Illicit cigarette sales in Indian cities: findings from a retail survey

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Received 18 August 2017
Revised 25 November 2017
Accepted 27 November 2017
Published Online First 8 December 2017

ABSTRACT

Objective To estimate illicit cigarette consumption in India using a modified and replicable method and compare it with estimates generated by the tobacco industry and by a commercial entity.

Methods The study employed a modified approach to cigarette pack analysis suitable for countries with prevalent single-cigarette sales. Empty cigarette packs generated by 1 day's single-cigarette sales were collected directly from cigarette vendors in four large and four small cities covering the length and breadth of India. Ten areas were randomly selected in each city/town, and all shops selling cigarettes within 1 km of the central point were surveyed. A cigarette pack was classified as illicit if it had at least one of the following attributes: (a) a duty-free sign; (b) no graphic health warnings; (c) no textual health warnings; or (d) no mention of 'price inclusive of all taxes' or similar text.

Findings We collected 11 063 empty cigarette packs from 1727 retailers, and 2.73% of them were classified as illicit. The estimates varied substantially across locations with the highest prevalence of illicit packs in the town of Aizawl near the Bangladesh and Myanmar border (35.87%). The share of illicit cigarettes was found to be much higher (13.77%) among the cheapest cigarette brands. Illicit cigarettes are primarily distributed via formal stores rather than informal tea/pan shops.

Conclusion Our estimate of the illicit cigarette market share of 2.73% casts serious doubt on the tobacco industry estimate of 20% and Euromonitor's estimate of 21.3%.

INTRODUCTION

Cigarettes in India have historically been subject to relatively higher taxes compared with other tobacco products such as bidis and smokeless tobacco. In fiscal year 2017–2018, for example, excise tax per cigarette stick longer than 75 mm was 4.42 rupees compared with 0.02 rupee per bidi stick. Bidis, as a result, are much cheaper than cigarettes, outselling them by a ratio of 8:1.[1] The total tax is around 52% for cigarettes, while taxes constitute only 19.2% of the retail price of bidis. Therefore, there is a greater incentive to evade taxes on cigarettes than on bidis.

The cigarette industry in India is led by ITC. Like tobacco companies elsewhere in the world, ITC asserts that excessive and skewed cigarette taxation promotes illegal cigarette trade[2] and continually lobbies the government to reduce cigarette taxes. The industry estimates the share of illegal cigarettes (*internationally smuggled or locally manufactured tax-evaded cigarettes*) at about 20% of the total cigarette market and claims that it has doubled over the past 10 years.[3] However, it conveniently overlooks the overall decline in cigarette consumption in India and the resulting decline in the absolute number of illegal cigarettes. The second Global Adult Tobacco Survey[4] finds that there has been a 23.6% relative decline in the prevalence of smoking—cigarettes and bidis—in India from 2009–2010 to 2016–2017. By choosing to report only the share of illegal cigarettes in the total cigarette market, the tobacco industry gives the impression that illegal cigarette consumption is growing, a tactic the industry is known to apply everywhere.[5] Moreover, industry estimates of illicit cigarette consumption in many countries have been found to be inflated and/or to use methodologies that are not transparent.[6–9] The industry often uses these inflated estimates to argue against cigarette tax increases.[10]

Illicit cigarettes are the result of illegal manufacturing, smuggling from abroad and other methods of tax evasion. There are no national-level data sets that regularly monitor the extent of illicit cigarette trade apart from the data on cigarette seizure provided by the enforcement authorities. The seizure data, however, cannot be used to assess the size of the illicit cigarette trade since a growth in the volume of cigarettes seized could simply be the result of better enforcement. Irrespective of the sources of illicit cigarettes, these products are distributed in India via brick-and-mortar stores, roadside vendors, street hawkers and sales agents who deal in bulk either directly with end users or with the established retail channels.

