the official ports of entry. That is, where either no product is declared at the port of entry or no legal import documentation is available.

[90] *detailed calculations are given in the Annexure III.*
[91] *Negative value may due to statistical reasons, missing/ unreported data explained in Annexure II*
[92] *detailed calculations are given in the Annexure III.*
[93] *Cigarettes seizures, https://www.tiionline.org/spurt-in-illegal-cigarette-seizures-in-india-table/*
[94] *Only includes DRI reported numbers*

This is further manifested in the seizure of cigarettes. The incidents of seizures of the smuggled cigarettes has more than doubled from 1,312 in 2014-15 to 3,108 in 2016-17.[95] In fact, the World Customs Organization (WCO) in its Illicit Trade Report, published in December 2016, underlines the growing smuggled cigarette trade in India. The Report states that "…Intelligence input and seizures made by Indian Customs indicate that smuggling of cigarettes in cargo, in baggage and in express shipments has increased considerably…".[96] Higher enforcement and surveillance efforts resulted in the spurt of smuggled cigarettes seizures.[97] Other interesting aspect to note is that the value of seized cigarettes amounted to Rs. 130.1 crores, which is higher than the total estimated value of Rs. 45.3 crores of smuggled cigarettes based on mirror trade statistics for the year 2016.

In their recent study, FICCI CASCADE also conclude that based on qualitative evidence, as the price of the legal cigarettes goes up due to higher taxes, consumers are willing to trade down and patronise smuggled cigarettes or even cheap and tax-evaded locally manufactured cigarettes. About three-fourth of cigarette smokers who participated in this study were willing to switch to such cigarettes, even when they knew it would jeopardise their health and wellbeing.[98]

Smuggling through legal channels in cigarettes is very small as compared to the large illegal cigarette market or the total consumption in India, also indicating that outright smuggling of cigarettes is quite pervasive in India, which fills up the gap between consumption and production by licensed manufacturers.

Due to above factors, a study based on trade gap alone will not provide accurate estimation of total size of smuggling of cigarettes in India, hence other corroborative methodologies are needed.

6.2.2 Consumption based Estimates for Smuggling in Cigarettes

This study has adopted a consumption-based methodology for having estimates of smuggling of cigarettes in India in view of the fact that mirror statistics estimate does not justify the level of smuggling of cigarettes in India.

Merriman and others have carried out analysis to determine the extent of smuggling of cigarettes based on a combination of factors including discrepancies in reported imports and exports, estimates of smuggling derived by external studies and price differentials between countries. Using this model, they estimated that between 6% and 8.5% of worldwide cigarette consumption is smuggled.[99] Thursby and Thursby[100] in their holistic analysis, allowed for wholesale smuggling, as well as bootlegging and cross-border shopping and analysing data from 39 US states from 1972 to 1990, found that cigarette smuggling ranges between 3% and 5% of US consumption in recent years of their study. In another study DeCicca, Sing, and Liu (2010) based on a survey directly observed smuggling behaviour and the extent of smuggling and found that 5% of smokers were engaged in the smoking smuggled cigarettes. In another study, Yurekli and Sayginsoy (2010)[101] estimate that worldwide cigarette smuggling based on data from 110 countries, accounts for roughly 3.4% of global cigarette consumption. However, researchers have pointed that there may be difference in values from country to country due to wider selection of countries.[102]

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[95] *Lok Sabha, Unstarred Question No. 4605, March 23, 2018 by Shri Raghav Lakhanpal*

[96] *https://www.tiionline.org/illegal-cigarette-seizures*

[97] *https://www.tiionline.org/spurt-in-illegal-cigarette-seizures-in-india-table/*

[98] *FICCI CASCADE (2016): Need for policy reforms to combat illicit markets: Case study on Tobacco Industry*

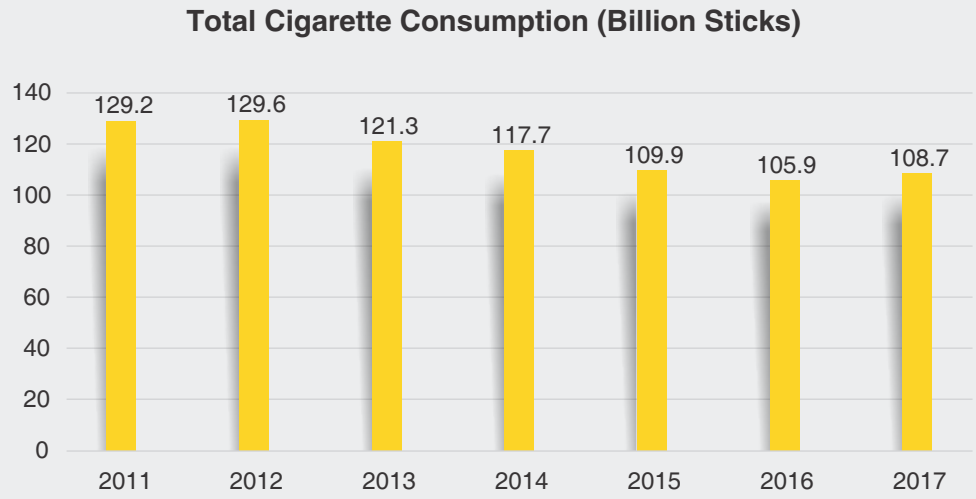
[99] *Merriman D., Yurekli, A. and F. J. Chaloupka (2000) .How big is the worldwide cigarette smuggling problem? Tobacco Control in Developing Countries, ed., Prabhat Jha and Frank Chaloupka, (Geneva: Oxford Medical Publications, 365.*

[100] *Thursby, Jerry G., and Mary C. Thursby. (2000). Interstate Cigarette Bootlegging: Extent, Revenue Losses, and Effects of Federal Intervention." National Tax Journal 53.(1), 59-78.*

[101] *Yurekli, A., and O. Sayginsoy. (2010). Worldwide Organized Cigarette Smuggling: An Empirical Analysis." Applied Economics 42 (23): 542-61.*

[102] *Burke, T. (2013). The Effect of Excise Taxes on Cigarette Smuggling : An Instrumental Variable Approach (CMC Senior Theses). Retrieved from http://scholarship.claremont.edu/cmc_theses/764*

Based on existing literature, this study determines the extent of smuggling based on **consumption** of illicit and legal cigarettes in the country. The graph below provides year wise consumption of cigarettes (both illicit and legal):



Source: *Euromonitor International, 2018 for illicit cigarettes and GOI data on Excise from Cigarettes Shipments from Factories for legal cigarettes*

Though the total consumption of cigarettes both legal and illicit have decreased but the consumption of illegal cigarettes tobacco in India has increased over this period, signalling a shift from legal products to the cheaper substitutes or illicit products, which have no or little tax element in them. This shift has grave social consequences being hazardous for security and health, as such products are with little oversight of regulators etc.

Global studies suggest that smuggled cigarettes range anywhere between 3% and 8.5% of total cigarette consumption during last decade. However, these studies are at least a decade old, while consumption of legal and illicit/ smuggled cigarettes have changed considerably in view of significant increases in taxes, particularly in the Indian context.

According to global consensus and estimates, illicit cigarette consumption is 600 billion sticks or 10 percent of the total cigarettes consumption.[103] According to Euro monitor International, India is now the 4th largest illegal cigarette market in the world and about 1/4th of the total market.[104] It is therefore believed that presence of smuggled markets is higher than developed countries.

India has over the years improved its surveillance and border patrol efforts and the seizure amounts have been increasing. However, ratio of seizures to smuggled cigarettes in India vary from 0 .3% in 2013 to 1.8% in 2015 (determined from estimated smuggled cigarettes) is much lower than global thresholds; an OECD report on illicit trade highlights that in 2011 average seizure rate was close to 10% for the European Union.[105]

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

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

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

Studies show that high taxation is not the only driver of illicit trade in cigarettes. Illicit trade also results from lack of control on cigarette manufacturing and the movement of cigarettes and other tobacco products across international borders to facilitate illicit trade. Also, it is run by criminal organisations with sophisticated systems for distributing smuggled tobacco products. Illicit trade is more common in low-income countries than high ones.[106]

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 the total consumption in India is in the range 8% -10% in the period 2015-17, which is in line with global estimates.

The economic unit price or value of smuggled cigarettes has been derived from the implicit rates (as shown in the table below) as declared by the government in relation to the cigarettes seized.

Seizure of Smuggled Cigarettes			
Year	**Seizure Volume (Mn Sticks)**	**Seizure Value (Rs Crore)**	**Ratio of value to Volume (₹ Crore / 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

Source: *Lok Sabha answers on July 24, 2015, CBEC, * calculated annualised figures*

The total volume of smuggled cigarettes and their respective values, estimated based on the above methodology for the period 2015-16 to 2017-18 are given below. Results show that even the output of the industry is declining, the smuggling of cigarettes is increasing because of increased consumption of the illegal and smuggled cigarettes.

Estimates of Cigarettes Smuggling in India (Rs. Crore)				
Year	**Smuggled Cigarettes**	**Smuggled Cigarettes**	**Industry Total Output**	**Output Loss**
	(Million Sticks)	**(Rs. Crores)**	**(Rs. Crores)**	**(%)**
2015-16	8792	7183	50381	14.26%
2016-17	9531	7729	46831	16.50%
2017-18	10870	8750	43531	20.10%

Source: *Smuggling based on Data from UN Comtrade, Industry output based on ASI and 73rd round NSSO Survey*

[106] *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.*

Estimates of cigarette smuggling based on consumption approach shows that smuggling of cigarettes has increased from Rs. 7183 Crores in 2015-16 to Rs. 7729 Crores in 2016-17 and further to Rs. 8750 crores in 2017-18, which results in 14 to 20 percent of output loss to domestic tobacco manufactures.

6.3 Direct Employment Loss in Tobacco Products (Cigarettes) Industry

The estimation of the direct employment loss in the domestic tobacco products (cigarette) manufacturing is done based on the assessment of the both formal and informal sectors of this industry.[107] The formal tobacco products industry in 2017-18 is estimated to be around Rs. 40,940 crores (growth rate from 2015-16 to 2016-17 is used to estimate data for 2017-18) based on output and employs nearly 4.30 lakh persons. The industry is showing sluggishness in growth due to increase in illicit trade of tobacco products and increase in taxes.

Formal Sector Output and Employment: Tobacco Products

Year	2015-16	2016-17	Growth	2017-18
Number of Enterprises	3825	3692	-3.48%	3564
Total Persons Engaged	509602	468398	-8.09%	430526
Output (Rs. Crore)	47382.0	44043.2	-7.05%	40939.7
Output Per Enterprise (Rs Crore)	12.4	11.9	-3.70%	11.5
Gross Value Addition (Rs. Crore)	25560.0	23506.2	-8.04%	21617.5
Gross Value Addition Per Enterprise (Rs. Crore)	6.7	6.4	-4.72%	6.1

Source: *Authors calculations, Annual Survey of Industries, MoSPI*

The total output of the informal sector of tobacco products manufacturing for year 2015-16 stands at Rs. 12, 284 crores with an employment of 39.46 lakh strong labour workforce. The informal sector of the industry is largely dominated by Own Account Enterprises (OAE) that account for nearly 99 % of enterprises and employ about 97 % of work force of this sector. Most of these OAE are involved in tobacco processing and beedi rolling kind of activities with very little capital investment but high labour involvement.

[107] *Methodology explained in Annexure II and calculation given in Annexure IV*

Tobacco Products: The Informal Sector (2015-16)							
Rural/ Urban	Rural		Urban		Both		All
Establishment (Type)	OAE	Estab.	OAE	Estab.	OAE	Estab.	
No. of Enterprises	2525319	29205	714374	6220	3239693	35425	3275118
No. of Enterprises (%)	77.1%	0.9%	21.8%	0.2%	98.9%	1.1%	100.0%
Employment	2946721	86104	883100	29858	3829821	115963	3945784
Employment (%)	74.7%	2.2%	22.4%	0.8%	97.1%	2.9%	100.0%
GVA (Rs. Cr.)	5984	784	2018	258	8002	1042	9044
GVA (%)	66.2%	8.7%	22.3%	2.9%	88.5%	11.5%	100.0%
Total Receipts (Rs. Cr.)	6981	2405	2303	594	9285	2999	12284
Total Receipts (%)	56.8%	19.6%	18.8%	4.8%	75.6%	24.4%	100.0%
GVA per Enterprise (Rs.)	23696	268443	28246	415340	24699	294235	27614
Total Receipts per Enterprise (Rs.)	27645	823383	32242	955278	28659	846541	37506

Source: *Authors Calculation, NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India*

We have estimated direct employment loss in the tobacco products (cigarettes) manufacturing considering only the output, labour and labour productivity of the formal and informal-establishments, where we believe that almost all of the cigarette manufacturing takes place.[108]

Direct Employment Loss in the Domestic Cigarettes Manufacturing			
Year	Total	Formal	Informal
2015-16	89184	72615	16664
2016-17	94896	77266	17731
2017-18	106226	86491	19848

Source: *Authors Calculation, ASI and 73rd Round and NSSO survey on unincorporated enterprises*

The estimated direct employment loss in domestic tobacco manufacturing because of the smuggling in cigarettes is increasing from 0.89 lakh in 2015-16 to 0.95 lakh in 2016-17 and again increasing to 1.06 lakh in 2017-18 due to increase in smuggling over the years. The formal sector accounts for 81.4 percent of the total direct employment loss.

[108] *refer to Annexure IV for detailed calculations*

6.4 The Multiplier Effect of Tobacco Products (Cigarettes) Industry – Total Employment Loss

The backward linkages and multiplier effects of the tobacco products (cigarettes) for Output, Gross Value Addition (GVA) and Employment are shown in the following tables. For calculation of employment multiplier, of cigarettes, we have taken the employment coefficient taking into account only the formal and informal-establishments where the cigarette manufacturing takes place.

