



Research, Evaluation and Monitoring of Illicit Tobacco
in New Zealand
Baseline report 2022

School of Population Health,
Waipapa Taumata Rau | University of Auckland,
Auckland, New Zealand

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Executive summary

In this report we outline progress on research commissioned by the New Zealand (NZ) Ministry of Health to describe how changes in tobacco control policies may affect the importing and selling of illicit tobacco products, and how consumers are interacting with the illicit market in response.

Substantial progress has been made on the baseline data collection for the component studies in this body of research. In 2022 we did baseline surveys of discarded packs in four cities and towns in the South Island and five cities in the North Island of NZ. We completed the first round of consumption gap analysis and NZ Customs Service (Customs) interviews. We set up a system for surveillance of social media (Facebook Marketplace) marketing.

We conclude that there is evidence from a range of sources of a downward trend in illicit trade in tobacco in NZ. As highlighted by the consumption gap analysis, the scale of the trade is difficult to assess with precision. Our estimates rely on several assumptions and therefore the real value of this research lies not so much in quantifying the absolute size of the illicit trade but in establishing a baseline on which change over time may be measured.

Discarded pack surveys lack precision and should not be relied on as a single method to estimate the extent of the illicit trade. They do, however, provide evidence that supports the finding from the NZ Customs interviews and NZ Customs seizure data that the bulk of NZ's illicit trade is occurring in Auckland. Customs seizures vary in amount intercepted from year to year. However, our analysis of the volume of illicit tobacco intercepted by Customs has grown in recent years suggests better detection of illicit tobacco at the border.

It is difficult to measure the extent of the trade being conducted over social media channels because of the multiple terms and platforms used. However, social media monitoring provides useful insights into the ways some illegal trade is occurring, and the sources and communities involved.

In conclusion, our use of a range of sources of information is helpful for cross-validation. It also helps identify areas for further exploration and refinement. The absolute amounts of the estimates at a single point in time are less important than their capacity to show changes over time as the new tobacco control strategies take effect.

Introduction

This report outlines the methods and results of research led by researchers at the University of Auckland documenting the illicit trade in tobacco in Aotearoa, NZ. The report is the first report for a longer-term project on the illicit trade in tobacco that was commissioned in 2022 by the Ministry of Health through a competitive request for proposals process.

The World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) defines illicit tobacco trade as “any practice or conduct prohibited by law and which relates to production, shipment, receipt, possession, distribution, sale or purchase, including any practice or conduct intended to facilitate such activity” (WHO, 2013, p.6). In practice, the term ‘illicit trade in tobacco’ refers to the trade in tobacco products (cigarettes and loose tobacco) that have not followed tobacco taxation law.

In 2020 the NZ Government strengthened actions to reduce illicit tobacco trade at the border. The Customs and Excise (Tobacco) Amendment Act 2020 (‘Act’), which came into force on 1st July 2020, imposed import controls over tobacco products, tobacco leaf, and refuse. The Act requires that all importers of tobacco products must have a permit to import issued by Customs. Any tobacco imported without a permit is now seized and destroyed. The Act was a response to concerns about growth in the illicit trade (Salesa, 2020). While some large shipments of tobacco have been intercepted in sea cargo, tobacco is also being smuggled through postal items. For example, in just two weeks in 2019, 2,086 packages of cigarettes were intercepted in the mail stream (Salesa, 2020). Some criminal groups involved in the illicit tobacco trade through postal and parcel systems used multiple addresses and broke up consignments across service providers (Block, 2021). Regulations have since been tightened to address this vulnerability, by restricting the international air postage of tobacco products (New Zealand Customs Service, 2022a).

The illicit tobacco trade not only affects the Government's ability to support and provide services to New Zealanders, but also undermines law and order, the Government's Smokefree 2025 goal, and affects the health and lives of New Zealanders.

The research findings we report are from research conducted in 2022, a period immediately before the passage of the Smokefree Environments and Regulated Products (Smoked Tobacco) Amendment Act in mid-December 2022. The Act sets out steps that: will significantly limit the number of retailers able to sell smoked tobacco products; aims to prevent young people from taking up smoking by prohibiting the sale of smoked tobacco products to anyone born on or after 1 January 2009; and aims to make smoked tobacco products less appealing and addictive by restricting the nicotine content of tobacco products.

Such policies could lead to an increase or a decrease in the illicit tobacco trade. For example, reducing the nicotine in cigarettes could trigger an increase in the smuggling of normal-strength tobacco cigarettes, while improving access to nicotine through nicotine replacement therapy (NRT) and e-cigarettes could reduce the demand for illicit tobacco if these products are used as direct substitutes for tobacco cigarettes.

In this report, we document the methods we used, and the first round of data collected on various measures to establish a baseline for monitoring the illicit tobacco trade in NZ.

Methods

Estimating the true size of NZ's illicit tobacco trade and people's interaction with it is important but is challenging in several ways.

First, the illicit trade is a hidden activity. This makes it difficult, even at times risky, to obtain accurate estimates and elicit information from informants, and to undertake direct observation of sales and use. Second, the available methods to estimate the scale of the trade have limitations (Ross, 2019). Methods include measuring the difference between consumption and tax-paid sales, econometric modelling, interviewing key informants in Customs and Police, observing smokers directly and asking them how they obtained their tobacco, comparing their use of tobacco with an estimated consumption of tobacco from existing household surveys, surveying small retailers, surveying smokers in online surveys, and studying features of discarded cigarette packs (Ross, 2019).

A 2020 European Union (EU) analysis recommended a shortlist of five preferred methods for measuring the illicit trade in tobacco: discarded pack surveys; comparison of sales/tax paid and self-reported consumption; consumer surveys with and without pack inspection/surrender; and econometric modelling (Taylor et al, 2021). These methods align with our proposed methods. In addition, at the request of the Ministry of Health, we added interviews with NZ Customs Officers and social media monitoring. We excluded consumer surveys with pack inspections or pack surrender because these data will be available from other concurrent research projects.