Independent estimates of the size of the illicit cigarette market are rare, and they suggest a wide variation in illegal cigarette market shares across countries, ranging from 1% to as much as 40%–50% of the total cigarette market.[11] Globally, the share of illicit cigarettes is estimated to be 11.6% of total consumption, with higher estimates in low-income countries—about 16.8%. Estimates of the size of the illicit cigarette market in India are few. Euromonitor[11] reports that roughly 14% of cigarettes consumed in India in 2005 were illicit. More recent Euromonitor estimates suggest that the share of illicit cigarettes increased to 19.5% in 2014 and further to 21.3% in 2015.[12] The Euromonitor illicit cigarette market estimates are unreliable, given the evidence of their frequent and substantial retrospective revisions[13] in addition to their data and methods not being transparent.

The objective of this paper is to measure the extent of illicit cigarette consumption in India using an innovative method that relies on primary data collected from retailers. This is the first independent estimate of the extent of illicit cigarette consumption in India. It also seeks to present a new

To cite: John RM, Ross H. *Tob Control* 2018;**27**:684–688.

method of estimating illicit tobacco consumption in markets with prevalent single-cigarette sales.

Methods

The amount of illicit trade can be assessed through various methods, such as measuring the difference between consumption and tax paid sales, interviewing smokers, studying features of cigarette packs and econometric modelling. Each of these methods has its own merits and limitations.[14] Examination of littered cigarette packs collected from the streets is a common method to assess the extent of illicit cigarette trade.[14] However, this method is not well suited to India, where 55% of cigarettes are sold as loose cigarettes.[12] Analysing littered cigarette packs could result in bias if the people who could afford to buy packs are different (most likely wealthier) from those buying loose cigarettes. Hence, we developed a modified approach based on the analysis of empty cigarette packs collected directly from those selling single cigarettes and compared our estimate with an estimate based on littered packs.

The pack collection was carried out during August to December 2016 across various cities/towns in India to ensure as much geographical representation as possible. Four metro cities (New Delhi, Mumbai, Kolkata and Chennai) and four smaller towns (Aizawl (Mizoram), Bilaspur (Chhattisgarh), Kohima (Nagaland) and Shillong (Meghalaya)) were surveyed.

We randomly selected 10 pin codes (pin codes represent smaller geographical areas within each city/town) in each city/town and determined a central point (such as a train station, a government building or a market place) in each of them. At the beginning of a business day, the survey team walked 1 km along both sides of a busy street (0.5 km each in both directions from the central point) starting from the central point. An empty bag with a unique ID was given to every cigarette retailer encountered on the selected route. The retailer was asked to deposit all cigarette packs emptied throughout the day as a result of loose cigarette sale in the bag provided, and he/she was promised a small monetary reward—commensurate with the number of packs deposited in the bag—for this effort. The bags were collected at the end of the day towards the close of business. At that time, the retailer was asked about the price and the daily estimated quantity of the cheapest cigarette brand sold in his/her establishment. If, for some reason, the empty pack of that particular brand was not available in the bag, the team would take a picture and code all the relevant attributes of such pack observed in the shop itself.

Each cigarette pack in the bag was photographed and its features recorded. Pack data included the brand name, the pack size, maximum retail price inclusive of taxes printed on the pack, the country of origin, the cigarette length, the presence of graphical and/or textual health warnings, the language of the warning, compliance of these warning messages with existing laws and any indication of duty-free status.

We applied a conservative definition to classify an illicit cigarette pack according to which a cigarette pack is considered illicit if it has at least one of the following attributes: (a) a duty-free sign; (b) no mention of 'price inclusive of all taxes' or similar texts; (c) no graphic health warnings; and/or (d) no textual health warnings.