Backward Linkages and Multiplier Effects: Tobacco Products (Cigarettes) Industry			
Sectors	**Output**	**GVA**	**Employment (Per lakh Output)**
Agriculture and allied Sector	0.230	0.177	0.196
Mining	0.042	0.024	0.002
Tobacco Products (Cigarettes)	**1.095**	**0.540**	**0.136**
Other Manufacturing	0.214	0.053	0.013
Construction	0.014	0.005	0.003
Electricity and Water Services	0.032	0.008	0.001
Trade	0.108	0.077	0.028
Services	0.109	0.068	0.013
Public administration	0.000	0.000	0.000
Total Backward Linkage	**1.844**	**0.952**	**0.391**
Coefficients	**1.000**	**0.493**	**0.124**
Multipliers	**1.844**	**1.929**	**3.146**

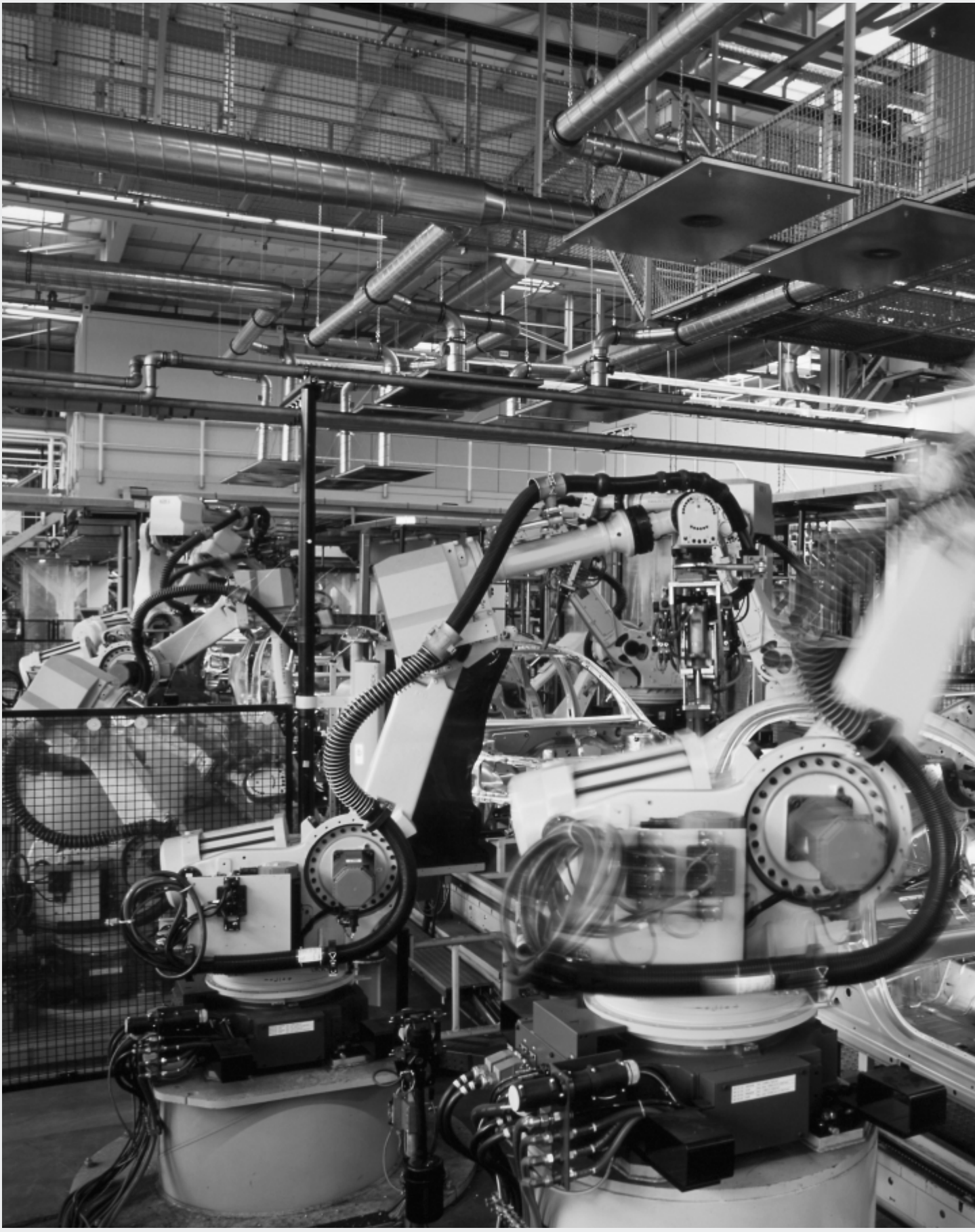
Source: *Authors' Calculations from NCEAR Input-Output table 2013-14, NSSO 2011-12*

An output multiplier of 1.844 and value-added multiplier of 1.93 of the tobacco products suggests economic value addition in the economy from increased demand/output (per rupee) from the domestic tobacco products industry. Analysis of the backward linkage shows that increase in the demand and output of the tobacco products can significantly increase the value of the agriculture (0.23), i.e., tobacco.

Multiplier Effects and Loss in Economy: Tobacco Products (Cigarettes)		
Year	**Output (Rs. Crore)**	**Employment (Lakh)**
2015-16	13248	2.805
2016-17	14256	2.985
2017-18	16138	3.341

Source: *Authors calculations*

Tobacco products with an output multiplier effect of 1.844, total output loss in the economy is Rs. 13,248 crores in 2015-16, increasing to Rs. 14,256 crores in 2016-17 and further rising to Rs 16,138 crores in 2017-18 due to increase in smuggling of cigarettes. For employment multiplier effects of 3.146, total employment loss in the economy is 2.805 lakh in 2015-16 increasing to 2.985 lakh in 2016-17 that has further risen to 3.341 lakh in 2017-18 due to increase in quantum of cigarette smuggling.



7

Capital Goods Industry: Estimates of Smuggling and Total Employment Loss

Capital Goods Industry: Estimates of Smuggling and Total Employment Loss

KEY HIGHLIGHTS

- *Capital goods industry has a weightage of 8.22 in IIP and contributes 12 percent to the manufacturing sector and around 2 percent to India's GDP.*
- *The capital goods industry output is estimated at around Rs. 3.95 lakh crores (61.26 US $ billion) in 2017-18. However, about 40 percent of the domestic demand is still meet from imports while industry is able to export only 27 percent of its produce.*
- *Industry provided direct employment to about 14.62 lakh people in 2017-18. Capital goods has a factor of change of 50 per unit of investment in terms of direct employment and generates employment for about 7 million people indirectly.*
- *The imports of capital goods in 2018-19 was Rs. 2,88,415 crores that amounts to about 8.02 percent of India's import bill and is at fourth place in India's import bill.*
- *The quantum of smuggling and output loss to capital goods (machinery and parts) industry was Rs 17,556 crores in 2015-16, increasing to Rs. 17,900 crores in 2016-17 and has further increased to Rs. 18,425 crores in 2017-18.*
- *The estimated smuggling accounts for about 8.5 to 8.9 percent of the total capital goods (machinery and parts) imports and results in the 4.7 to 5.6 percent loss to the local manufacturers.*
- *The direct employment loss in the capital goods industry is 0.71 lakh in 2015-16, declining to 0.69 lakh in 2016-17 and again coming down to 0.68 lakh in 2017-18. The estimated direct employment loss in the industry is declining even though estimates smuggling is increasing because of improvement of productivity of the industry.*
- *Machinery and parts have an output multiplier effect of 2.85, leading to total value of loss in the economy of Rs. 50,035 crores in 2015-16 increasing to Rs. 51,015 and which further increased to Rs. 52,511 crores in 2017-18 due to surge in smuggling of machinery and parts.*
- *For an employment multiplier of 8.97, the total employment loss in the economy because of smuggling of machinery and parts is 6.39 lakh is 2015-16, decreasing to 6.22 lakh in 2017-18 due to improvement in productivity of the industry even though smuggling has increased.*

7.1 Capital Goods Industry: Overview

Machinery and parts form a major segment of the capital goods industry in India which contributes 12 percent to India's manufacturing sector and around 2 percent to India's GDP.[109] Capital goods have significant weightage of 8.22 in the Index of Industrial Production (IIP), however, the industry has shown only moderate average growth of 3.33 percent in the last 3 years.[110]

[109] *National Manufacturing Policy 2016, Available at: https://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf*
[110] *Economic Survey 2018-19, Volume II*

Capital goods industry is the mother of all the industries and provides a critical and diverse range of machinery and equipment to serve a cross section of user industry segments ranging from defence, oil and gas, agriculture, refinery, nuclear, chemical and petro-chemicals, machine tools, to consumer durables, fertilizers, automobiles, textiles, steel, cement, paper, construction, mining, etc.

The capital goods industry output is estimated at around Rs. 3.95 lakh crores (61.26 US $ billion)[111] in 2017-18. The strong economic growth of the country has resulted in the rapid growth of this sector, which has grown over 2.93 times in the last 12 years, with an estimated industry output of Rs. 1.35 lakh crores in 2005-06.[112] However, about 40 percent of the domestic demand is still meet from imports while industry is able export only 27 percent of its produce.[113]

The demand for the capital goods is increasing at the rate of 10 percent and seven core investment areas that push demand includes: environmental solutions, logistics infrastructure, thrust on indigenization of manufacturing in aerospace and defence sector, urban infrastructure, meeting India's energy demand, basic materials such as cements, and food infrastructure.[114] The focus on Make in India with requirement of sustained economic growth will continue to drive this sector.

According to our estimates including both formal and informal sectors, capital goods industry provides direct employment to about 14.62 lakh people in 2017-18. However, it is expected that impact created by users of capital goods is approximately 50 times the direct employment and it also generates employment for about 7 million people indirectly.[115]

Capital goods industry has a significant multiplier effect on overall economic growth as it provides the foundational building blocks for a large number of user industries by providing critical inputs, that is, machinery and equipment, necessary for manufacturing.

Aligning with this view, the Economic Survey of 2018-19 states that, “capital investment fosters job creation as capital goods production, research and development, and supply chains also generate jobs.”[116]

Capital goods is one of the focus sectors for the Government of India as it has significant growth potential. The sector has been delicensed with 100 percent FDI allowance through automatic route. A boost to this sector is envisaged through this National Capital Goods Policy 2016 by providing for an enabling ecosystem for capital goods growth and ensuring sustained incentive for domestic manufacturers to service domestic as well as export market demand. The policy envisages increasing production of capital goods to Rs. 7.5 lakh crores and raising direct and indirect employment to the levels about 30 million. The policy also aims to facilitate improvement in technology, depth across sub-sectors, increase skill availability, ensure mandatory standards and promote growth and capacity building of MSMEs.[117]

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[111] Based on estimated data of informal and formal sector data from ASI and 73rd round NSSO on unincorporated non-agricultural enterprises, refer to capital goods industry tables in Annexure IV, exchange rate of 64.45 for US$ billion

[112] Accelerating growth in the Indian capital goods sector, McKinesy&Company, Prepared for FICCI Capital Goods Committee, December 2016

[113] National Manufacturing Policy 2016, Available at: https://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf

[114] Accelerating growth in the Indian capital goods sector, McKinesy&Company, Prepared for FICCI Capital Goods Committee, December 2016

[115] National Manufacturing Policy 2016, Available at: https://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf

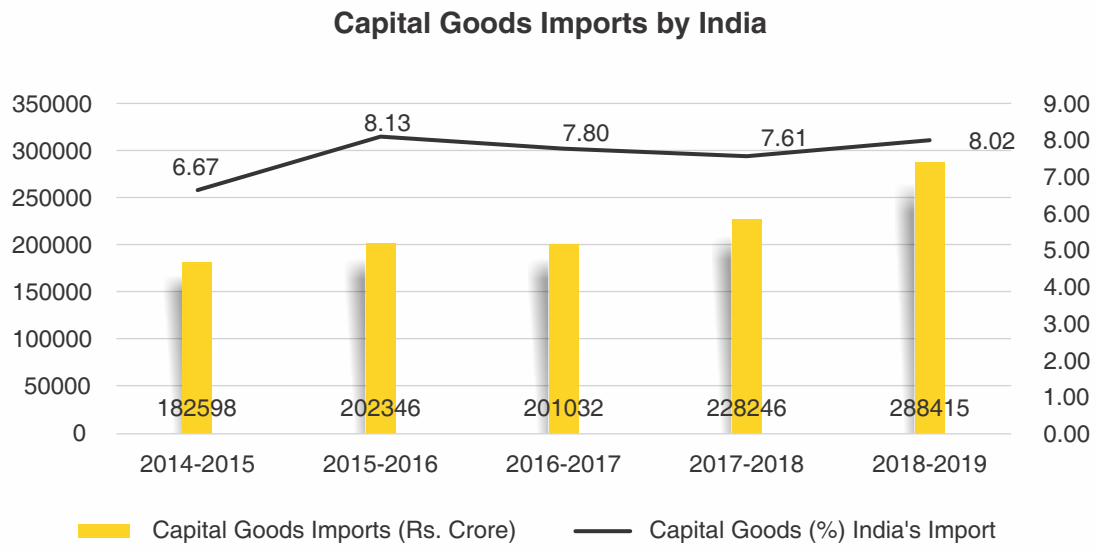
[116] Economic Survey 2018-19, Volume II

[117] National Manufacturing Policy 2016, Available at: https://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf

7.2 Estimates of Smuggling and Revenue Loss: Research Findings

Under the Harmonized Commodity Description and Coding System (HS 2012), capital goods are recorded under the 2-digit HS codes: 84.[118] Capital goods imports have been growing continuously over the last 5 years. The imports of capital goods in 2018-19 is Rs. 288,415 crores that accounts for about 8.02 percent of India's import bill and is at fourth place in India's import bill.

In recent years, production of capital goods has not grown fast enough to match domestic demands, leading to a growing dependence on imports. The industry has significant potential for import substitution and a focus on domestic manufacturing. The National Capital Goods Policy 2016 aims to increase domestic production of capital goods with focus to meet 80 percent of demand from domestic capital goods industry.[119]



Source: *Authors Calculations, data from DGFT, Ministry of Commerce and Industry*

The estimated smuggling based on the mirror trade statistics and output loss to domestic capital goods industry[120] is showing an increasing trend. The quantum of smuggling and output loss to capital goods (machinery and parts) industry is Rs 17, 556 crores in 2015-16, increasing to Rs. 17, 900 crores in 2016-17 and has further increased to Rs. 18, 425 crores in 2017-18. The increase in smuggling can be accounted for continuously increasing domestic demand and imports. However, we believe incentives for outright smuggling for machinery and parts are low and most of the smuggling is in form of under-declaration or mis-declaration and takes place under normal course of trade. The estimated smuggling accounts for about 8.5 to 8.9 percent of the total capital goods (machinery and parts) imports.[121] Our estimation of the total output of the domestic capital goods industry[122] suggest that estimated smuggling results in 4.7 to 5.6 percent loss to the local manufacturers.