No single method provides adequate information to give policymakers confidence about the validity of estimates or insights. For this reason, we used a convergent mixed methods approach to triangulate and cross-validate estimates and information (Ross, 2019).

Advantages of the mixed-methods approach include generalisability, contextualisation (mixing the quantitative data with qualitative data allows us to situate the findings in context and confer detail to the conclusions) and validity (the varying sources of data enables cross-validation between data sources, generation of hypotheses about the reasons for any differences in estimates, and the ability to adapt our questions in successive annual waves to new information that emerges about the range of ways people engage with the illicit tobacco trade) (Creswell & Plano Clark, 2011).

Research, Evaluation and Monitoring of Illicit Tobacco Project in New Zealand: [Baseline report 2022](#)

Discarded pack surveys

Background

Discarded pack surveys are used widely as an indicator of the scale of and trends in illicit tobacco product consumption. Such surveys involve undertaking a street-level collection of discarded tobacco packaging litter in selected locations and inspecting packs to distinguish illicit from compliant products according to the law and regulations of NZ.

Aim

To assess the numbers and proportions of discarded cigarette packs that are illicit, over time, in cities and towns around NZ. This series of surveys, conducted between 30th September and 20th December 2022, set up the baseline prevalence of discarded packs against which the findings of later surveys will be compared.

Method

Sampling

We adapted the sampling methods outlined in Abdullah et al. (2020), and Wilson et al. (2009). Wilson et al. (2009) collected discarded cigarette packs on the streets of four port cities and six towns/rural locations between November 2008 and January 2009. We developed a sampling frame to ensure the data collection method is replicable and broadly representative of the population. We purposively selected the following cities based on their population size, proximity to a seaport and/or because they were recommended by Customs: Auckland (central business district [CBD]), Tauranga CBD (and Mt Maunganui), Hamilton CBD, Christchurch CBD (and Lyttleton), Dunedin CBD (as well as Port Chalmers and Mosgiel), Napier CBD and waterfront, and Invercargill (and Bluff). We surveyed the CBD of each city, or the main streets and adjacent side streets of smaller locations (e.g., Bluff, Port Chalmers), due to the high concentrations of people who would be smoking within these areas, such as at on-license premises.

Pack collecting

The collection of discarded packs began from a chosen starting point. A typical collection involved researchers walking along a selected route. Researchers surveyed both sides of each street, covering the area from property boundaries across the pavements to the gutter and included tobacco packaging found in the gutter. Collections typically started at 6 am to try to pre-empt collection by local rubbish collectors while ensuring enough light for safety. Two urban locations (Auckland, Dunedin) were visited twice several months apart to ensure coverage of survey areas and account for variations in weather. All discarded packs were photographed or collected and photographed later.

Pack inspection and categorisation

We inspected each pack and collected the following data from the pack: country of origin, cigarette brand, pack size, and presence or absence of a standardised health warning, including text and graphic warning. We classified a cigarette pack as illicit using the approach recommended by Ross (2019) e.g., if it has no graphic health warnings in coloured pictures on the background of standard packaging and the use of Māori language as part of the warning (Ministry of Health, 2017; Wilson et al., 2009). Our analysis reports the frequencies and proportions of cigarette packs that fall within the study definition of illicit.

Data analysis

We calculated the share of packs categorized as illicit cigarettes (A) among all collected packs (B), such that the proportion of illicit packs (D) is $A/B \times 100$. We adjusted the proportion of illicit packs by population size, using the population estimates from Stats NZ in 2021 to adjust the proportion of illicit packs by the population proportion of the city where the collection was done.

Results

Table 1 shows the results of the surveys conducted between September and December 2022. Table 2 shows the population-adjusted prevalence of illicit packs. The major finding is that there were low levels of cigarette pack litter of any kind in most centres. In some cities we found no tobacco pack litter whatsoever: none were found in

Christchurch/Lyttleton, Tauranga/Mt Maunganui, Napier, Bluff, and Port Chalmers. Other than cigarette filters, these locations had little litter of any kind on their streets. Some locations, such as Invercargill, Hamilton, Auckland, and Dunedin, had other litter in evidence - cigarette filters, empty beer bottles, food packaging, vape packaging, and nitrous oxide canisters - but no tobacco packet waste. Second, the level of illicit packs detected was extremely low: only three of 34 (8.8%) discarded packs were illicit, a population-adjusted prevalence of 7.2% (Table 2). Of these packs, two came from China and one from South Korea. All three illicit packages were detected in Auckland, where the detection rate was 20%. Third, we detected no counterfeit packs, and found no loose tobacco packaging anywhere.

Date of survey	Location	Country of Manufacture	Company	Brand	Variant Descriptor	No. Sticks	Factory-made (FM) or Loose tobacco	Health warning label
23.10.22	Tauranga CBD	Nil	Nil	Nil	Nil	Nil	Nil	Nil
23.10.22	Mt Maunganui	Nil	Nil	Nil	Nil	Nil	Nil	Nil
07.11.22	Invercargill CBD	NZ	PMI	Marlboro	-	20	FM	Smoking causes lung diseases
07.11.22	Bluff	Nil	Nil	Nil	Nil	Nil	Nil	Nil
07.11.22	Dunedin CBD	NZ	BAT	Rothmans	Red	Not visible	FM	Smoking causes over 80% of lung cancers
07.11.22	Dunedin CBD	NZ	Imperial	Horizon	Mellow Blue	20	FM	Smoking is not attractive
07.11.22	Dunedin CBD	NZ	PMI	Marlboro	Red	20	FM	Smoking causes over 80% of lung cancers
08.11.22	Dunedin CBD	NZ	PMI	Benson & Hedges	Classic Red	20	FM	Smoking is a major cause of stroke
08.11.22	Dunedin CBD	NZ	Imperial	JPS	Red	20	FM	Your smoking harms others
08.11.22	Dunedin CBD	NZ	PMI	Chesterfield	Red	20	FM	Smoking is not attractive