Cigarette packs with a duty-free sign are to be sold in Duty Free shops only and thus should not be available in the locations we surveyed. Thus, we classified these packs as illegal. Under the Legal Metrology (Packaged Commodities) Rules, 2011,[15] it is mandatory to print the text 'Maximum or Max. retail price… inclusive of all taxes or in the form MRP Rs… incl., of all taxes' on all packaged products sold in India. Hence, packs not containing this text can be considered illegal. According to the Notification for Cigarettes and Other Tobacco Products (Packaging and Labelling) Amendment Rules, 2014,[16] and the subsequent modification[16] in 2015, India mandates the placement of health warning labels (HWLs) covering 85% of the principal display area of the package—of which 60% shall be a pictorial health warning and 25% shall be a textual health warning, commonly referred to as '85% pictorial HWL'—on all cigarette packs sold in India with effect from 1 April 2016. Although, by definition, a cigarette pack lacking full compliance to either graphic or textual health warnings may be treated as illegal, we have not included such packs in the illicit group because the new rules came in to effect barely 4 months before our survey. Therefore, some packs sold during the time of our survey could have been manufactured before the new rules came into effect. Nevertheless, we provide a separate estimate of the share of packs not in compliance with the new package warning rules. Any pack without either graphic or textual HWL, however, can be deemed illegal, because graphic HWLs, although smaller (40% of display area), have been in place since 2009 and text warnings on cigarette packs have been in place for several decades.

In order to check the robustness of our findings based on the empty packs collected from shopkeepers, we decided to collect littered packs from the same streets where the retail survey was done in one city. Originally, we selected New Delhi for the street data collection. However, only a few packs were collected in New Delhi due to unfavourable weather conditions and a relatively higher compliance with the Clean India Campaign. Therefore, street data collection was moved to Kolkata as recommended by the survey company, since the data collectors observed many littered packs during the retail survey. As result, the littered pack survey was completed 6 months after the retail survey.

Results

We collected 11 063 empty cigarette packs from 1727 retailers across India (table 1). The retailers were classified into three types of establishments: brick-and-mortar general stores (18.5%) (included kirana stores, supermarkets and department stores), pan shops (64.1%) (included cigarette shops) and tea shops (17.4%) (included restaurants, snack shops, hotels, cold drink shops, dairy shops, soda shops and public telephone booths that sold cigarettes). All selected retailers agreed to participate in the survey, but 11 of them did not collect any packs since they did not sell enough single cigarettes to have an empty pack until the time they closed their shops. These 11 stores were excluded from the empty pack analysis, but not from the analysis of the cheapest cigarette sold.

New Delhi had the largest sample with 308 retailers submitting 3447 empty packs, while Kohima, Nagaland, had the lowest participation with 114 retailers submitting 276 empty packs. Mumbai had a lower-than-expected turn out with 194 retailers providing 1521 packs, which is 56% less than the packs collected in New Delhi. This is likely a result of the timing of the survey that coincided with an unannounced currency demonetisation in India on the eighth of November, which withdrew over 85% of currency in circulation overnight and resulted in lower business on subsequent days. Our survey was temporarily suspended due to this event. When it was resumed later in November, the country was still facing severe cash shortages for day-to-day transactions.

Table 1 Empty cigarette packs survey

State	City/town	Retailers	Packs collected	Dates of survey
New Delhi	New Delhi	308	3447	11 August 2016 to 25 August 2016
West Bengal	Kolkata	213	2133	30 August 2016 to 7 September 2016
Maharashtra	Mumbai	194	1521	24 November 2016 to 28 November 2016
Meghalaya	Shillong	185	1502	5 September 2016 to 12 September 2016
Chhattisgarh	Bilaspur	241	849	29 September 2016 to 3 October 2016
Tamil Nadu	Chennai	199	730	30 September 2016 to 3 October 2016
Mizoram	Aizawl	273	605	2 September 2016 to 7 September 2016
Nagaland	Kohima	114	276	10 September 2016 to 14 September 2016
All India		1727	11 063	11 August 2016 to 28 November 2016

About 93.86% of collected packs were 10-stick packs, 5.79% packs were the size of 20 and 0.35% of them were the size of 12 (table 2). Since cigarettes in India are sold only in packs of either 10 or 20, and these packs also fit our definition of illegal packs, we classified all 12-cigarette packs as illegal. The average price of a pack of 10 and 20 as recorded on the pack was 59.82 and 254.73 rupees, respectively. The cigarettes in India sold in packs of 20 are usually premium brands, as evidenced by their higher average prices.