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[118] *Refer to Annexure II for detailed 4-digit HS Codes*

[119] *National Manufacturing Policy 2016, Available at: https://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf*

[120] *Based on implicit assumption that smuggling has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss*

[121] *Detailed Calculations given in the Annexure III of the Report*

[122] *Based on the data from Annual Survey Industry and NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, MOSPI*

Smuggling and Output Loss to Domestic Capital Goods (Machinery and Parts) Industry					
Year	Smuggling (Rs. Crore)	Imports (Rs. Crore)	Smuggling (Percentage)	Total Industry Output (Rs. Crore)	Output Loss (Percentage)
2015-16	17556	197005	8.9%	313935	5.59%
2016-17	17900	204551	8.8%	352076	5.08%
2017-18	18425	217345	8.5%	394850	4.67%

Source: *Smuggling based on Data from UN Comtrade, Industry output based on ASI and & 73rd round NSSO Survey*

A plausible explanation for smuggling of machinery and parts in India can be the over dependence on imports and the lack of capacity in the domestic sector and the MSMEs as mentioned above. In recent years, production of machinery and parts has not grown fast enough to match domestic demand, leading to a growing dependence on imports. The continuous growth in imports since 2013 signifies consistent demand in the market but from sources outside India. This gap between domestic demand and supply presents an opportunity for illicit traders to step in to fulfil domestic demand and at the same time earn profits through tax evasion. The share of imports in the Indian capital goods market has increased from 34 percent in 2009-10 to 40 percent in 2014-15, indicating a looming threat to India's self-reliance and national security.[123] Another important reason for dependence on imports is that India's current level of technology depth ranges from basic to intermediate. Most of the value addition in India is taking place in limited areas such as simple fabrication and assembly of parts indicating limited ability in fundamental research on materials and components and low absorption of product technologies which ultimately hamper domestic production.[124]

7.3 Direct Employment Loss in Capital Goods Industry

The estimation of direct employment loss in the domestic capital goods industry is done based on the assessment of the both formal and informal sectors of this industry.[125] The formal sector of capital goods industry in 2017-18 is estimated to be around Rs. 360,398 crores with an employment of 8.34 lakh labour force. The Output and GVA of this industry per enterprise is continuously increasing in the last three years reflecting that industry's productivity has increased.

Capital Goods (Machinery and Parts) Industry: Formal sector				
Year	**2015-16**	**2016-17**	**Growth**	**2017-18**
Number of Enterprises	12124	12159	0.29%	12194
Total Persons Engaged	726498	778624	7.17%	834490
Output (Rs. Crore)	286542.8	321355.6	12.15%	360397.8
Output Per Enterprise (Rs. Crore)	23.6	26.4	11.83%	29.5
Gross Value Addition (Rs. Crore)	124488.5	132781.1	6.66%	141626.2
Gross Value Addition Per Enterprise (Rs. Crore)	10.3	10.9	6.35%	11.6

Source: *Authors Calculation, Annual Survey of Industries, MoSPI*

[123] *National Capital Goods Policy 2016 (http://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf)*
[124] *Accelerating growth in the Indian capital goods sector, McKinesy&Company, Prepared for FICCI Capital Goods Committee, December 2016*
[125] *Methodology explained in Annexure II and calculation given in Annexure IV*

The informal sector of capital goods industry is dominated by the urban area establishments where industry requires significant capital investment. Urban area establishment account for 71.2 percent of the informal sector enterprises and employ more than 90 percent of labour force.

Capital Goods Durables Industry: The Informal Sector (2015-16)							
Rural/ Urban	**Rural**		**Urban**		**Both**		**All**
Establishment (Type)	**OAE**	**Estab.**	**OAE**	**Estab.**	**OAE**	**Estab.**	
No. of Enterprises	4191	2975	16029	57329	20220	60304	80523
No. of Enterprises (%)	5.2%	3.7%	19.9%	71.2%	25.1%	74.9%	100.0%
Employment	7640	14874	30704	493267	38343	508141	546484
Employment (%)	1.4%	2.7%	5.6%	90.3%	7.0%	93.0%	100.0%
GVA (Rs. Cr.)	23	231	356	13759	379	13989	14369
GVA (%)	0.2%	1.6%	2.5%	95.8%	2.6%	97.4%	100.0%
Total Receipts (Rs. Cr.)	58	1001	868	25465	926	26466	27392
Total Receipts (%)	0.2%	3.7%	3.2%	93.0%	3.4%	96.6%	100.0%
GVA per Enterprise (Rs.)	55449	774711	222189	2399999	187627	2319809	1784413
Total Receipts per Enterprise (Rs.)	138288	3365741	541388	4441905	457837	4388815	3401781

Source: *NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India*

An analysis of the formal and informal sector of the capital goods industry shows that while formal sector contributes 91.2 percent of output, it contributes only 57 percent of the total employment of industry.

We have estimated direct employment loss in the capital goods industry accounting for both formal and informal sector of this industry taken into account their contribution and labour productivity.[126] The direct employment loss to domestic capital goods industry is showing a declining trend. The direct employment loss in the capital goods industry is 0.71 lakh in 2015-16, declining to 0.69 lakh in 2016-17 and again coming down to 0.68 lakh in 2017-18. The estimated direct employment loss in the industry is declining even though estimates of smuggling is increasing because of improvement of productivity of the industry, which is evidenced by lower number of workers for each unit of production in the sector.

Direct Employment Loss in Capital Goods (Machinery and Parts) Industry							
Year	**Total**	**Formal**	**Informal**	**Informal**			
				Rural -OAE	**Rural - Estab.**	**Urban-OAE**	**Urban-Estab.**
2015-16	71187	40627	30560	427	832	1717	27584
2016-17	69364	39587	29778	416	810	1673	26878
2017-18	68231	37103	27909	390	760	1568	25192

Source: *Authors Calculation, ASI and 73rd Round and NSSO survey on unincorporated enterprises*

[126] *Refer to Annexure IV for calculations*

7.4 Multiplier Effect of Capital Goods Industry – Total Output and Employment Loss

The backward linkages and multiplier effect of the textile industry for Output, Gross Value addition (GVA) and Employment are shown in the following table. An output multiplier of 2.85 and value-added multiplier of 4.4 of the capital goods suggest economic value addition in the economy from increased demand/output (per rupee) of the domestic capital goods industry. The results show that increase in the demand and output of the capital goods industry can significantly increase the output/value of the other manufacturing sector that has high backward linkage (0.872).

Backward Linkages and Multiplier Effects: Capital Goods Industry

Sectors	Output	GVA	Employment (Per lakh Output)
Agriculture and allied Sector	0.117	0.090	0.100
Mining	0.229	0.130	0.010
Capital Goods (Machinery and Parts)	**1.073**	**0.232**	**0.032**
Other Manufacturing	0.872	0.219	0.057
Construction	0.062	0.022	0.011
Electricity and Water Services	0.163	0.040	0.004
Trade	0.122	0.087	0.032
Services	0.211	0.131	0.025
Public administration	0.000	0.000	0.000
Total Backward Linkage	**2.849**	**0.951**	**0.270**
Coefficients	**1.000**	**0.216**	**0.030**
Multipliers	**2.849**	**4.398**	**8.970**

Source: *Authors' Calculations from NCEAR Input-Output table 2013-14, NSSO 2011-12*

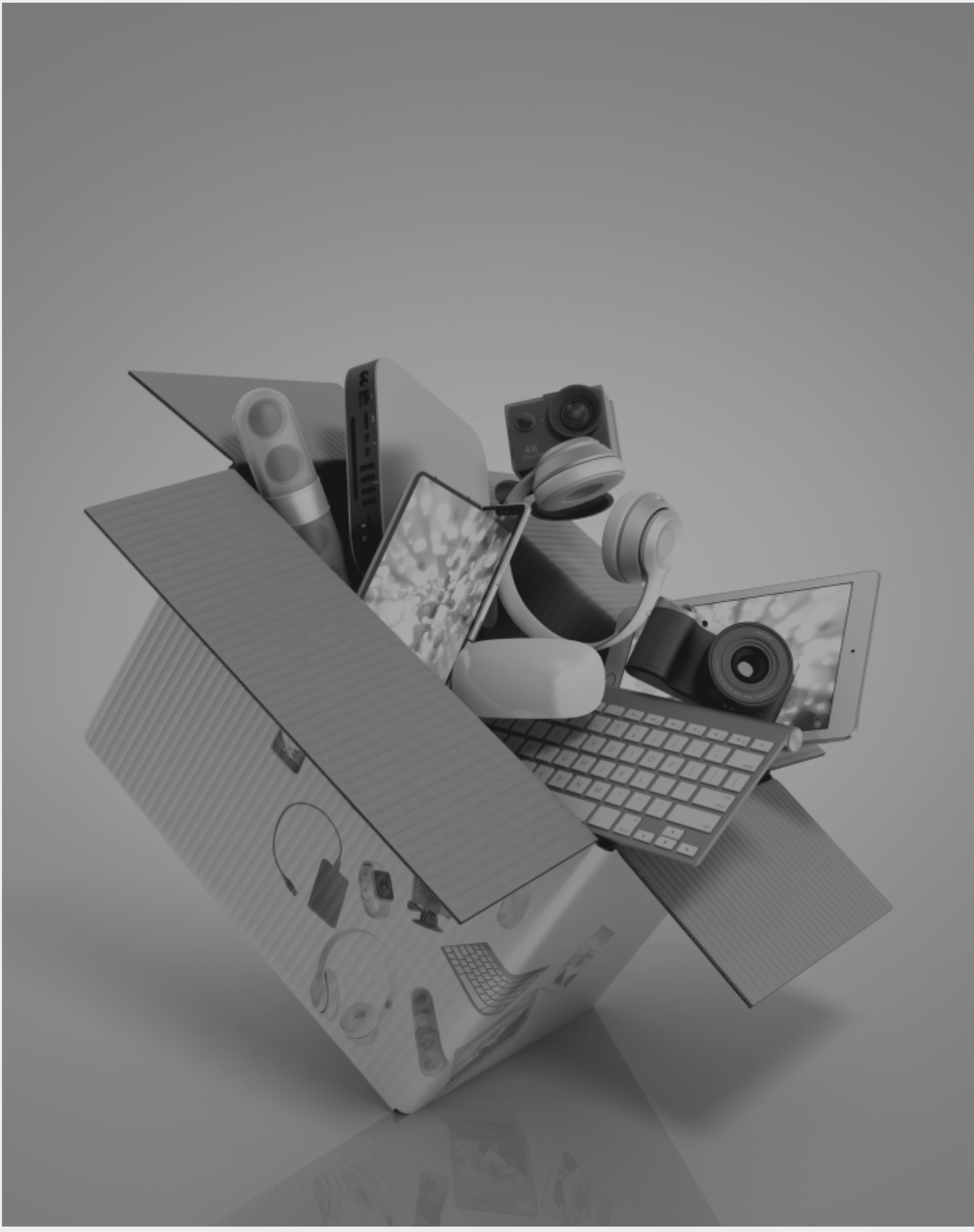
Machinery and parts have an output multiplier effect of 2.85, leading to value of total loss in the economy of Rs. 50,035 crores in 2015-16 increasing to Rs.51, 015 and further increasing to Rs. 52,511 crores in 2017-18 due to surge in smuggling of machinery and parts.

Multiplier Effect and Loss in Economy: Machinery and Parts

Year	Output (Rs. Crore)	Employment (Lakh)
2015-16	50035	6.39
2016-17	51015	6.22
2017-18	52511	6.12

Source: *Authors' Calculations from multiplier effects*

The capital goods industry is highly capital-intensive industry with low employment capacity as it employs only 3.2 persons per rupees crore of output. The industry has a total employment backward linkage of 0.27 and a multiplier effect of 8.97. For an employment multiplier of 8.97, the total employment loss in the economy because of smuggling of machinery and parts is 6.39 lakh is 2015-16, decreasing to 6.22 lakh in 2016-17 and to 6.12 lakh in 2017-18 due to improvement in productivity of the industry even though smuggling has increased, which is evidenced by lower number of workers for each unit of production in the sector.



8

Consumer (Electronics) Durables Industry: Estimates of Smuggling and Total Employment Loss

Consumer (Electronics) Durables Industry: Estimates of Smuggling and Total Employment Loss

KEY HIGHLIGHTS

- *India's share in the global electronics production is about 3 percent (Rs. 3,87, 525 crores or 59 US $ billion) and it contributes about 2.3 percent of India's GDP.*
- *Consumer (electronics) durables industry has an estimated output of Rs. 1.45 lakh crores (22. 644 US $ billion) with a market size of Rs. 2.05 lakh crores (US $ 31.49 billion) in 2017-18.*
- *Smart phones with a share of around 56 percent are a dominating segment of the consumer electronics and durables industry of India with their market expected to increase from US $17.66 billion in the 2017-18 to US$ 26.87 billion in 2022-23.*
- *The demand for electronic products in India was Rs. 6.83 lakh crores (106 US $ billion) in 2017-18, which is increasing rapidly and expected to reach to the levels of Rs. 26 lakh crores (400 US $ billion) by 2025-26. Swelling demand necessitates import substitution and a focus on domestic manufacturing.*
- *The imports of consumer electronics (durables) is Rs 172,709 crores (US $ 28.77 billion) in 2017-18, which accounts for about 6.18 percent of the country's total imports.*
- *Quantum of smuggling and output loss to consumer (electronics) durables industry is significant. The value is Rs. 1,423 crores in 2015-16 that increased hugely to Rs. 12, 904 crores in 2016-17 and came down a little to Rs. 9,059 crores in 2017-18.*
- *Smuggling accounts for 1 to 10 percent of the consumer (electronics) durables imports and results in about 0.15 to 12.65 percent loss to local consumer durable manufacturers depending upon quantum of smuggling.*
- *Direct employment loss to domestic consumer (electronics) durables industry is also significant, estimated to be 1672 in 2015-16 increasing to 15559 in 2016-17 while coming down to 8406 in 2017-18.*
- *For an output multiplier of 2.368 of consumer electronics, the total loss in the economy is Rs. 3,370 crores in 2015-16, which is increasing significantly to Rs. 35,293 crores in 2016-17 while coming down to Rs. 21,452 crores in 2017-18 due to wide variation in estimates of consumer (electronics) durables smuggling.*
- *For an employment multiplier of 14.97, total employment loss in the economy because of smuggling of consumer durables is also varying, increasing from 0.249 lakh in 2015-16 to 2.314 lakh in 2016-17 and then again decreasing to 1.25 lakh in 2017-18.*

8.1 Consumer (Electronics) Durables Industry: Overview

The global electronic production is estimated to be Rs. 130 lakh crores (2 US $ trillions) in 2017-18. India's share in the global electronics production is about 3 percent (Rs. 3,87,525 crores or about 59 US $ billion) and it contributes about 2.3 percent of India's GDP.[127] The consumer (electronics) durables industry including mobile and computer hardware is among the most dynamic and fastest growing markets.