Date of survey	Location	Country of Manufacture	Company	Brand	Variant Descriptor	No. Sticks	Factory-made (FM) or Loose tobacco	Health warning label
08.11.22	Dunedin CBD	NZ	Imperial	JPS	Long Red	20	FM	Smoking causes over 80% of lung cancers
08.11.22	Dunedin CBD	NZ	PMI	Marlboro	Not visible	20	FM	Smoking causes lung diseases
08.11.22	Port Chalmers	Nil	Nil	Nil	Nil	Nil	Nil	Nil
08.11.22	Mosgiel	NZ	PMI	Chesterfield	Red	20	FM	Smoking is not attractive
09.11.22	Napier CBD	Nil	Nil	Nil	Nil	Nil	Nil	Nil
17.11.22	Dunedin CBD	Nil	Nil	Nil	Nil	Nil	Nil	Nil
16.12.22	Hamilton CBD	Nil	Nil	Nil	Nil	Nil	Nil	Nil
17.12.22	Hamilton CBD	NZ	Not visible	Not visible	Not visible	Not visible	FM	Your smoking harms others
17.12.22	Hamilton CBD	NZ	BAT	Club	Blue	20	FM	Smoking is not attractive
17.12.22	Hamilton CBD	NZ	Imperial	JPA	Red	Not visible	FM	Smoking harms your baby before it is born
17.12.22	Hamilton CBD	NZ	BAT	Winfield Select	Red	Not Visible	FM	Smoking causes heart attacks

Date of survey	Location	Country of Manufacture	Company	Brand	Variant Descriptor	No. Sticks	Factory-made (FM) or Loose tobacco	Health warning label
17.12.22	Hamilton CBD	NZ	PMI	Benson & Hedges	Classic Red	Not visible	FM	Smoking contains many poisonous chemicals that cause serious illnesses in children
17.12.22	Hamilton CBD	NZ	Not visible	Not visible	Not visible	Not visible	FM	Your smoking harms others
17.12.22	Hamilton CBD	NZ	Imperial	JPS	Long Blue	Not visible	FM	Smoking harms your baby before it is born
17.12.22	Hamilton CBD	NZ	BAT	Pall Mall	Red click	25	FM	Smoking harms your baby before it is born
17.12.22	Hamilton CBD	NZ	Imperial	JPS	Long Red	20	FM	Smoking causes heart attacks
22.12.22	Auckland CBD	NZ	BAT	Rothmans Royals	Red	20	FM	Smoking damages your blood vessels
22.12.22	Auckland CBD	NZ	BAT	Dunhill	Master Blend Red	20	FM	Smoking damages your blood vessels
22.12.22	Auckland CBD	NZ	BAT	Winfield Select	Red	20	FM	Smoking causes heart attacks
22.12.22	Auckland CBD	NZ	PMI	Chesterfield	Blue	20	FM	Smoking causes heart attacks

Date of survey	Location	Country of Manufacture	Company	Brand	Variant Descriptor	No. Sticks	Factory-made (FM) or Loose tobacco	Health warning label
22.12.22	Auckland CBD	NZ	BAT	Winfield Select	Red	20	FM	Your smoking harms others
22.12.22	Auckland CBD	NZ	PMI	Chesterfield	Red	20	FM	Your smoking harms others
22.12.22	Auckland CBD	NZ	Imperial	JPS	Long Red	20	FM	Your smoking harms others

Table 2. Prevalence of discarded packs in selected New Zealand cities, 2022

Locality	Number of Illicit packs (A)	Total Packs collected (B)	Population of Area*	Proportion of total New Zealand population (%) (C)	Proportion of packs which were illicit (%) (D= A/B)	Adjusted national prevalence of illicit packs (%) (C x D)
Auckland CBD	3	15	1,695,200	32.5	20	7.2
Hamilton CBD	0	9	513,800	9.9	0	0
Tauranga CBD / Mt Maunganui	0	0	347,700	6.7	0	0
Christchurch CBD/ Lyttleton	0	0	655,000	12.6	0	0
Dunedin CBD / Port Chalmers/ Mosgiel	0	9	246,000	4.7	0	0
Invercargill CBD / Bluff	0	1	102,400	2.0	0	0
Total NZ	3	34	5,214,200	100	8.8	7.2

*Population as estimated by Stats NZ in June 2022

Discussion

There was scant evidence of discarded illicit packs in the streets in the cities we sampled. Most towns and cities had little evidence of street litter of any sort, let alone tobacco packaging litter. Several cities had a lot of litter, including cigarette filters, empty beer bottles, and vape packaging but little tobacco packaging litter, suggesting we would have been likely to have seen cigarette packs should they have been discarded.

The finding of no loose tobacco packaging aligns with the findings of low levels of loose tobacco litter by Wilson et al. (2022). People who use roll-your-own cigarettes may pre-roll their cigarettes at home and discard packaging there, be less inclined to carry the larger loose tobacco packs with them when going out or be less likely to be present in the area.

The overall number of discarded packs in our study was lower than previously reported. However, the population-adjusted prevalence of illicit packs was 7.2%, slightly higher than the estimate of 5.4% in the survey by Wilson et al. (2022) and higher than earlier discarded pack surveys in 2008/2009 (3.3%, Wilson et al., 2009; 5.8%, Marshall et al., 2013). One reason could be that our survey was conducted over an abbreviated time compared to some earlier studies.

The source countries of the packs and focus on Auckland align with the findings of the survey reported by Wilson et al. (2022).