Approximately 97.3% of the packs displayed 'Made in India,' followed by 1.94% and 0.61% of them displaying 'Made in Myanmar' and 'Made in Indonesia', respectively. Packs made in other countries such as Korea, England, France, Nepal and Switzerland constituted the remaining 0.15% share.

Table 3 summarises the characteristics of cigarette packs that indicate their legal status. Nearly 1% of the packs had a duty-free sign, and most of them came from Aizawl and a few from Mumbai. The remaining six sites returned no such packs. 2.7% of the packs had no text indicating MRP and were classified as illegal. The highest share of such packs was collected in Aizawl, while Chennai and Bilaspur also had some packs without the appropriate MRP text.

About 1.68% of all the packs had no graphic HWL of any kind. This percentage was the highest (23.14%) in Aizawl, while none of the packs sampled from Shillong, Kohima and Kolkata omitted a graphic HWL. Only 0.33% of all packs had no textual HWL of any kind. This percentage was the highest (2.74%) in Chennai, while none of the packs from Shillong, Kohima and Kolkata omitted a textual HWL. About 17% of all packs were not compliant with the new 85% pictorial HWL rules. Overall, the non-compliant share varies substantially across the cities/towns, with the highest non-compliance (41.82%) being observed in Aizawl and lowest (5.13%) in Mumbai.

Table 4 shows the estimate of the share of illicit cigarette packs found in each of the cities/towns. Overall, the share of illicit cigarette packs in the whole sample was 2.73% (measured by a simple average), but it varied substantially across locations. The highest prevalence of illicit packs was found in Aizawl, where the illicit packs constituted 35.87% of the sample. Aizawl is a town with close proximity to both the Bangladesh and Myanmar borders, and nearly 18% of the packs collected in this town had a duty-free sign, the highest among all locations. On the other hand, even though Kohima and Shillong are also located near borders with Myanmar and Bangladesh, respectively, our sample—though sufficiently large in both cities—did not return a single illegal pack.

An analysis of the distribution of illicit cigarettes by store type revealed that the brick-and-mortar general stores were the most likely source of illicit cigarettes (10.23%) compared with tea shops (1.61%) and pan shops (0.87%). In other words, illicit cigarettes seem to be distributed primarily via more established general stores than via the relatively informal tea shops or pan shops.

Table 5 presents the share of illicit cigarettes among the cheapest cigarette brand sold, along with their average price and estimated quantity sold per day in each city. The average daily sale quantity of a particular brand was estimated by the retailers. We found that the share of illicit is much higher among the cheapest cigarette brands (13.77%) compared with all cigarette brands (2.73%). The highest share of illicit among the cheapest brands is again found in Aizawl (45%), followed by Kolkata (15%). On the other hand, although the sale of cheapest cigarettes from New Delhi was the largest, none of those were classified as illegal.

In order to check the robustness of our findings, we collected littered packs from the same 10 streets in the city of Kolkata where we had approached the retailers for empty pack collection. We obtained a total of 304 packs and found not a single pack satisfying our criteria for illicit cigarettes. In comparison, the retail survey of 2133 packs in Kolkata revealed that 0.19% of them were illicit. The non-compliance of littered packs with the new 85% pictorial HWLs was only 1.97%, much less compared with the 21.85% non-compliance among packs obtained from the retail stores. This is consistent with our hypothesis about the time delay between the implementation of the new law and the compliance with it: the manufacturers had additional 6 months to comply with the new rules in the case of street packs data collection.