[127] *National Electronics Policy 2019 (NPE 2019), https://meity.gov.in/writereaddata/files/Notification_NPE2019_dated25.02.2019.pdf*

The estimated output of this industry is Rs. 1.45 lakh crores (22. 644 US $ billion) and provides employment to 1.35 lakh people in 2017-18.[128] According to the data provided by the IBEF, this industry has a market size of Rs. 2.05 lakh crores (31.49 US $ billion) in 2017-18. With an expected growth rate of 9.0 percent in next five years, the market for this industry is expected to reach Rs. 3.15 lakh crores (48.37 US $ billion) by 2022-23.[129]

Consumer electronics and durables industry has two broad segments: Brown goods that include consumer electronics such as smart phones, computers, television etc. and White Goods that include consumer appliances such as washing machines, air conditioners, refrigerators etc. Smart phones with share of around 56 percent are one dominating segment of the consumer electronics and durables industry of India. Smartphone market in India is expected to increase from 17.66 US $ billion in the 2017-18 to 26.87 US $ billion in 2022-23.[130] As per India Cellular & Electronics Association (ICEA), the production of mobile handsets has gone up from 6 crore units (valued at Rs. 18,900 crores) in 2014-15 to an estimated 29 crore units (valued at Rs. 1,70,000 crores) in 2018-19 due to Make in India initiatives generating an employment for about 6.7 people (both direct and indirect). Production of LCD/LED has also reached 1.6 crore units in 2017-18.[131]

Rising disposable income, urbanisation with growth of second tier cities, growing digitation and usage of smart phones and access of credit financing is boosting the demand for growth of consumer electronics and durables industry. Electronics manufacturing is an intensive research and development area and requires large capital expenditure. The local value addition in electronic products in India is still limited and majority of manufacturing is only in the final stage assembly line. Considering low level of R&D and state of manufacturing of electronic products, consumer durables domestic demand is largely fulfilled by imports given the limitations of domestic production. However, lack of adequate infrastructure, high cost of finance, domestic supply chain logistics, inadequate components manufacturing ecosystem, limited research and development and designing and inadequacy of skill development is limiting the growth of domestic electronic manufacturing in the country.[132]

The demand for electronic products in India Rs. 6.83 lakh crores (106 US $ billion) in 2017-18, which is increasing rapidly and expected to reach to the levels of Rs. 26 lakh crores (400 US $ billion) by 2025-26.[133] Demand is showing tremendous increase at the rate of 41 percent in recent years of 2016 to 2020 as compared to growth rate of only 9.6 percent during the period 2010-16.[134] The imports of total electronics goods are about Rs 344, 550 crores (53 US $ Billion) in 2017-18 which is fulfilling about 50 percent of the demand. The industry has significant potential for import substitution and a focus on the domestic manufacturing.

National Policy on Electronics 2012 (NPE 2012) and its schemes have resulted in significant growth of electronics manufacturing in India. Electronics manufacturing has been core to both Make in India and Digital India programmes. The Government of India has taken several steps to boost domestic manufacturing in the country including increasing the Basic Customs Duty (BCD) on several consumer electronic goods; permitting 100% FDI in the consumer electronics manufacturing sector via direct route and providing Capex subsidy under the Modified Special Incentive Package Scheme (M-SIPS), etc.[135] The Phased Manufacturing

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[128] *Based on estimated data of informal and formal sector data from ASI and 73rd round NSSO on unincorporated non-agricultural enterprises, refer to capital goods industry tables in Annexure IV, exchange rate of 64.45 for US$ billion*

[129] *IBEF, Consumer Durables, May 2019*

[130] *IBEF, Consumer Durables, May 2019*

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

[132] *National Electronics Policy 2019 (NPE 2019)*

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

[134] *Economic Survey 2018-19, Volume II*

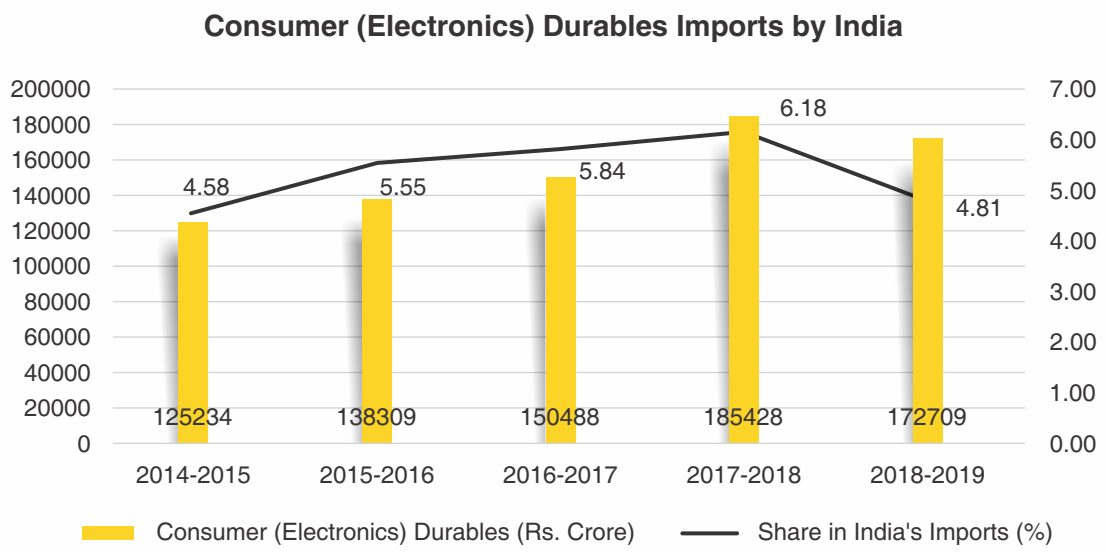
[135] *Ministry of Electronics and Information Technology, Annual report 2018-19*

Programme (PMP) for cellular mobile handsets and related sub-assemblies/ parts manufacturing has been implemented with the objective of progressively increasing the domestic value addition for establishment of a robust cellular mobile handsets manufacturing eco-system.[136]

Acknowledging the economic potential of electronic manufacturing Government of India has launched National Electronics Policy 2019 (NPE 2019) in February 2019[137] with the objective to increasing domestic manufacturing and exports in the entire value chain of electronics manufacturing to achieve a turnover of Rs. 26 lakh crores (400 US $ billion) including targeted production of 100 crores mobile handsets with estimated value of Rs. 13 lakh crores (190 US $ billion).[138] The above facts and figures are enough to conclude that the consumer durables sector has ample potentiality to grow in future.

8.2 Extent of Smuggling and Revenue Loss: Research Findings

Under the Harmonized Commodity Description and Coding System (HS 2012), consumer durables are recorded under the 2-digit HS codes: 84 and 85.[139] Consumer electronics and durables are among the most imported products in India. Consumer electronics imports have been growing continuously till 2017-18 with some sharp decline observed in 2018-19. The imports of consumer electronics (durables) is Rs 172,709 crores (US $ 28.77 billion) in 2017-18, which accounts for about 6.18 percent of the country's total imports.



Source: *DGFT data, Ministry of Commerce and Industry*

Estimated smuggling based on the mirror trade statistics and output loss to domestic consumer electronics industry is showing a significantly varying trend.[140] The quantum of smuggling and output loss to consumer (electronics) durables industry is significantly varying. The value is Rs. 1,423 crores in 20156-16 that increased significantly to Rs. 12, 904 crores in 2016-17 while coming down to the level of Rs. 9,059 crores in 2017-18.

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[136] *1ics Policy 2019 (NPE 2019)*
[137] *National Electronics Policy 2019 (NPE 2019)*
[138] *National Electronics Policy 2019 (NPE 2019)*
[139] *Refer to Annexure II for detailed 4-digit HS code*
[140] *Based on implicit assumption that smuggling has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss*

Smuggling accounts for 1 to 10 percent of the consumer (electronics) durables imports with signs of surge in recent years. Our analysis of the total output of the consumer durable industry[141] finds that estimated smuggling results in about 0.15 to 12.65 percent loss to the local consumer durable manufacturers depending upon the quantum of smuggling.

Smuggling and Output Loss to Domestic Consumer (Electronics) Durables Industry					
Year	**Smuggling (Rs. Crore)**	**Imports (Rs. Crore)**	**Smuggling (Percentage)**	**Total Industry Output (Rs. Crore)**	**Output Loss (Percentage)**
2015-16	1423	143739	1.0%	951700	0.15%
2016-17	14904	143159	10.4%	117852	12.65%
2017-18	9059	180210	5.0%	145940	6.21%

Source: *Smuggling based on Data from UN Comtrade, Industry output based on ASI and & 73rd round NSSO Survey*

The smuggling in consumer durables can be explained by the demand supply gap in domestic market, where greater reliance on imports to meet country's demand of consumer electronics products. Higher demand, supply gap and value of consumer electronic items makes it more susceptible to smuggling. According to a report, around 50% - 60% of the domestic demand of electronic products is met through imports. For electronic components, reliance on imports is much higher as it fulfils around 70% -80 % of the demand. China (including Hong Kong), Korea, Malaysia, Singapore and Vietnam are key countries that account for nearly 85 % of the electronics items imports by India. The customs duty on finished electronics goods and consumer durables imported from China have increased several times in last two years to promote domestic value addition.[142] The increase in smuggling of consumer durables in recent times may be attributed to such increase in customs duty to evade taxes.

8.3 Direct Employment Loss in Consumer Durables Industry

The estimation of the direct employment loss in the domestic consumer durables industry is done based on the assessment of both formal and informal sectors of this industry.[143] The consumer durables industry is one of the most capital-intensive industries and therefore, more than 98 percent of the output comes from the formal sector of this industry. The output of formal sector of consumer durables industry in 2017-18 is estimated to be around Rs. 143,474 crores with an employment of 91.67 thousand labour force. The Output and GVA of this industry per enterprise is continuously increasing in the last three years reflecting that industry's productivity has increased.

[141] *Based on the data from Annual Survey Industry and NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, MOSPI*
[142] *Economic Survey 2018-19, Volume II*
[143] *Methodology explained in Annexure II and calculation given in Annexure IV*

Consumer (Electronics) Durables Industry: Formal Sector				
Year	**2015-16**	**2016-17**	**Growth**	**2017-18**
Number of Enterprises	592	597	0.84%	602
Total Persons Engaged	75664	83282	10.07%	91667
Output (Rs. Crore)	93562.5	115861.2	23.83%	143474.3
Output Per Enterprise (Rs. Crore)	158.0	194.1	22.80%	238.3
Gross Value Addition (Rs. Crore)	43307.9	52267.7	20.69%	63081.2
Gross Value Addition Per Enterprise (Rs.Crore)	73.2	87.6	19.68%	104.8

Source: *Authors Calculation, Annual Survey of Industries, MoSPI*

The informal sector in consumer durables, even though contributing less than 2 percent of output, contributes 32 percent of the total employment of this industry. More than 90 percent of informal sector enterprises are located in urban areas where credit financing and technological know-how about this industry is easily available. Urban area enterprises account for about 94 percent of output and employment of the informal sector of the consumer durables industry.

Consumer (Electronics) Durables Industry: The Informal Sector (2015-16)							
Rural/ Urban	**Rural**		**Urban**		**Both**		**All**
Establishment (Type)	**OAE**	**Estab.**	**OAE**	**Estab.**	**OAE**	**Estab.**	
No. of Enterprises	1085	250	7607	5296	8692	5546	14238
No. of Enterprises (%)	7.6%	1.8%	53.4%	37.2%	61.0%	39.0%	100.0%
Employment	1085	1357	9271	24405	10357	25762	36119
Employment (%)	3.0%	3.8%	25.7%	67.6%	28.7%	71.3%	100.0%
GVA (Rs. Cr.)	5	20	179	440	184	461	645
GVA (%)	0.8%	3.1%	27.8%	68.2%	28.5%	71.5%	100.0%
Total Receipts (Rs. Cr.)	8	100	273	1227	281	1327	1608
Total Receipts (%)	0.5%	6.2%	17.0%	76.3%	17.5%	82.5%	100.0%
GVA per Enterprise (Rs.)	43700	818485	235541	831211	211584	830638	452711
Total Receipts per Enterprise (Rs.)	75909	3980993	359044	2317223	323701	2392222	1129365

Source: *NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India*

We have estimated direct employment loss in the consumer durables industry accounting for both formal and informal sector of this industry taken into account their contribution and labour productivity.[144] Direct employment loss to domestic consumer (electronics) durables industry is also showing significant variation due to substantial variation in the estimates of smuggling. Such loss is estimated to be 1672 in 2015-16 increasing to 15559 in 2016-17 which has come down to 8406 in 2017-18. The estimated direct employment loss in the industry is declining even though estimates indicate that smuggling is increasing because of improvement of productivity of the industry, which is reflected in lower number of workers for each unit of production in the sector.

[144] *Refer to Annexure IV for calculations*

Direct Employment Loss in Consumer (Electronics) Durables Industry							
Year	Total	Formal	Informal	Informal			
				Rural -OAE	Rural - Estab.	Urban-OAE	Urban- Estab.
2015-16	1672	1132	540	16	20	139	365
2016-17	15559	10532	5027	151	189	1290	3397
2017-18	8406	5690	2716	82	102	697	1835

Source: *NSS Report No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India*

8.4 The Multiplier Effect of Consumer Durables Industry – Total Employment Loss

The backward linkages and multiplier effects of the consumer durables industry for Output, Gross Value Addition (GVA) and Employment are shown in the following table. An output multiplier of 2.37 and value-added multiplier of 2.3 of the consumer durable products suggest economic value addition in the economy from increased demand/output (per rupee) of the domestic consumer durables manufacturing industry. The results show that increase in the demand and output of the consumer durables industry can significantly increase the output/value of the other manufacturing sector that has high backward linkage of 0.746.

Backward Linkages and Multiplier Effects: Consumer (Electronics) Durables Industry			
Sectors	**Output**	**GVA**	**Employment (Per lakh Output)**
Agriculture and allied Sector	0.095	0.073	0.081
Mining	0.145	0.082	0.006
Consumer Electronics	**1.033**	**0.426**	**0.014**
Other Manufacturing	0.746	0.185	0.048
Construction	0.031	0.011	0.006
Electricity and Water Services	0.091	0.022	0.002
Trade	0.088	0.063	0.023
Services	0.138	0.086	0.016
Public administration	0.000	0.000	0.000
Total Backward Linkage	**2.368**	**0.949**	**0.196**
Coefficients	1.000	0.413	0.013
Multipliers	**2.368**	**2.298**	**14.87**

Source: *Authors' calculations from NCEAR Input-Output table 2013-14, NSSO 2011-12*

For an output multiplier of 2.368 of consumer electronics, the total loss in the economy is Rs. 3,370 crores in 2015-16, which is increasing significantly to Rs. 35,293 crores in 2016-17 while coming down to Rs. 21,452 crores in 2017-18. This is in line with widely varying estimated smuggling in this sector.