Since this is an observational study, it eliminates the validity problems associated with self-reported data. However, surveys of discarded packs from street gutters have many limitations that undermine their validity. First, they provide results for limited geographical areas at points in time that may not be representative of the problem at a national level over a longer period. Packs originating from overseas may be over-represented in the urban areas included in the surveys. Second, the method does not distinguish between cigarettes legally purchased overseas or duty-free and brought into NZ, or those smuggled into the country. Third, they are dependent on the disposal habits of tobacco product users. Not all people who smoke tobacco throw their empty packs on the road or footpath. Fourth, overall waste in the streets may simply reflect the local authorities' approach to waste management, such as the density and hence accessibility of rubbish

bins, which varies from city to city, or the completeness, coverage, frequency, and timing of a local authority's litter collection services. For example, it is difficult to avoid litter collection services in locations such as the Auckland CBD; foot orderlies collect litter on set routes throughout the day from 6 a.m., bins are emptied up to three times a day, and street sweeping machines operate overnight.

Finally, climate and weather could affect the amount of litter on the streets. For example, the volumes of tobacco litter might be greater in warmer, drier seasons when people are more likely to congregate outside bars and restaurants to smoke, and a heavy rainfall event immediately before a survey could reduce the quantity of paper litter detected.

Consumption gap analysis

Background

The consumption gap is defined as the difference between the estimated consumption of cigarettes and tax-paid sales (Ross, 2015). Consumption gap analysis is a method of estimating the size of the illicit market primarily to detect deviations from a trend. For example, a sudden increase in the gap following a tax increase would be evidence of an increase in tax avoidance or evasion. The estimates allow for a better understanding of the relationship between policy changes and trends in the illicit tobacco trade. The estimates are based on comparing legal sales and self-reported cigarette consumption estimated from surveys (HM Revenue & Customs, 2022).

Aim

To estimate the size of the trade in illicit tobacco in NZ in 2022, immediately before the new smoke-free Act was introduced and implemented in NZ, determine if it changes over time, identify if there are problems with data quality and availability, and document all assumptions made.

Method

Our method was based on a simple arithmetical model: the total market for cigarettes is defined as $Q = QL + QI$ where Q is the total quantity of cigarettes consumed (including loose tobacco), QL is the quantity of legal cigarettes consumed and QI is the quantity of illicit cigarettes consumed. Because $Q = QL + QI$, we can estimate QI as $Q - QL$.

We drew on data that the NZ government collects routinely. Data to estimate QL was obtained from the Tobacco Returns – the quantities of tax-paid sales and duty-free sales that tobacco companies are required to provide to the Ministry of Health, published on the Ministry of Health website (Ministry of Health, 2022a). Loose or roll-your-own (RYO) tobacco and tobacco sold from duty-free stores is included in the official NZ returns data (Ministry of Health, 2022a). We converted the loose tobacco data into an estimate of the

number of cigarette sticks that can be made from the weight of a pack of loose tobacco, using 0.7 g of tobacco per stick (Ministry of Health, personal communication, November 2022). We also conducted a sensitivity analysis using 0.45 g of tobacco per stick (Laugesen et al., 2009) (see Appendix 1). We did not include pipe tobacco, cigars, or cigarillos because the volumes of these products relative to cigarettes and loose tobacco are small.

Consumption, Q , is calculated using estimates of the size of the smoker population and the average cigarette consumption per smoker. The size of the smoker population was taken from estimated number of daily smokers in the annual NZ Health Survey (NZHS). The sample design for the NZHS was developed by the National Institute for Applied Statistics Research Australia, University of Wollongong, Australia. For more details on the current NZHS sample design, see Sample Design from 2015/16: New Zealand Health Survey (Ministry of Health, 2016), and for details on the sample design used prior to 2015/16, see Clark et al., (2013), and The New Zealand Health Survey: Sample design, years 1–3 (2011–2013) (Ministry of Health, 2011) and Methodology Report (Ministry of Health, 2022c).

A daily smoker (aged 15 years or older) is defined as someone who has smoked more than 100 cigarettes in their lifetime and currently smokes at least once a day (Ministry of Health, 2022). Daily smokers consumed on average 9.6 cigarettes per day (CPD) in 2022 (Ministry of Health, 2022). Smoking intensity (SI) is the average consumption of cigarettes by smokers over a particular time. In this case we were interested in the annual consumption, so SI was the average number of cigarettes smoked per year (i.e., 9.6×365), corresponding to the year of reported sales data.

The NZHS (Ministry of Health, 2022b) asks about daily and non-daily smoking. We did not include people who smoke at least once a month (“current smokers”) in our estimates because it was not possible to obtain estimates of the number of cigarettes they smoke. We did not include smokers under the age of 15 years for three reasons: one, their numbers are extremely low - the prevalence of tobacco smoking in this age group is estimated to be around 1% (ASH, 2022); two, the data on smoking intensity for this

group are not available by year; and three, other New Zealand surveys of tobacco use exclude this group.

Respondents in surveys typically understate the quantity of tobacco consumed (HM Revenue & Customs, 2022). UK HM Customs account for the difference between official sales and self-reported consumption by multiplying consumption by an 'uplift factor' 1.5 for factory-made cigarettes and 1.1 for loose tobacco. The exact level of under-reporting in NZ surveys is unknown and surveys in NZ report both factory-made and RYO cigarettes as a joint number. We therefore used the average of the HM Customs estimates of 1.5 and 1.1 (1.3) as the uplift factor for NZ. We also conducted a sensitivity analysis using an uplift factor of 1.16 which was calculated from the formula used by HM Customs (UK HM Revenue & Customs, 2022), for 2012 (Appendix 2).