Table 2 Pack size and prices

Sticks per pack	Frequency	Share (%)	Mean price (rupee)	Minimium price (rupee)	Maximum price (rupee)
10	10 384	93.86	59.82	19	218
12	39	0.35	n/a	n/a	n/a
20	640	5.79	254.73	30	599
Total	11 063	100	67.19	19	599

DISCUSSION

Our study provides the first scientific, transparent and replicable estimate of the share of illicit cigarette sales in India. It also presents a novel method to estimate the share of illicit tobacco consumption in countries with prevalent loose cigarette sales, which is quite common in lower-income and middle-income countries. The study surveyed retailers selling cigarettes and collected a total of 11 603 packs from 1727 retailers across eight cities/towns. This gave us a large enough sample to make

Table 3 Pack characteristics

Pack characteristics	Bilaspur	New Delhi	Mumbai	Shillong	Aizawl	Kohima	Chennai	Kolkata	Total
Duty-free sign (yes) (%)	0.00	0.00	0.13	0.00	17.85	0.00	0.00	0.00	0.99
MRP indication (no) (%)	2.71	0.32	0.66	0.00	35.87	0.00	4.66	0.19	2.70
Graphic HWL present? (no) (%)	0.59	0.35	0.20	0.00	23.14	0.00	3.56	0.00	1.68
Textual HWL present? (no) (%)	0.47	0.29	0.07	0.00	0.17	0.00	2.74	0.00	0.33
85% pictorial HWL Compliant? (no) (%)	26.97	13.66	5.13	17.71	41.82	23.91	6.58	21.85	16.97
Sample size	849	3447	1521	1502	605	276	730	2133	11 063

HWL, health warning label.

statistically significant estimates of the share of illicit cigarette sales. The direct interaction with retailers also allowed us to obtain additional information about the price, the daily retail volume and pack characteristics of the cheapest cigarette brand sold in the store by each vendor. Nevertheless, being a first of its kind study, it comes with a few caveats.

First, the study results are pertinent to four metro cities and four small towns, meaning that its representativeness to the whole of India is limited. Nevertheless, the survey sites were picked to represent as much geographical dispersion as possible. The four metro cities included in the study covered the four cardinal directions—the North, the South, the West and the East. The smaller towns were chosen to provide representation of the Northeast and Central regions.

Second, the study primarily relies on the empty packs that were the source of loose cigarettes, thus representing about 55% of cigarettes sold in India. To compensate for this weakness, we also collected littered packs in one metro city to assess illicit cigarette consumption among those buying cigarettes in packs. This returned a consistent estimate, which increased our confidence in the results obtained via retail pack collection.

Third, our method relied on the selected retailers to provide us with all the empty packs sold that day. To the extent that the retailers would want to hide the illegal packs, the results of our study would be biased downward. However, our independent littered pack collection resulted in an estimate similar to the one generated from the retail data, enhancing confidence in our results. Moreover, a small monetary reward—commensurate with the number of packs deposited in the bag—was also provided which, to an extent, mitigated this issue.

Fourth, this study is limited in its ability to identify the hotspots of illegal cigarette trade, due to the subjective selection of the survey sites. The fact that the town of Aizawl in Mizoram emerged as a hotspot was a coincidence. It is quite possible that there are more such hotspots in the country and, to that extent, our results may be underestimated. However, three of the four small towns in our sample are located in the North East of India, known for its porous borders, to increase our chances of identifying a hotspot. We found only one, the town of Aizawl in Mizoram, while the other two towns with similar characteristics returned no illicit cigarettes.

Fifth, our survey was able to collect empty cigarette packs only from the retail stores and streetside vendors having their establishment at a given location through the day on a particular street. The street hawkers and dealers, if any, who are on the move and sell cigarettes are not covered by the survey.

Sixth, our method is not capable of detecting cigarette packs that are not taxed but bear all the features of an otherwise legal pack. Such packs could be distributed by the tobacco industry (eg, by not declaring all sales/production) or by counterfeiters, both of whom have economic incentives to do so. This weakness could be addressed by conducting a gap analysis,[17] which measures the difference between tax paid sales and consumption. This should be a subject of future research.