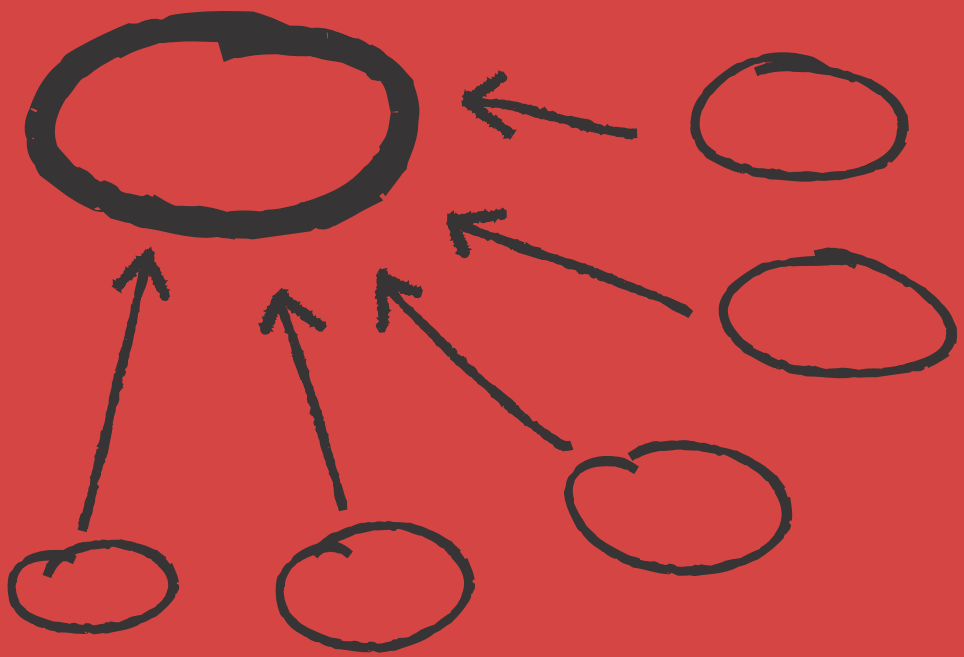
Multiplier Effect and Loss in Economy: Consumer Electronics		
Year	**Output (Rs. Crore)**	**Employment (Lakh)**
2015-16	3370	0.249
2016-17	35293	2.314
2017-18	21452	1.25

Source: *Authors' calculations from multiplier effects*

Consumer durables industry is a highly capital-intensive industry with low employment capacity as it employs only 1.4 persons per rupees crore of output; however, it has an employment multiplier effect of 14.87 on economy due to significant backward linkage and employment generation capacity in other manufacturing sectors of the economy. Total employment loss in the economy because of smuggling of consumer durables increased from 0.249 lakh in 2015-16 to 2.314 lakh in 2016-17 before decreasing to 1.25 lakh in 2017-18.

9

Conclusions and Way Forward



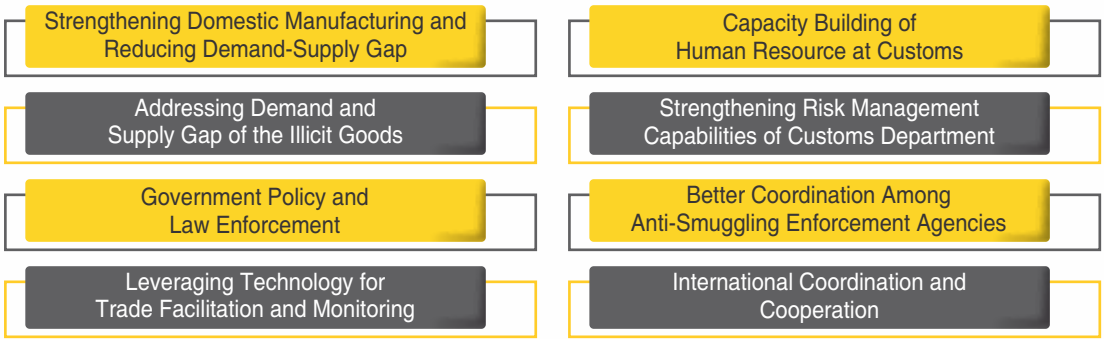
Conclusions and Way Forward

A strong manufacturing base will make India one of the world's largest manufacturing nation. The sector has already doubled its contribution to the country's economy in the past 15 years. The government's stated ambition is to raise manufacturing sector's contribution to 25% of GDP by 2022 and to create 100 million jobs in the coming decade. It has been very clear for a while now that India needs manufacturing for its growth and development.[145] The manufacturing sector of India has the potential to reach US$ 1 trillion by 2025 and India is expected to rank amongst the top three growth economies and manufacturing destination of the world by the year 2020.[146]

TARI has mentioned a number of drivers for boosting the manufacturing in the country.[147] The Government of India has already taken a number of initiatives and measures to improve the ease of doing business and improve the manufacturing ecosystem in the country. These include Start-Up India, Insolvency and Bankruptcy Code, National Intellectual Property Rights (IPR) Policy, implanting GST regime, ease of doing business and skill development.[148]

Smuggling or illicit trade is among the factors that is holding up manufacturing sector. It harms the economy of a country in multidimensional ways. It undermines the local industry, suppresses innovation and investment, discourages legal imports, reduces the volume of revenues collected from duties and levies by the government, fuels transnational crimes and hampers the health of citizens. The ill effects of smuggling are felt widely across industries directly. Estimates of smuggling in the five key industries and direct and indirect employment lost in the economy signal toward the criticality of the problem faced by the country.

Globalisation has made possible vast increase in trade, more mobility and faster means of communication—all of which have made smuggling easier. Coordinated efforts of the government and industry bodies are therefore needed to control the spread of smuggling. The Global Illicit Trade Environment of 2018 highlights that India lies in the 3rd quartile with ranking of 49 among 84 countries ranked on the parameters of government policy; supply and demand; transparency and trade; and customs environment.[149] This section highlights gaps and discusses the possible way forward for the country to tackle the problem of smuggling and the recommendations for consideration. These are:



[145] *Unlocking the manufacturing potential of India 2025, https://www.industr.com/en/unlocking-the-manufacturing-potential-of-india-2348148*
[146] *Unlocking the manufacturing potential of India 2025, https://www.industr.com/en/unlocking-the-manufacturing-potential-of-india-2348148*
[147] *Make in India, 2015, TARI and ASSOCHAM Report*
[148] *Economic Survey 2018-19, Volume 2*
[149] *The Economist Intelligence Unit Limited (2018), The Global Illicit Trade Environment of 2018. Available at: https://www.tracit.org/global-illicit-trade-index.html*

9.1 Strengthening Domestic Manufacturing and Reducing Demand-Supply Gap

To control the spread of smuggling, the most important and effective measure is to increase the country's domestic production and reduce the demand and supply gap that is currently fulfilled through imports. The supply or production, particularly in the capital goods (machinery and parts) and consumer (electronics) durables has not been able to match the demand resulting in increased dependence on imports to fulfil this gap. Taking advantage of the situation, smugglers step in to supply these products at lower prices, by evading import duties, to fulfil domestic demand while a part of it is fulfilled through domestically produced counterfeit products.

To tackle this problem, it is imperative that the manufacturing sector in India is strengthened, as also envisaged by the government's flagship programme to boost manufacturing in India – "Make in India." The focus should be on strengthening the domestic industries increasing their competitiveness and supporting them with appropriate policies to create new capacities or enhance their capacity utilization.

Realising the need, Government of India (GoI) is increasing its focus on the electronics sector under National Policy on Electronics 2019 (NPE 2019) and aims to transform it from a predominantly consumption-driven market to one with manufacturing capability to cater to local and overseas demand. Further, to boost the machinery sector, a definitive step taken by the government is through the National Capital Goods Policy 2016[150] which aims to increase production to Rs. 7.5 lakh crores in 2025 and raising direct and indirect employment from the current 8.4 million to round 30 million as well as facilitate improvement in technology, increase skills and promote growth and capacity building of MSMEs in the sector.

9.2 Addressing Demand and Supply Gap of Illicit Goods

Domestic environment of the country affects the demand or supply and the final consumption of the illicit goods or smuggled goods. India ranks poorly at 60th place among 84 countries on the demand and supply parameter of the global illicit trade environment index.[151] The supply side of illicit trade is primarily driven by price and type of product and financial gains achieved through smuggling. This is true particularly for high value products such as gold, narcotics, cigarettes and electronics items etc. High import duty on goods/ products increase price differential and trade restrictions provides financial incentives and motivation for engaging in smuggling activities. The demand side is pushed by factors such as inclination to use foreign brands at relatively lower prices.

Policy focus should be on applying the interventions with influence beyond borders to restrict the supply of smuggled goods to consumers. Effective track-and-trace system should be in place from imports to sale to consumer may established.[152] This includes increased surveillance of the police on consumption of smuggled and contraband goods at final sale point to reduce their consumption. The Customs Act empowers the police to take action against smuggled goods and hand them to the Customs for further action under the law.

A measure of effective oversight in a country is in the ratio of the number of policemen to population. However, considering that number of policemen per lakh of population in India being 76 as compared to 298 in Germany, 256 in the US and 307 in UK (with median being 300),[153] the level of oversight without any such measure is lower

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[150] *National Capital Goods Policy 2016 (http://dhi.nic.in/writereaddata/Content/NationalCapitalGoodsPolicy2016.pdf)*

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

[152] *Article 8 of the Protocol to Eliminate Illicit Trade Tobacco Products, WHO*

[153] *http://www.gutenberg.us/articles/list_of_countries_by_number_of_police_officers*

in India. In addition, this low oversight ratio gets compounded by the level of electronic surveillance available at the disposal of the enforcement agencies in those countries.

9.3 Government Policy and Law Enforcement

Stronger punishment and rule of law acts as a deterrent to smuggling as it reduces the net financials gains and enables authorities to reduce the extent of smuggling.[154] Mishra et al. (2008) show that the elasticity of tax evasion with respect to tariffs is a decreasing function of the quality of tariff enforcement.[155] In other words, higher level of enforcement leads to lower tax evasion and hence better tax compliance. Direct financial costs in terms of higher penalties has a significantly negative impact on the absolute amount of under-invoicing of imports; that is, the cost of high penalties is a dis-incentive to importers to resort to under-invoicing to evade customs duties. Buehn and Eichler (2011) finds that by increasing the level of fines to GDP by one percent, the share of under-invoiced imports reduces by 17 to 18 percent.[156]

Increasing the rule of law and enhancing the effectiveness of penalties and sanctions is important to curb smuggling.[157] The expected costs of smuggling depends on the probability of being caught and punished by law enforcing authorities, i.e., on the efficiency of the monitoring system and efforts of the police. India is ranked lowly at 51th on the Government policy parameter of the Global Illicit Trade Environment index that measures availability of policy and monitoring and prevention of the illicit trade.[158] In India, smuggling is higher as compared to developed countries in large part due to poor enforcement and compliance. The customs law mandates penalties to be levied on those violating the law. Apart from the goods being liable for confiscation, the law provides for a penalty not exceeding 10 percent of the duty sought be evaded. However, these penalties may not always be enough to discourage smugglers, particularly involved in outright smuggling, from committing these crimes.

It is pertinent to mention that in terms of the Customs Act only offences relating to prohibited goods or where attempted evasion is more than fifty lakh rupees are considered cognizable. Considering that probability of conviction of a person for a cognizable crime is only 0.006 in India, which is still better in relations to Customs, a person has rather low risks and high gains from smuggling activities. For curbing the widespread menace of smuggling and sending out a message to those involved in the crime, it is important to expedite judgements in such cases so that there is enough deterrence for criminals to curb their activities due to fear of law.

9.4 Leveraging Technology for Trade Facilitation and Monitoring

India ranks 42 on the parameter of the Global Illicit Trade Environment Index 2018 that measures to what extent customs department facilitates faster trade and at the same time monitors and keeps check on illicit trade. This is based on the five indicators that include: percentage of shipments physically inspected; the time taken for customs clearance and inspection, the extent of automation of border procedures, the presence of AEO programmes and the presence of customs recordal systems.[159]

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[154] *Martin, L. and Arvind Panagariya (1984). Smuggling, Trade and Price Disparity: A Crime Theoretic Approach, Journal of International Economics, 17(3/4), 201-17; Norton, D. (1988). On the Economic Theory of Smuggling, Economica, 55 (217), 107-118.*

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

[156] *Buehn, A. and M. R. Farzanegan. (2011) Smuggling around the World: Evidence from a Structural Equation Model. Applied Economics, 44(23),3047-3064*

[157] *Governance Framework to Counter Illicit Trade (2018), Organisation for Economic Co-operation and Development (OECD)*

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

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

The current system of reconciliation of cargo movement does not smoothen trade facilitation since trade has to wait long for cancellation and return of bonds/guarantees executed by them. To tackle this, deployment of an electronic tracking system that uses the GPS, GPRS technology is a possible solution. Customs should leverage the adoption of the emerging "internet of things" by the logistics industry to real-time tracking of movement of goods across the supply chain, including to CFSs, ICDs, SEZs etc. Such systems have been conceptualised by the UNESCAP as the Secure Cross Border Transport Model (SCBTM) and are being applied in Thailand, PR China-Hong Kong border, Jordan, Kenya, etc., enabling live tracking of cargo vehicles and checking the integrity of the container seal. Deployment of such technology in India will aid in enhancing Customs control over the significant volumes of cargo being transported while checking for smuggling and also facilitating smoother legitimate trade.

By leveraging technology, Customs can alleviate some of the burdens associated with managing the physical scale of transport geography. The use of advanced technologies, such as unmanned aerial vehicles (UAV), embedded sensor and actuator solutions in transport assets, cargo shipment data mining with risk analytics, next generation surveillance cameras, x-ray technologies, and robotics, more so in the developed countries have aided Customs and border patrol agencies in deterring the flow of illicit trade and smuggling operations.[160] Further, the process of induction of non-intrusive inspection technologies such as container scanners, X-Ray scanners, etc., needs to be expedited. A strong capacity for an innovative adoption of latest technologies through experimentation and pilots needs to be created.[161] The Directorate of Logistics needs to be strengthened and the required expertise in technology, procurement and contract management needs to be created and sustained in the directorate.

9.5 Capacity Building of Human Resource at Customs

One of the major tasks that lie ahead of the Customs authority in India is to enhance the skills and capabilities of their staff as smuggling and illicit trade are growing and the means is becoming more and more sophisticated in nature. Along with new technology tools, it is important to enhance the analytical abilities of staff members to enable them to make extensive use of data analytics for identifying potential economic crimes. Capacities need to be built in ICT related areas such as computer forensics. India could also follow the example of the European Commission developed e-Learning courses on topics of common interest in collaboration with customs and taxation administrations and representatives of trade taxation.[162]

For enforcement to be effective, a sharper focus on the quality of investigation is essential. Therefore, it is imperative that investigative skills of the personnel are honed. It goes without saying that cases of deliberate fraud and those that involve a difference of opinion or interpretation need to be dealt with separately. There is also need for specialised training in anti-smuggling operations, which is tailored to specific requirements, including the peculiarity of local conditions in the diverse environment in which these operations have to be carried out.