We repeated these calculations to estimate Q and QI for the years 2012-2021, using the daily smoker and smoking intensity data from the NZHS for these years but keeping the uplift factor constant. We used these data to calculate the proportion of all cigarettes consumed that were illicit, each year, 2012-2022. For each year we used the daily smoker population aged 15 years and over, and the number of cigarettes smoked daily on average for that year. We used the same uplift factor for each year, as for 2022. We used the upper bounds of the 95% confidence intervals for our estimate of the population of daily smokers because these represent the 'worst-case' scenario (Figure 1).

Results

The results of the consumption gap analysis for 2022 are shown below.

Table 3. Tobacco consumption gap analysis for New Zealand in 2022

Number of people who smoked tobacco every day in 2022:	373,000
Average number of cigarettes smoked per smoker per day in 2022:	9.6
Total number of cigarettes smoked per daily smoker in 2022:	3,504
Q (Quantity of cigarettes smoked in 2022 [3504 x 373,000]):	1,306,992,000
Uplift factor (UF) to account for underreporting:	1.3
Total (Q x UF):	1,699,089,600
QL (Quantity of legal cigarettes released into the NZ market in 2022):	1,555,851,255
QI (Quantity of illicit cigarettes in 2022, Q – QL):	143,238,345

Table 4 shows the changes in the proportion of all tobacco from illicit sales for each year over the decade 2012-2022, using the same method we used for 2022.

In figure 2 we show both upper and lower bounds of the 95% confidence intervals around the point estimates of the proportion of tobacco smoked that was illicit

Table 4. Estimated proportion of all cigarette sticks that are illicit, New Zealand 2012 - 2022

Year	Total sticks consumed, Q	Total legal sticks released into the market, QL*	Total illicit sticks, QI (Q-QL)	Proportion of all sticks consumed that were illicit (%), QI/Q x 100
2012	3,215,212,000	2,864,000,000	351,212,000	10.92%
2013	3,119,552,800	2,719,000,000	400,552,800	12.84%
2014	3,103,230,000	2,673,000,000	430,230,000	13.86%
2015	2,937,344,800	2,593,000,000	344,344,800	11.72%
2016	2,773,262,700	2,523,000,000	250,262,700	9.02%
2017	2,780,902,150	2,423,299,937	357,602,213	12.86%
2018	2,628,730,000	2,300,673,408	328,056,592	12.48%
2019	2,595,515,000	2,141,165,458 **	454,349,542	17.51%
2020	2,301,514,800	2,036,927,425	264,587,375	11.50%
2021	1,954,180,800	1,897,417,427***	56,763,373	2.90%
2022	1,699,089,600	1,555,851,255****	143,238,345	8.43%

*From 2012 to 2016, we used the compiled data on the number of legal cigarettes and RYO tobacco products calculated and published by the Ministry of Health on their website. From 2017 to 2022, we relied on the reports published on the websites of each company to calculate the quantities of legal cigarettes and RYO tobacco products. **We did not count the cigarette tobacco in kg of the Scandinavian Tobacco Group in our calculations because there needs to be more clarification on the exact amount in kg. *** We did not count the RYO of the Lotte Company because it was reported as an example. **** We confirmed with the Lotte company that their tobacco return in the RYO category was the number of packages, not the number of tonnes.

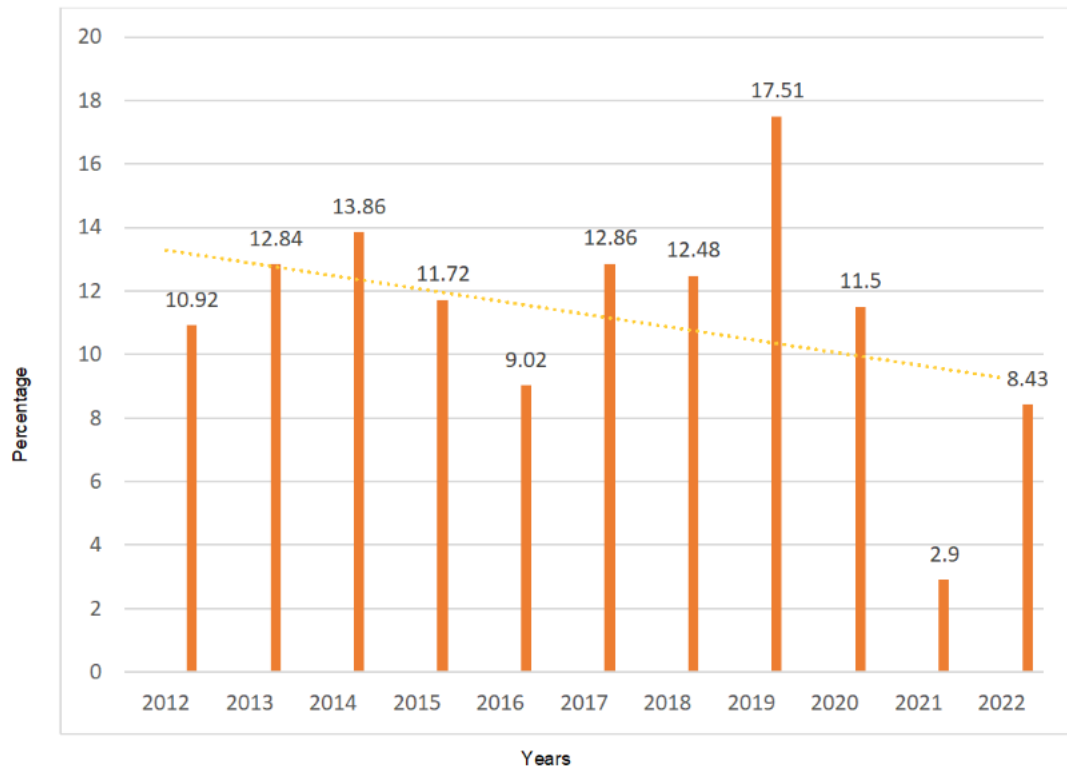


Figure 1. Trend in the estimated upper bound of the proportion of total tobacco consumed by daily smokers that was illicit, New Zealand, 2012-2022

In Figure 1, the dotted line shows the trend line, which is overall one of decline, but with a peak in 2019, followed by a decline in 2020-2021 coinciding with the COVID-19 pandemic, then a recovery in 2022. The orange bars show the upper bound of the 95% confidence interval estimate of daily smokers.