CONCLUSIONS

Using a conservative definition of illicit cigarette consumption, we found a total of 2.73% illicit packs in the entire sample of packs collected across the eight Indian cities. The tobacco companies in India claim that the share of illicit cigarettes has been growing rapidly, and it has recently crossed the level of 20% of the market. Our estimate of the illicit cigarette market share is in sharp contrast with that provided by the industry and Euromonitor.

Certainly, to the extent there is illicit trade, the government is losing tax revenue. However, a mere 2.7% rate of tax evasion is tiny compared with income tax and sales tax evasion in India, which are at a much larger level.[18] Such a small scale of tax evasion should not prevent the government from increasing tobacco excise taxes, which would certainly lead to better public health and higher tax revenue.[19] In addition, the higher tax revenue after a tax increase can be used to support enforcement

Table 4 Illicit cigarettes by city/town

State	City/town	Packs collected (n)	Percentage illicit
Mizoram	Aizawl	605	35.87
Tamil Nadu	Chennai	730	4.66
Chhattisgarh	Bilaspur	849	2.83
Maharashtra	Mumbai	1521	0.66
New Delhi	New Delhi	3447	0.38
West Bengal	Kolkata	2133	0.19
Nagaland	Kohima	276	0.00
Meghalaya	Shillong	1502	0.00
Pooled sample		11 063	2.73

Table 5 Illicit cigarettes among the cheapest brand cigarettes

State	City/town	Daily sale of cheapest packs	Average price per stick (rupee)	Percentage illicit
Mizoram	Aizawl	4258	2.74	45.42
West Bengal	Kolkata	1500	3.11	15.07
Tamil Nadu	Chennai	1510	5.20	1.19
Maharashtra	Mumbai	383	5.71	0.26
Nagaland	Kohima	428	4.98	0.23
Chhattisgarh	Bilaspur	833	3.88	0.12
New Delhi	New Delhi	10 178	6.22	0.00
Meghalaya	Shillong	1516	4.81	0.00
Total		20 606	4.97	13.77

agencies and bring tax evasion under control. This enforcement should target hotspots such as the town of Aizawl identified by our survey.

Despite the general perception that smaller roadside pan/tea shops facilitate illicit cigarette sales, we found that the majority of illicit cigarette packs were distributed via permanent retail stores.

The distorted and non-uniform tax structure on different tobacco products in India resulting in huge price variation between brands and across tobacco products could incentivise illicit trade, even though we found more illicit products among cheaper cigarettes with lower tax.

It appears that, in India, the concerns of rising illicit cigarette trade on account of tobacco tax hikes are unfounded and should not hinder the government from raising tobacco taxes. The advantages of higher tobacco taxes for public health as well as government revenue far outweigh the small price, if any, to be paid in terms of revenue loss due to illicit cigarette trade.

What this paper adds

- Commercial data indicate that illegal cigarettes in India represent more than 20% of the total cigarette market and the tobacco industry claims that this figure has doubled over the past 10 years. The tobacco industry is known to inflate estimates of illicit trade in order to argue against tobacco tax increases.
- There are no independent and scientifically verifiable estimates of illicit cigarette trade in India.
- Using a new method suitable for markets with prevalent single-cigarette sales, we provide the first independent estimate of the share of illicit cigarette consumption in India. We show, contradicting the commercial estimates, that this share is negligible in all major cities and in a majority of smaller cities.

Acknowledgements We would like to thank MART, a Delhi-based consulting firm (http://www.martrural.com), for collecting and recording the data. Thanks are also due to Dr Estelle Dauchy and Vandana Shah at the Campaign for Tobacco Free Kids for their valuable comments on the draft. However, the authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions or policies of the institutions with which the authors are affiliated or the agency that funded this research.

Contributors Both authors made substantial contributions to the conception and design of the method as well as to the acquisition, analysis and interpretation of data. Both authors were involved in drafting and finalising the manuscript.

Funding The Campaign for Tobacco Free Kids.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

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