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

[161] *Tax Administration Reform in India Spirit, Purpose and Empowerment Second Report of the Tax Administration Reform Commission Ministry of Finance, Government of India New Delhi September 2014*

[162] *Taxation and customs union, European Commission, http://ec.europa.eu/taxation_customs/eu-training/general-overview_en*

9.6 Strengthening Risk Management Capabilities of Customs Department

India ranks 35 on transparency and trade parameter of the Global Illicit Trade Environment Index 2018 that measures country's transparency with regard to illicit trade and degree to which monitoring is exercised over free trade zones (FTZs) and transhipments.[163]

The Risk Management Division (RMD) of the customs department needs to be strengthened to enable it to support in developing programmes and policies to handle trade and at the same time improve risk assessment to levels of such accuracy where legitimate traders are not affected and illegitimate transactions are tracked down with ease. A risk profile of target inspections[164] 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 may be identified and regularly monitored.[165]

The division must undertake constant evaluation of the performance of risk management systems (RMS) to ensure that there is sharpening of risk rules, targets or interventions inserted by the national and local risk managers to improve the quality of matches with suspect profiles. This will ensure that a large number of consignments are not unnecessarily checked, thereby adding to delays in clearance and associated costs on the one hand and waste of customs resources on the other.

As highlighted by OECD (2019), there is need for findings solution for improved screening of the rapidly increasing volume of the illicit products such as tobacco or prohibited items such as narcotics through postal and courier systems or online sales.[166]

Further, the customs agency must progressively move away from a local approach in risk management to a strong national approach and move towards setting up a national targeting facility such as the ones set up in US, Australia and New Zealand.[167]

India is progressively adopting such measures. The RMD of the customs undertakes all centralised risk assessing job, checking all the documents and transmitting risk alerts to all the locations. On July 1, 2017, the Directorate General of Analytics and Risk Management (DGARM) was set up under aegis of the Central Board of Indirect Taxes and Customs (CBIC) to provide intelligence inputs and do big data tax analytics for better policy formulation. A National Targeting Centre (NTC) has been also been set up under DGARM that is responsible for application of nationally coordinated approach to risk analysis, targeting of risky goods/ passengers crossing the country and providing 24*7 operational risk interdiction to customs.[168]

9.7 Better Coordination Among Anti-Smuggling Enforcement Agencies

The first report of TARC, Ministry of Finance, Government of India stated that “enhanced integration between the CBEC and CBDT would result in a more harmonious and convenient taxpayer experience. At the same time, greater sharing of information between them would reduce opportunities for fraud.” However, while the

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

[164] *Article 10, 14 and 19 of the Protocol to Eliminate Illicit Trade Tobacco Products, WHO*

[165] *Chlendard, C., Raballand, G. & Rakotorisoa , A. (2016). The use of detailed statistical data in customs reform : the Case of Madagascar. Policy Research Working Paper 7625. Governance Global Practice Group, World Bank Group.*

[166] *Governance Framework to Counter Illicit Trade (2018), Organisation for Economic Co-operation and Development (OECD)*

[167] *Taxation and customs union, European Commission, http://ec.europa.eu/taxation_customs/eu-training/general-overview_en*

[168] *https://timesofindia.indiatimes.com/business/india-business/directorate-formed-to-flag-high-risk-areas-in-customs-gst/articleshow/59577009.cms*

two Boards hold bilateral meetings to understand mutual requirements and availability of data, they have not yet moved toward life cycle management of data – creating 'one data and many users'.

In order to tackle the common menace of smuggling, greater capacity needs to be built in customs department to counter trade-based money laundering by greater use of analytics and strong co-ordination among the DRI, RMD, FIU, and Directorate of Enforcement. Better coordination and sharing of information among industry, public organisations, law enforcement agencies including state police and other government departments is required to deal with this growing menace.

9.8 International Coordination and Cooperation

Smuggling is organised transnational crime that involves people across international boundaries and countries. To effectively deal with this global menace, coordination and cooperation is required among National Governments of various countries. The Central Board of Indirect Taxes and Customs (CBIC) does have cooperation and sharing of information arrangements with more than 25 customs administrations apart from following the letter rogatory route in serious cases. An International Framework for cooperation among countries need to established with sharing of information about quantity, quality and value of exports between a country and their respective trading partners is required to effectively counter the organised transnational crime of smuggling.

Smuggling is all pervasive with industry, government and society directly bearing its brunt. The extent of smuggling in the country is a cause of great concern. The customs department is doing its bit to manage legal trade movement and the parallel illegal channel. It has had to move away from the "gatekeeper" approach and are now investing heavily in technology, simplifying processes and recognising information as the basic lever of control. However, to effectively tackle the growing menace of smuggling in India, a lot more needs to be done to make the compliance and processes more robust and detection of such crime easier. Naturally, concerted efforts of the government, industry, consumers and international bodies are needed to achieve this challenging and mammoth task.

Annexure I

Smuggling Definition as per the Customs Act of 1962

Smuggling as per section 111 of the Customs Act of 1962, the goods brought into India from a place outside India and are liable to confiscation:	
(a)	any goods imported by sea or air which are unloaded or attempted to be unloaded at any place other than a customs port or customs airport appointed under clause (a) of section 7 for the unloading of such goods;
(b)	any goods imported by land or inland water through any route other than a route specified in a notification issued under clause (c) of section 7 for the import of such goods;
(c)	any dutiable or prohibited goods brought into any bay, gulf, creek or tidal river for the purpose of being landed at a place other than a customs port;
(d)	any goods which are imported or attempted to be imported or are brought within the Indian customs waters for the purpose of being imported, contrary to any prohibition imposed by or under this Act or any other law for the time being in force;
(e)	any dutiable or prohibited goods found concealed in any manner in any conveyance;
(f)	any dutiable or prohibited goods required to be mentioned under the regulations in an import manifest or import report which are not so mentioned;
(g)	any dutiable or prohibited goods which are unloaded from a conveyance in contravention of the provisions of section 32, other than goods inadvertently unloaded but included in the record kept under sub-section (2) of section 45;
(h)	any dutiable or prohibited goods unloaded or attempted to be unloaded in contravention of the provisions of section 33 or section 34;
(i)	any dutiable or prohibited goods found concealed in any manner in any package either before or after the unloading thereof;
(j)	any dutiable or prohibited goods removed or attempted to be removed from a customs area or a warehouse without the permission of the proper officer or contrary to the terms of such permission;
(k)	any dutiable or prohibited goods imported by land in respect of which the order permitting clearance of the goods required to be produced u/s 109 is not produced or which do not correspond in any material particular with the specification contained therein;
(l)	any dutiable or prohibited goods which are not included or are in excess of those included in the entry made under this Act, or in the case of baggage in the declaration made u/s 77;
(m)	any goods which do not correspond in respect of value or in any other particular with the entry made under this Act or in the case of baggage with the declaration made u/s 77 in respect thereof, or in the case of goods under transhipment, with the declaration for transhipment referred to in the proviso to sub-section (1) of section 54;
(n)	any dutiable or prohibited goods transited with or without transhipment or attempted to be so transited in contravention of the provisions of Chapter VIII;
(o)	any goods exempted, subject to any condition, from duty or any prohibition in respect of the import thereof under this Act or any other law for the time being in force, in respect of which the condition is not observed unless the non-observance of the condition was sanctioned by the proper officer;
(p)	any notified goods in relation to which any provisions of Chapter IVA or of any rule made under this Act for carrying out the purposes of that Chapter have been contravened.

Annexure II

Research Methodology

We herein explain detailed methodology for adopted in each of the three research stages for estimation of smuggling and its underlying direct impact on the industries and total impact on the economy.

Stage 1:Estimates of Smuggling and Output Loss

Stage 2: Assessment of Direct Employment Loss

Stage 3: Multiplier Effects and Assessment of Total Impact on the Economy

1: Estimates of Smuggling and Output Loss

Mapping of HS Codes and Collection of Trade Statistics

The first step for analysis of smuggling of products of key manufacturing industries is the mapping of HS codes for which trade data has be collected and this has done on the basis of 4-digit Harmonised System (HS) Codes of 2012, as shown in the table below:

HS Code of Products for Key Manufacturing Industries

Sr. No.	Industry	2 Digit HS Code	Business Activity	4 Digit HS Code
1	Textiles and Fabrics	50	Silk yarn and fabrics	5001, 5002,5003, 5004, 5005, 5006, 5007
		51	Wool, animal hair and woven fabrics	5101, 5102, 5103, 5104, 5105, 5106, 5107, 5108, 5109, 5110, 5111, 5112, 5113
		52	Cotton textile	5201, 5202, 5203, 5204, 5205, 5206, 5207, 5208, 5209, 5210, 5211, 5212,
		53	Vegetable textile fibres and paper yarn	5301, 5302, 5303, 5304, 5305, 5306, 5307, 5308, 5309, 5310, 5311
		54	Manmade filaments, man-made textile materials	5401, 5402, 5403, 5404, 5405, 5406, 5407, 5408
		55	Man-made staple fibres	5501, 5502, 5503, 5504, 5505, 5506, 5507, 5508, 5509, 5510, 5511, 5512, 5513, 5514, 5515, 5516
		56	Wadding, Felt and nonwovens, Special yarns; twine, ropes, cordage, and articles thereof	5601, 5602, 5603, 5604, 5605, 5606, 5607, 5608, 5609
		57	Carpets and other textile floor coverings	5701, 5702, 5703, 5704, 5705

Sr. No.	Industry	2 Digit HS Code	Business Activity	4 Digit HS Code
		58	Fabrics: special woven fabrics, tufted textile fabrics, lace embroidery	5801, 5802, 5803, 5804, 5805, 5806, 5807, 5808, 5809, 5810
		60	Fabrics: Knitted or Crocheted	6001, 6002, 6003, 6004, 6005, 6006
2	Ready-made Garments	61	Apparel and clothing accessories; knitted or crocheted	6101, 6102, 6103, 6104, 6105, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, 6116, 6117
		62	Apparel and clothing accessories; not knitted or crocheted	6201, 6202, 6203, 6204, 6205, 6206, 6207, 6208, 6209, 6210, 6211, 6212, 6213, 6214, 6215, 6216,6217
3	Tobacco Products	24	Tobacco products	Tobacco Products (2402)
4	Machinery and Parts	84	Machinery and Parts (excluding nuclear reactors, boilers, mechanical appliances)	8405, 8406, 8407, 8408, 8409, 8410, 8411, 8412, 8413, 8414, 8416, 8417, 8419, 8420, 8421, 8423, 8424, 8425, 8426, 8427, 8428, 8429, 8430, 8431, 8432, 8433, 8434, 8435, 8436, 8437, 8438, 8439, 8440, 8441, 8442, 8443, 8444, 8445, 8446, 8447, 8448, 8449, 8451, 8452, 8453, 8454, 8455, 8456, 8457, 8458, 8459, 8460, 8461, 8462, 8463, 8464, 8465, 8466, 8467, 8468, 8469, 8470, 8471, 8472, 8473, 8474, 8475, 8476, 8477, 8478, 8479, 8480, 8481, 8482, 8483, 8484, 8486, 8487
5	Electronic Items	84, 85	Consumer Electronic products	8415, 8418, 8422, 8450,
				8508, 8509, 8510, 8513, 8516, 8517, 8518, 8519, 8521, 8522, 8523, 8528, 8539

UN COMTRADE is the pseudonym for United Nations International Trade Statistics Database managed by the United Nations Statistics Division (UNSD). The UN COMTRADE is the largest depository of international trade data from over 170 reporter countries/areas. It contains well over 3 billion data records since 1962 and is available publicly on the internet.[169] We extracted trade data related to Exports Reported to India by Partner Countries and Imports Reported by India from Trading Partner relevant to 4-digit HS Code 2012 UN for calendar years 2015, 2016 and 2017 given in the UNCOMTRADE database.

Exports Reported to India by Partner Countries: UN COMTRADE reports exports by a country to an importing country in terms of free on board (FOB) value.[170] Imports Reported by India from Trading Partner: UN COMTRADE highlights that imports of a country are recorded as CIF type value.

Import data for these goods/products is also extracted from the Directorate General of Commercial Intelligence and Statistics (DGCIS) database of the Government of India.[171]

Import data for these goods/products is also extracted from the Directorate General of Commercial Intelligence and Statistics (DGCIS) database of the Government of India. Imports data from UN COMTRADE was compared with DGCIS database and we did not find any significant difference between the two. For our analysis

[169] *https://unstats.un.org/unsd/tradekb/Knowledgebase/50075/What-is-UN-Comtrade*

[170] *UN COMTRADE : http://unstats.un.org/unsd/tradekb/Knowledgebase/50290/Mirrors-statistics?Keywords=cif*

[171] *Ibid*

of smuggling of key goods/products, we have used imports reported under UN COMTRADE to achieve better comparability and to reflect mirror statistics.

Checks and Adjustments for Discrepancies in the Mirror Trade Statistics Data

Ideally the mirror trade statistics for a country X, herein India, should reflect that exports from a country Y to a country X for a given a product are equivalent to imports of the country X from country Y. However, the reported trade figures with 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. To have exact mirror statistics and make data comparable for analysing trade discrepancy due to smuggling related activities, the imports data needs to be checked and adjusted legitimate statistical for this difference.[172] We have taken adequate steps to account for the such statistical discrepancy.

- **Different Nomenclature for Categorization of Products:** We have collected trade statistics data at 4-digit HS codes 2012 for uniformity of customs goods. However, trade statistics data by different countries may reported using different nomenclature such as The International Standard Industrial Classification of All Economic Activities (ISIC) and Broad End-Use Categories (BEC). However, as data is extracted from UN COMTRADE, these reported data are subsequently transformed into the United Nations Statistics Division standard format with consistent coding and valuation using the processing system. Therefore, any discrepancy in trade statistics data due to use of different reporting nomenclature for a given product is quite minimal.
- **Discrepancy due to valuations:** As mentioned previously, exports by a country are reported on FOB basis while imports on CIF basis. To have exact mirror statistics and make data comparable for analysing trade discrepancy due to smuggling related activities, the imports data needs to be adjusted for this difference. The imports data should be adjusted for cost of transport, freight and insurance and other discrepancies to make it comparable with exports by world (partner countries).