In Figure 2, The orange bars show the mid-point estimates for each year with their 95% confidence intervals. The figure shows that as the numbers of smokers in NZ has declined over the decade from 2012-2022, so the degree of imprecision around the point estimates has increased.

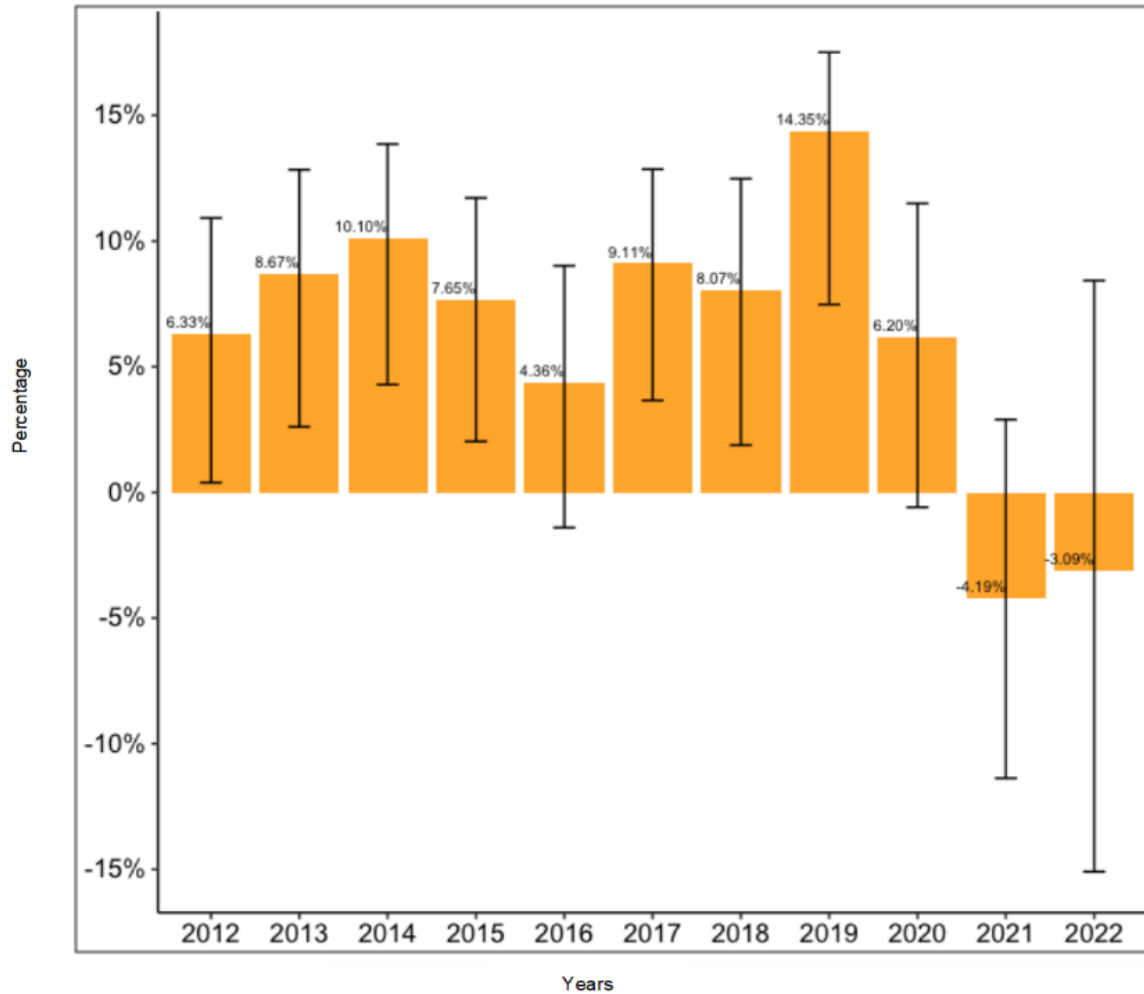


Figure 2. Trend in the estimated proportion of total tobacco consumed by daily smokers that was illicit, New Zealand, 2012-2022, showing point estimates with 95% confidence intervals

Discussion

Historically, there is little evidence that significant increases in the illicit tobacco trade in NZ have taken place in response to past tobacco control measures, despite claims from the tobacco industry and other interested parties this would occur. For example, in 2019 the proportion of illicit tobacco was higher compared with other years, but this deviation in trend did not follow major increases in taxation on tobacco nor other new tobacco control policies.

It is possible year-on-year fluctuations could be explained by factors such as companies over-supplying the market to enable stock-piling of tobacco before a law change (such as the law on standardised packaging introduced in 2017); or assuming the government allowed companies to sell what they had already imported. The sharp decline to a nadir of 2.9% in 2021 could reflect the COVID-19 pandemic border closures (with disruption of supply chains and restrictions on tobacco consumers from entering the country), or a combination of these factors.

The method we used is the same as that used in other jurisdictions (notably the UK) and is transparent and replicable. The method is well-suited for NZ with its reliable and consistent estimates of tobacco consumption over time and unbiased tax-paid sales records.

Nevertheless, there are several caveats. First, our estimates of the absolute size of the gap have a high degree of imprecision, as shown by the wide confidence intervals in Figure 2. The 95% confidence intervals overlap such that we cannot be certain if there is a real decline over the decade 2012-2022.