  In order to analyse illicit trade and smuggling more accurately, imports are adjusted for CIF and other errors to arrive at FOB value of imports. CIF is the cost of good/product including insurance and freight costs, while FOB refers to free on-board cost of good/ products without transport costs. To account to make imports comparable with exports, imports are adjusted by 10% as suggested by IMF that cost of freight (transportation) and insurance usually make such percentage of goods/ products.[173]
- **Country of Origin/ Re-export Issue:** There may be discrepancy in the matched pair trade data if exporter is not the country of origin of the exports. The UN COMTRADE defines reexports as "exports of foreign goods in the same state as previously imported." In UN COMTRADE database, re-exports are included in the country exports.[174] Previous studies have highlighted that there will always a systematised gap, when an exporter country does not know true destination for exports of its product.[175] We checked for every partner exporter country for their quantum of re-exports. The exports and reexports of the partner countries is then re-validated by the imports reported by India from these countries.
- **Timing Issue:** Due to different recording time frames of exports data statistics by exporting country and imports statistics data by the importing country on the account of time lag involved transit of goods, there may be discrepancy in the mirror statistics trade data.[176] However, previous research studies suggest that

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[172] *Chlendard, C., Raballand, G. & Rakotorisoa , A. (2016). The use of detailed statistical data in customs reform : the Case of Madagascar. Policy Research Working Paper 7625. Governance Global Practice Group, World Bank Group.*

[173] *IMF (1993), A Guide to Direction of Trade Statistics.*

[174] *https://unstats.un.org/unsd/tradekb/Knowledgebase/Reexports-and-Reimports*

[175] *Guo D., Mirror statistics of international trade in manufacturing goods: The case of China, UNIDO Research and Statistics Branch, Working Paper 19/2009.*

[176] *Chlendard, C., Raballand, G. & Rakotorisoa, A. (2016). The use of detailed statistical data in customs reform : the Case of Madagascar. Policy Research Working Paper 7625. Governance Global Practice Group, World Bank Group.*

this problem has marginal effect on trade discrepancy[177] upon using the annual data that we are doing in this study.

- **Exchange Rate Fluctuations:** Exchange rate conversion between the local currency and US dollar could be one of possible reason for system gap between the mirror statistic trade data.[178] However, we understand discrepancy due to this issue is minimal when UN Statistics Division handling the UN COMTRADE data takes systematic approach. It states that "all commodity values are converted from national currency into US dollars using exchange rates supplied by the reporter countries or derived from monthly market rates and volume of trade."[179]

Estimates of Smuggling and Revenue Loss

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

Smuggling of Product, A= Exports reported by World (partner countries) for Product A to India plus any adjustment made for unreported/missing exports during period i minus Adjusted imports reported by India for Product A during period i

As mentioned before, this study makes an implicit assumption that smuggling occurring from across the borders has direct impact on local industries and estimated smuggling in a given industry is equal to the output/ revenue loss for these domestic industries. This output loss occurring in given industry has then detrimental effect on industry itself in terms sluggishness in industry growth, closure of industries and direct employment loss.

2: Assessment of Direct Employment Loss

Mapping of the NIC Codes for the Key Manufacturing Industries and Data Collection

The starting point for analysis of direct employment loss in key manufacturing industries is their mapping with the National Industrial Classification (NIC) Codes 2008 as trade data collected is on the basis of 4-digit HS Code from the UN COMTRADE database. We have mapped the relevant manufacturing industries to the 3-digit NIC codes as shown in the table below.

Mapping of NIC Codes, 2008 of Key Manufacturing Industries in Annual Survey of Industries

Sr. No.	Industry	2 Digit NIC Code	Business Activity	3 Digit NIC Code	Business Activity
1	Machinery and Parts	28	Manufacture of machinery and equipment n.e.c.	281	Manufacture of general purpose machinery
				282	Manufacture of special-purpose machinery

[177] *Hamanaka, S. 2011. Whose trade statistics are correct? Multiple mirror comparison techniques: A test of Cambodia, Journal of Economic Policy Reform 15 (1), 33-56.*

[178] *Chlendard, C., Raballand, G. & Rakotorisoa , A. (2016). The use of detailed statistical data in customs reform : the Case of Madagascar. Policy Research Working Paper 7625. Governance Global Practice Group, World Bank Group.*

[179] *https://unstats.un.org/unsd/tradekb/Knowledgebase/50075/What-is-UN-Comtrade*

Sr. No.	Industry	2 Digit NIC Code	Business Activity	3 Digit NIC Code	Business Activity
2	Tobacco Products	12	Manufacture of tobacco products	120	Manufacture of tobacco products
3	Textiles and Fabrics	13	Manufacture of textiles	131	Spinning, weaving and finishing of textiles
				139	Manufacture of other textiles
4	Ready-made Garments	14	Manufacture of wearing apparel	141	Manufacture of wearing apparel, except fur apparel
				142	Manufacture of articles of fur
				143	Manufacture of knitted and crocheted apparel
5	Electronic Items	26	Manufacture of computer, electronic and optical products	261	Manufacture of electronic components
				262	Manufacture of computers and peripheral equipment
				263	Manufacture of communication equipment
				264	Manufacture of consumer electronics

For estimation of the direct employment loss in the formal sector of industries, this study relies upon data and reports of the Annual Survey of Industries (ASI), National Sample Survey Organisation (NSSO) of the Ministry of Statistics and Programme Implementation (MoSPI). The data with respect to mapped NIC codes is extracted from ASI results and database for the indicators: Output, Gross Value Addition and Total Employment for financial years 2015-16 and 2016-17. As data for 2017-18 is not available, we extrapolated past trend to have data for 2017-18 for further analysis.

For making any estimates of direct employment loss in the informal sector, we have relied upon the NSS Survey on Unincorporated Non-Agricultural Enterprises (Excluding Construction) conducted in the 73rd round of NSS during July 2015 to June 2016, which was conducted in conducted in the Indian Union, with a sample of 290113 enterprises (143179 enterprises from 8488 villages and 146934 enterprises from 7860 urban EBs/ UFS blocks).[180]

The Report 581 (Economic Characteristics) and Report 582 (Operational Characteristics) of Unincorporated Non-Agricultural Enterprises in India based on NSS 73rd round survey has provided data for Number of enterprises, Principal Receipts , Total Receipts, Gross Value Additions (GVA) and total persons employed in the informal sector for these five manufacturing industries: tobacco products (M4), textiles (M5), wearing apparel (M6), machinery and equipment n.e.c. (M18), and computer, electronic and optical products (M20).[181] This report has mapped these industries on the basis of NIC codes and we have taken reported number directly from the report. However, as data is only available for period of 2015-16 of our study, we have made assumption that trend of formal and informal sector will continue following years also, therefore have made proportional estimates to arrive at numbers of informal sector.

Analysing Trends in Key Manufacturing Industries: Output, Gross Value Addition and Employment

The formal and informal sector data on the Output, Gross Value Addition and Total Employment of the key manufacturing industries data is analysed for years 2015-16, 2016-17 and 2017-18 to check for growth trends.

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[180] *Report 581 (73/2.34/1) Operational Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, NSS 73rd ROUND, MoSPI*

[181] *Report 581 (Economic Characteristics) & Report 582 (Operational Characteristics) of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India, NSS 73rd ROUND, MoSPI*

The analysis also helps understanding in total employment absorbed in a given industry and how crucial it is in terms of employment generation ability in the economy to draw out relevant conclusions.

Estimates of Direct Employment Loss in the Key Manufacturing Industries

We have estimated direct employment loss in the key manufacturing industries accounting for both formal and informal sector of these industries taken into account their output contribution and labour productivity. The revenue loss due to smuggling for formal and informal sectors of an industry is appraised on basis of their contribution to industry. The estimation of employment loss in a particular sector is thereafter calculated on the basis of the employment required for per rupees Crore of the output.

The tables for direct employment loss both in the formal and informal sector of each of the selected industry based on the above methodology for 2015-16, 2016-17 and 2017-18 are given in the Annexure IV of the report.

3: Multiplier Effects and Assessment of Total Impact on the Economy

Input and Output Table with Linkages

The Input-Output (I-O) table helps to analyse the demand of any product for intermediate consumption & final use, thus, allowing for the study of inter-sector linkages. As the I-O table is in matrix form, the entries in the rows and columns of the matrix have different interpretations. These are:

1) The sum of the entries in a particular column shows inputs purchased by the industries/sectors representing that column.
2) The sum of each row indicates the sales made by the sector to other sectors for immediate consumption and final use.

In India, the Central Statistics Office (CSO), of the Ministry of Statistics & Program Implementation, prepares the input-output table. The latest available input-output table prepared by CSO is for the year 2007-08, which is a "commodity X commodity" matrix for 130 commodities. However, for this study, we have used Input-Output table for year 2013-14 prepared by National Council for Applied Economic Research (NCAER) that is publicly available for usage from 2015-16.[182] The researchers from the NCAER have constructed this Input-Output table using National Accounts Statistics (NAS) 2015 (consistent National Accounts estimates), while have used supply use table (SUT) is for the year 2012-13. They have other adjustments to have Input-Output table with 130* 130 commodity matrix, similar to prepared by CSO.[183]

Mapping of Key Manufacturing Industries in Input and Output Table

One of the important aspect for analysing the multiplier effect for any industry is mapping of that industry (as given in NIC codes 2008) with the "commodity X commodity" matrix for 130 commodities given in the Input-Output table. We have done mapping of key industries with the commodities in the 130*130 matrix and aggregated them for estimation of multiplier effects for these industries as given below:

Table 3 - Mapping of I-O Row for Multiplier Estimation

S. No.	Industry	I-O Row No.	Economic Activity
1	Machinery and Parts	84	Industrial machinery – Food Technology
		85	Industrial machinery - other
		87	Other non-electrical machinery

[182] *http://www.ncaer.org/publication_details.php?pID=274*

[183] *Kanhaiya Singh & M R Saluja, 2016, Input–Output Table for India: 2013-14, NCEAR Working Paper No: WP 111, Dec 2016, Available at : http://www.ncaer.org/publication_details.php?pID=274*

S. No.	Industry	I-O Row No.	Economic Activity
2	Tobacco Products	45	Tobacco products
3	Textiles and Yarn	46	Khadi, handloom textiles of cotton
		47	Cotton textiles
		48	Woollen textiles
		49	Silk textiles
		50	Art silk
		51	Jute, hemp, mesta textiles
		52	Carpet Weaving
4	Ready-made Garments	53	Readymade garments
5	Consumer Durables (Electronic Items)	91	Electrical appliances
		92	Communication equipments
		94	Electronic items including TV

Source: *Worked by TARI, 2013-14 Input-Output table*[184]

Table of Technical Coefficients: Input-Output Coefficient Matrix

Multiplier estimation is based on the estimation of the inverted Leontief Matrix, which is derived using the I-O coefficient matrix. An I-O coefficient matrix is estimated using the I-O table, which summarizes the demand and the supply side transactions that are taking place in the economy. The input-output coefficient can be interpreted as the input requirement of a particular sector from other sectors, to produce one unit of output of that sector. Such a matrix can be obtained by dividing column entries by total output of the sector, where column entries show the input requirement of a sector. Total output is the sum total of total input, gross value added and net indirect taxes. Hence the sum of input coefficient, indirect tax coefficient and income coefficient should be one.

The entries in the I-O table were then aggregated on the basis of the economic activities so identified under NIC-2008 codes to convert the 130 X 130 commodity X commodity matrix, into an 9X9 sector matrix.[185]

Table 4: Aggregation of 130 Commodities into Nine Sectors

Sectors	Commodities in I-O Table 2013-14 matrix
Agriculture & Allied Activities	1-26
Mining	27-35

[184] *From Input-Output table (130* 130 matrix) prepared Kanhaiya Singh & M R Saluja, Input–Output Table for India: 2013-14, NCEAR Working Paper No: WP 111, Dec 2016, Available at : http://www.ncaer.org/publication_details.php?pID=274*

[185] *From Input-Output table (130* 130 matrix) prepared Kanhaiya Singh & M R Saluja, Input–Output Table for India: 2013-14, NCEAR Working Paper No: WP 111, Dec 2016, Available at : http://www.ncaer.org/publication_details.php?pID=274*

Key Manufacturing Industry	As mentioned in table 3
Other Manufacturing	Aggregate of (36-105) except of above rows for key industry mentioned above
Construction	106
Electricity, Water Supply	107-108
Trade	116
Services	109 to 115 & 117-129
Public Administration	130

Source- *TARI Research Team, based on Input-Output table 2013-14*[186]

Leontief Matrix

Once, the I-O coefficient matrix is obtained, the Leontief Matrix is obtained by subtracting the I-O coefficient matrix from an identity matrix of the same order. The diagonal of the Leontief Matrix (I-A) gives the net output for each sector with positive coefficients while the rest of the matrix gives the input requirements with negative coefficient.

Output Multiplier Matrix and Output Multipliers

To compute the matrix of Output multipliers, inverse matrix calculation need to be performed to have an inverted Leontief matrix (I-A)-1. This matrix shows how direct and indirect requirements change with change in final demand by one unit. Summing across row of the matrix of output multipliers, the total 1 increase in final demand for each column industry can be obtained. For estimating the total output multiplier for each of the sector/ industry of the 9*9 matrix, one has to sum up for each industry/sector output multipliers. This gives us direct and indirect impact of that industry on the economy for the output of industry. We have also estimated value added multiplier for each of the industry/ sectors of 9*9 matrix using value addition data given in the Input-Output tables.[187]

Employment - Output Coefficients and Employment Multipliers

The last step in multiplier effects analysis is the determination of the employment -output coefficients and then calculation of employment effects for each industry/ sector of the economy. We have the total output of each industry/ sector by summing up the rows of the input-output, which is in lakhs. We have used the NSSO's report on Employment and Unemployment Situation in India for the year 2011-12 for obtaining employment data.[188] We have to use this employment data in absence of other reliable data on employment from the Government sources which fulfils the purpose. We can obtain employment- Output coefficients, if we divide the employment by total output for each industry/ sector. We can then obtain the employment multiplier for each industry by multiplying these coefficients matrix with our computed output multiplier matrix.

Estimation of Total Output and Employment Loss in Economy due to Smuggling

Total impact on economy is much widespread because of industry backward linkage with other sectors of the economy. This leads significant loss of output, value, employment and taxes affecting overall economic growth of the country. The total output and employment loss in the economy due to smuggling can be ascertained by multiplying the direct output and employment loss in an industry with their calculated output and employment multipliers effects respectively.

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[186] *From Input-Output table (130* 130 matrix) prepared Kanhaiya Singh & M R Saluja, Input–Output Table for India: 2013-14, NCEAR Working Paper No: WP 111, Dec 2016, Available at : http://www.ncaer.org/publication_details.php?pID=274*

[187] *From Input-Output table (130* 130 matrix) prepared Kanhaiya Singh & M R Saluja, given in their Working paper, Input–Output Table for India: 2013-14, NCEAR Working Paper No: WP 111*

[188] *Employment and Unemployment Situation in India, 2011-12, Available at : mospi.nic.in/sites/default/files/publication_reports/nss_report_554_31jan14.pdf*

Annexure III

Estimates of Smuggling in Key Manufacturing Industries

1: Textiles Industry

Estimates of Smuggling: Textiles Industry			
Year	**2015**	**2016**	**2017**
Exports Reported by Partners (US$ Mn)	4430	4667	4774
Total Missing /Unreported Exports (US$ Mn)	39	276	309
Total Adjusted Exports by Partners (US$ Mn) (A)	4469	4943	5083
Import Reported by India (US$ Mn)	4004	4336	4690
Adjusted Imports (CIF/FOB=1.1) (US$ Mn) (B)	3640	3941	4264
Smuggling (US$ Mn) (A-B)	829	1002	819
US $ to Rupee Exchange Rate	65.36	67.06	64.46
Smuggling (Rs Crore)	5417	6717	5276

2: Readymade Garments Industry

Estimates of Smuggling: Readymade Garments Industry			
Year	**2015**	**2016**	**2017**
Exports Reported by Partners (US$ Mn)	1087	1093	1313
Total Missing /Unreported Exports (US$ Mn)	2	139	168
Total Adjusted Exports by Partners (US$ Mn) (A)	1088	1232	1480
Import Reported by India (US$ Mn)	561	601	688
Adjusted Imports (CIF/FOB=1.1) (US$ Mn) (B)	510	546	626
Smuggling (US$ Mn) (A-B)	578	685	855
US $ to Rupee Exchange Rate	65.36	67.06	64.46
Smuggling (Rs. Crore)	3780	4594	5509

3: Cigarettes

Estimates of Smuggling: Cigarettes			
Year	**2015**	**2016**	**2017**
Exports Reported by Partners (US$ Mn)	19.28	27.04	33.81
Total Missing /Unreported Exports (US$ Mn)	0.38	0.46	0.58
Total Adjusted Exports by Partners (US$ Mn) (A)	19.67	27.5	34.39
Import Reported by India (US$ Mn)	22.08	22.85	18.89
Adjusted Imports (CIF/FOB=1.1) (US$ Mn) (B)	20.07	20.77	17.18
Smuggling (US$ Mn) (A-B)	-0.41	6.73	17.21
US $ to Rupee Exchange Rate	65.36	67.06	64.46
Smuggling (Rs. Crore)	-2.68	45.13	110.93

4: Capital Goods (Machinery and Parts) Industry

Estimates of Smuggling: Capital Goods (Machinery and Parts)			
Year	**2015**	**2016**	**2017**
Exports Reported by Partners (US$ Mn)	29967	30276	33454
Total Missing /Unreported Exports (US$ Mn)	120	121	58
Total Adjusted Exports by Partners (US$ Mn) (A)	30087	30397	33512
Import Reported by India (US$ Mn)	30141	30501	33719
Adjusted Imports (CIF/FOB=1.1) (US$ Mn) (B)	27401	27728	30654
Smuggling (US$ Mn) (A-B)	2686	2669	2858
US $ to Rupee Exchange Rate	65.36	67.06	64.46
Smuggling (Rs. Crore)	17556	17900	18425

5: Consumer (Electronics) Durables Industry

Estimates of Smuggling: Consumer (Electronics) Durables Industry			
Year	**2015**	**2016**	**2017**
Exports Reported by Partners (US$ Mn)	20146	21549	26041
Total Missing /Unreported Exports (US$ Mn)	64	79	781
Total Adjusted Exports by Partners (US$ Mn) (A)	20210	21628	26822
Import Reported by India (US$ Mn)	21992	21346	27958
Adjusted Imports (CIF/FOB=1.1) (US$ Mn) (B)	19992	19406	25416
Smuggling (US$ Mn) (A-B)	218	2222	1405
US $ to Rupee Exchange Rate	65.36	67.06	64.46
Smuggling (Rs. Crore)	1423	14904	9059

Annexure IV

Estimates of Direct Employment Loss in Key Manufacturing Industries

1: Textiles Industry

Direct Employment Loss: Textile Industry (2015-16)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban-OAE	Urban-Estab.
Output (Rs. Crore)	448449	374803	73645	7620	5493	11085	49448
Output %	100.00%	83.58%	16.42%	1.70%	1.22%	2.47%	11.03%
Smuggling (Rs. Crore)	5417	4527.1	890	92	66	134	597
Total Employment (No.)	6543002	1565090	4977912	1944090	323486	1566144	1144193
Employment %	100.00%	23.92%	76.08%	29.71%	4.94%	23.94%	17.49%
Employment Per Rs. Crore Output	14.59	4.18	67.59	255.14	58.89	141.29	23.14
Direct Employ ment Loss (No.)	**79031**	**18904**	**60127**	**23482**	**3907**	**18917**	**13820**

Direct Employment Loss: Textiles Industry (2016-17)							
	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban-OAE	Urban-Estab.
Output (Rs. Crore)	470160	392948.8	77211	7989	5759	11622	51842
Output (%)	100.00%	83.58%	16.42%	1.70%	1.22%	2.47%	11.03%
Smuggling (Rs. Crore)	6717	5614.2	1103.1	114.1	82.3	166.0	740.7
Total Employment (No.)	6522149	1560102	4962047	1937894	322455	1561153	1140546
Employment (%)	100.00%	23.92%	76.08%	29.71%	4.94%	23.94%	17.49%
Employment Per Rs. Crore Output	13.87	3.97	64.27	242.58	55.99	134.33	22.00
Direct Employ-ment Loss (No.)	**93185**	**22290**	**70895**	**27687**	**4607**	**22305**	**16295**

Direct Employment Loss: Textiles Industry (2017-18)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban- OAE	Urban- Estab.
Output (Rs. Crore)	492922	411973	80949	8375	6038	12184	54352
Output %	100.00%	83.58%	16.42%	1.70%	1.22%	2.47%	11.03%
Smuggling (Rs. Crore)	5276	4410	867	90	65	130	582
Total Employment (No.)	6501363	1555130	4946233	1931718	321427	1556177	1136911
Employment %	100.00%	23.92%	76.08%	29.71%	4.94%	23.94%	17.49%
Employment Per Rs. Crore Output	13.19	3.77	61.10	230.64	53.24	127.72	20.92
Direct Employ ment Loss (No.)	**69593**	**16647**	**52946**	**20678**	**3441**	**16658**	**12170**

2: Readymade Garments Industry

Direct Employment Loss: Readymade Garment Industry (2015-16)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban- OAE	Urban- Estab.
Output (Rs. Crore)	201271	123397	77874	17330	5368	22408	32768
Output %	100.00%	61.31%	38.69%	8.61%	2.67%	11.13%	16.28%
Smuggling (Rs. Crore)	3780	2317	1462	325	101	421	615
Total Employment (No.)	8947628	1083149	7864479	3072253	536336	2692278	1563612
Employment %	100.00%	12.11%	87.89%	34.34%	5.99%	30.09%	17.48%
Employment Per Rs. Crore Output	44.46	8.78	100.99	177.28	99.92	120.15	47.72
Direct Employ ment Loss (No.)	168021	20340	147682	57692	10071	50556	29362

Direct Employment Loss: Readymade Garments Industry (2016-17)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban- OAE	Urban- Estab.
Output (Rs. Crore)	209407	128384.6	81022	18031	5585	23314	34093
Output %	100.00%	61.31%	38.69%	8.61%	2.67%	11.13%	16.28%
Smuggling (Rs. Crore)	4262	2613.0	1649.0	367.0	113.7	474.5	693.9
Total Employment (No.)	9392643	1137020	8255623	3225053	563011	2826180	1641379
Employment %	100.00%	12.11%	87.89%	34.34%	5.99%	30.09%	17.48%
Employment Per Rs. Crore Output	44.85	8.86	101.89	178.86	100.82	121.22	48.14
Direct Employ ment Loss (No.)	191166	23141	168024	65639	11459	57520	33407

Direct Employment Loss: Readymade Garments Industry (2017-18)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban- OAE	Urban- Estab.
Output (Rs. Crore)	217871	133574.1	84297	18760	5810	24256	35471
Output %	100.00%	61.31%	38.69%	8.61%	2.67%	11.13%	16.28%
Smuggling (Rs. Crore)	4458	2085.7	1316	293	91	379	554
Total Employment (No.)	9859791	1193570	8666221	3385453	591013	2966741	1723014
Employment %	100.00%	12.11%	87.89%	34.34%	5.99%	30.09%	17.48%
Employment Per Rs. Crore Output	45.26	8.94	102.81	180.47	101.72	122.31	48.58
Direct Employ ment Loss (No.)	201747	18637	135321	52863	9228	46325	26904

3: Tobacco Products (Cigarettes) Industry

Total Output and Employment Loss: Tobacco Products (Cigarettes) Industry									
Year	**Output (Rs. Crore)**			**Total Persons Engaged (Number)**			**Persons Employed (Per Rs. Crore Output)**		
	Industry	Formal	Informal - Estab.	Industry	Formal Sector	Informal - Estab.	Industry	Formal Sector	Informal - Estab.
2015-16	50381	47382	2999	625565	509602	115963	12.42	10.76	38.67
Percentage	100%	94%	6%	100%	81%	19%			
2016-17	46831	44043	2788	574985	468398	106587	12.28	10.63	38.24
2017-18	43531	40940	2591	528495	430526	97969	12.14	10.52	37.81

4: Capital Goods (Machinery and Parts) Industry

Direct Employment Loss: Capital Goods (Machinery and Parts) Industry (2015-16)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban-OAE	Urban-Estab.
Output (Rs. Crore)	313935	286543	27392	58	1001	868	25465
Output (%)	100.00%	91.27%	8.73%	0.02%	0.32%	0.28%	8.11%
Smuggling (Rs. Crore)	17556	16023.9	1531.8	3.2	56.0	48.5	1424.0
Total Employ- ment (No.)	1272982	726498	546484	7640	14874	30704	493267
Employment (%)	100.00%	57.07%	42.93%	0.60%	1.17%	2.41%	38.75%
Employment Per Rs. Crore Output	4.05	2.54	19.95	131.82	14.85	35.38	19.37
Direct Employ- ment Loss (No.)	71187	40627	30560	427	832	1717	27584

Direct Employment Loss: Capital Goods (Machinery and Parts) Industry (2016-17)							
Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban-OAE	Urban-Estab.
Output (Rs. Crore)	352076	321355.6	30720	65	1123	973	28559
Output (%)	100.00%	91.27%	8.73%	0.02%	0.32%	0.28%	8.11%
Smuggling (Rs. Crore)	17900	16338	1562	3	57	49	1452

Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural - Estab.	Urban- OAE	Urban- Estab.
Total Employ- ment (No.)	1364318	778624	585694	8188	15941	32907	528659
Employment (%)	100.00%	57.07%	42.93%	0.60%	1.17%	2.41%	38.75%
Employment Per Crore Output	3.88	2.42	19.07	125.98	14.20	33.81	18.51
Direct Employ-ment Loss (No.)	69364	39587	29778	416	810	1673	26878

Direct Employment Loss: Capital Goods (Machinery and Parts) Industry (2017-18)

Indicators	Total	Formal	Informal	Informal			
				Rural - OAE	Rural- Estab.	Urban -OAE	Urban- Estab.
Output (Rs. Crore)	394850	360398	34452	73	1259	1091	32028
Output (%)	100.00%	91.27%	8.73%	0.02%	0.32%	0.28%	8.11%
Smuggling (Rs. Crore)	18425	16023.9	1532	3	56	49	1424
Total Employ- ment (No.)	1462207	834490	627717	8776	17085	35268	566590
Employment (%)	100.00%	57.07%	42.93%	0.60%	1.17%	2.41%	38.75%
Employment Per Rs. Crore Output	3.70	2.32	18.22	120.39	13.57	32.31	17.69
Direct Employ-ment Loss (No.)	68231	37103	27909	390	760	1568	25192

5: Consumer (Electronics) Durables Industry

Direct Employment Loss: Consumer (Electronics) Durables Industry (2015-16)

Indicators	Total	Formal	Informal	Informal			
				Rural- AE	Rural - Estab.	Urban-OAE	Urban- Estab.
Output (Rs. Crore)	95170	93562	1608	8	100	273	1227
Output (%)	100.00%	98.31%	1.69%	0.01%	0.10%	0.29%	1.29%
Smuggling (Rs. Crore)	1423	1399.4	24	0	1	4	18
Total Employ- ment (No.)	111783	75664	36119	1085	1357	9271	24405
Employment (%)	100.00%	67.69%	32.31%	0.97%	1.21%	8.29%	21.83%
Employment Per Crore Output	1.17	0.81	22.46	131.74	13.63	33.94	19.89
Direct Employ- ment Loss	1672	1132	540	16	20	139	365

Direct Employment Loss: Consumer (Electronics) Durables Industry (2016-17)							
Indicators	**Total**	**Formal**	**Informal**	**Informal**			
				Rural -OAE	Rural - Estab.	Urban-OAE	Urban- Estab.
Output (Rs. Crore)	117852	115861.2	1991	10	123	338	1520
Output (%)	100.00%	98.31%	1.69%	0.01%	0.10%	0.29%	1.29%
Smuggling (Rs. Crore)	14904	14651.7	251.8	1.3	15.6	42.8	192.2
Total Employ- ment (No.)	123038	83282	39756	1194	1494	10204	26862
Employment (%)	100.00%	67.69%	32.31%	0.97%	1.21%	8.29%	21.83%
Employment Per Crore Output	1.04	0.72	19.97	117.09	12.12	30.17	17.68
Direct Employ- ment Loss	15559	10532	5027	151	189	1290	3397

Direct Employment Loss: Consumer (Electronics) Durables Industry (2017-18)							
Indicators	**Total**	**Formal**	**Informal**	**Informal**			
				Rural-OAE	Rural-Estab.	Urban-OAE	Urban-Estab.
Output (Rs. Crore)	145940	143474.3	2466	13	153	419	1882
Output (%)	100.00%	98.31%	1.69%	0.01%	0.10%	0.29%	1.29%
Smuggling (Rs. Crore)	9059	8906	153	1	9	26	117
Total Employ- ment (No.)	135425	91667	43758	1314	1644	11232	29567
Employment (%)	100.00%	67.69%	32.31%	0.97%	1.21%	8.29%	21.83%
Employment Per Rs. Crore Output	0.93	0.64	17.75	104.08	10.77	26.82	15.71
Direct Employ- ment Loss (No.)	8406	5690	2716	82	102	697	1835

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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.

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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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