Second, the proportion of illicit tobacco used is founded on several assumptions. We assumed that RYO tobacco was made into sticks containing on average 0.7g of tobacco. In a 2009 New Zealand study comparing RYO with factory-made cigarettes, factory-made cigarettes contained 0.7g tobacco per cigarette whereas RYO cigarettes contained less tobacco (0.45g) (Laugesen et al., 2009). If we assumed this lower amount of tobacco per stick for loose tobacco, then the number of sticks smoked would increase, with concomitant changes in the consumption gap. In Appendix 1 we show the results of a sensitivity analysis using 0.45 g tobacco per RYO cigarette. Under this scenario, in all years except 2019, we find that the supply of cigarettes released into the market would exceed consumption, a finding that is implausible. Hence, we have retained the 0.7g tobacco in our calculations.

Another assumption relates to our use of an uplift factor of 1.3. This quantity was drawn from UK estimates of under-reporting in 2022. Over the past decade smoking has become less socially acceptable in NZ, so under-reporting of smoking and the number of cigarettes consumed daily is likely to be more common than ever. We were unable to find

NZ-specific data on the extent to which smoking is underreported by people who smoke tobacco. We also assumed that the proportion of people underreporting smoking remained constant from 2012-2022. In Appendix 2 we show the results of a sensitivity analysis using a lower uplift factor of 1.16 that was calculated using a formula used by HM Customs. This analysis shows lower estimates of the proportion of the tobacco trade that is illicit than those using the uplift factor of 1.3, again with some estimates being negative.

As noted, we used data on daily smoking in adults. If we had included estimates of youth smoking, the effect would be to increase the estimates of cigarettes consumed, and other factors being equal, increase estimates of the consumption gap. However, because smoking prevalence in under 15-year-olds is so low, and in those who smoke the number of cigarettes consumed is low, the effect would not substantially change our estimates. Similarly, current smokers were not included in our estimates because of insufficient data with which to estimate the monthly (and hence, annual) cigarette consumption by this group, numbering around 9.2% of the population (380,000 people) in 2021/22. Appendix 3 shows that when we included an estimate of the number of cigarettes consumed by this group in 2022, the overall numbers and proportion of illicit tobacco changed only slightly.

As we collated the tobacco returns data, we found several discrepancies and gaps, in particular a lack of standardisation of units and reporting formats. For example, some companies report in pdf and Excel files, while others report in pdf and/or Word files. Companies used different units for cigarettes, such as sticks, thousands of sticks, packs, and bricks. For RYO tobacco, companies reported using kilograms, tonnes, or packets. Some companies reported in different formats for different years; in some years, they used both Excel and pdf formats and both tonnes and kilograms. Some tobacco returns data (from small importers) were so difficult to interpret we were unable to use them in our calculations. For example, we did not include the amount of tobacco in kilograms provided in 2019 by the Scandinavian Tobacco Group and we did not count the loose tobacco released by Lotte in 2021 because it was reported as an example rather than an actual amount. We confirmed with Lotte that their data for 2021 in the loose tobacco category referred to the number of packets, not the number of tonnes, despite the column heading stating tonnes. We did not include the loose tobacco released by New World in

2022 in its submitted Excel sheet because the company did not mention loose tobacco in its pdf report. Such discrepancies could be minimized by requiring tobacco companies to use a standardised form and unit of measure in their annual tobacco returns to the Ministry of Health.

In 2023 we will explore a range of econometric methods that involve the use of mathematical formulae and economic data to consider the relationship between variables correlated with total consumption and variables positively correlated with illicit tobacco trade. We will repeat the consumption gap analysis annually using the same data sources, methods, and assumptions, to assess how the gap evolves over time with changing tobacco control policies. Indeed, this is the greatest strength of this approach: applied consistently using the same assumptions we used in our main analyses it will enable major shifts in trends to be identified and facilitate further insights as policies change.

Interviews with Customs officials

Background

The New Zealand Customs Service (Customs) is the NZ government agency charged with border protection under the Customs and Excise Act 2018. The agency's core functions in relation to tobacco are to prevent the threat of illicit tobacco importation and to collect revenue. Customs gather data on and prosecute revenue avoidance and the importation of illicit tobacco products (Ross, 2015). Customs can therefore provide crucial insight into these activities and any changes over time that cannot be obtained otherwise.

Aim

To gain insights into the importation, distribution, and sale of illicit tobacco products in NZ, and how this might change as new Smokefree 2025 policies are implemented.

Methods

We sent invitations to Customs and NZ Police seeking representatives who could speak authoritatively and knowledgeably about the illicit tobacco trade. NZ Police (NZ Police Research Panel, Evidence-Based Policing Centre) declined interviews on the basis that illicit tobacco "offending is against the Customs and Excise Act, not the Crimes Act" (NZ Police, personal communication, November 12, 2022) and Police were therefore unlikely to provide information not supplied by Customs Officers. Customs supported this view, so Police invitations were not pursued.

In September 2022, we completed two interviews with senior Customs representatives: the first representative was a Supervising Customs Officer (SupCO) who oversees fraud investigations, including illicit tobacco importation, and the second was the Chief Customs Officer (CCO) in the Fraud and Prohibition Group in Customs.

Both key informant interviews followed standard procedures with University of Auckland ethics approval (UAHPEC24652), and written informed consent was obtained from the participants. Interviews were semi-structured and guided by the list of questions provided

by the Ministry of Health. Interviews were recorded and transcribed. Data analysis used a thematic analytic approach aligned to the Ministry of Health's questions, using Nvivo™ software.

Following the interviews, and with the guidance and support of the CCO, we submitted an Official Information Act 1982 (OIA) request for a breakdown on tobacco seizures data. This information has been incorporated into the results below.

Results

The findings reflect the responses of two Customs representatives. However, their senior positions and leadership in Customs investigations and seizures give credibility to the data.

Our findings are presented under the questions they addressed. Questions that were similar were combined. Customs investigations involve detailed intelligence gathering, and some of the examples below are informed by this intelligence. However, in line with our ethics approval, we did not ask to cite intelligence reports, nor did we ask for specific details that could potentially jeopardise Custom's enforcement role.

How large is the illicit market, and what is happening in specific communities (i.e., Māori, Asian, and Pacific communities)?

Customs cannot provide exact figures about the size of the illicit tobacco market:

“We're talking about trying to measure a market that is notoriously difficult to pin down.... It's, by design, quite hidden.” (CCO).

Customs can only supply figures on the products they seize. However, extrapolating from seizures has provided some insights. For example, in 2020, Customs seized a single shipment of 2.2 million cigarettes imported by a Malaysian organised criminal group. When they tracked back through the organisation's operations, they discovered five earlier containers that had not been detected at the border (SupCO).

Customs also noted that the illicit market is not monolithic. Various products appeal to different communities. They supplied the following examples:

- **Chewing tobacco.** This is imported for the Indian community. According to Customs figures, nearly two tonnes had been seized since 2019 (OIA 22-259).
- **Water pipe tobacco.** (Also known as shisha tobacco or molasses tobacco). Customs reported that this “has a somewhat wider appeal, but really only as a novelty” and is otherwise only used habitually by a small community (CCO). Importers are taxed on the percentage of tobacco content among other ingredients. Until recently, legislation allowed importers to self-declare their tobacco content rate. However, importers often exploited this high-trust model and misrepresented tobacco content as lower than it was. In May 2022, the legislation was changed to charge importers a set rate based on the total weight (New Zealand Customs Service, 2022a).
- **Chinese cigarettes.** Customs estimated that Chinese cigarettes “are probably the largest single part of the market,” (CCO). Chinese cigarettes account for 39% of cigarette seizures from 2019 to 2022 (OIA 22-259). This market includes brands such as Double Happiness, Mevius, Lesser Panda, and other Chinese brands, or, to a lesser extent, Korean brands.
- **Tongan tobacco.** This is loose tobacco imported from Tonga. Customs reported that local distribution networks “tend to be ethnically based and anecdotally that will involve churches and community groups” (CCO). Tongan tobacco is grown and air-dried in Tonga. Customs said that intelligence reported easy access and cheap prices which indicated that “supply is great” (SupCO). In November 2021, Customs seized one shipment of 450 kg of loose Tongan tobacco by sea freight, hidden in food (New Zealand Customs Service, 2021). They seized a second shipment of 593 kg in October 2022 (New Zealand Customs Service, 2022b).
- **Domestic chop-chop.** This is domestically grown and produced loose tobacco.
- **Cheap/illicit whites.** These are cigarettes produced cheaply overseas by tobacco manufacturers, usually in the Middle East or Southeast Asia (CCO). These products have been an issue internationally for some time but have only been seen in NZ since 2020, following the first COVID-19 Lockdown. Cheap whites have the correct packaging with NZ health warnings. There are still many unknowns about how and why these products are imported. Customs speculated

that a small number are imported and sold lawfully to introduce brands to the market, while smuggling in larger shipments unlawfully to sell at the same price.

Where is illicit tobacco being sold, how easy is it to access and has it changed over time?

Customs provided the following examples of where illicit tobacco is sold.

Social media platforms. While illegal drugs tend to be sold on the dark web, Customs believe tobacco is primarily sold blatantly in New Zealand using social media. Platforms such as Facebook Marketplace and Alibaba, which advertise to a wider market, have made distributing illicit tobacco more efficient and provided easier access for buyers:

“And the other thing is just the easy access to distribution - I’m talking about social media.... [you] don’t have to go to a dodgy alley or go to some shop front – just, “I’ll send it to you once [I’ve] got it in.” (SupCO).

Some platforms try to restrict illicit sales, but sellers don’t need sophisticated tactics to avoid this:

“Facebook has algorithms to try to take those sites or sales advertisements away. What [sellers] do is they change the name to Tongan language so rather than tobacco they go Tapaka and now it’s Malila.” (SupCO).

Customs also reported that private messaging systems such as WhatsApp and WeChat have made illicit sales easier. These messaging systems, where users can create chat groups, are difficult to monitor:

“Let’s just say you’re at a language school. You’re a bunch of ... students and then you get into that chat group. They’ll talk about school things ... but also about, “Actually, [I’ve] just got five cartons here. Anyone want one?” (SUPCO).

Despite being invite-only, these chat groups are still semi-public settings. Using these spaces to advertise illicit tobacco, amongst other everyday discussions, suggests these activities are seen as acceptable. (This is discussed in more detail later).

Dairies and convenience stores. Illicit tobacco is also sold by dairies and convenience stores. However, retailers do not usually import products themselves:

“... when we do come across dairy sellers in our operations ... they’ll be receiving the cigarettes from someone who is then, usually, an intermediary between the importer and the actual purchaser.... there’s a little bit of a structure there.” (CCO).

Other sites. Customs reported that most sales are conducted in settings such as ethnic supermarkets, internet cafes, workplaces (e.g., construction sales, language schools, etc.), community groups, and churches. Customs said that in-person sales using these networks are also relatively easy:

“... that Malaysian company we dealt with, just by looking at some of the personnel behind the company ... mostly work in the construction industry. Again, we think [those construction workers who worked across different sites] could be another easy avenue to supply cigarettes.” (SupCO).

In this example, the organised criminal group used their access to, and knowledge of, this community to target immigrant construction workers, offering lower prices and preferred brands that were not available in New Zealand.

Who is importing illicit tobacco?

Customs reported that they have seen a change in who is importing illicit tobacco. There are still individuals who import tobacco to save money, with some buying extra to sell to friends cheaply. Customs do not target these individuals, but case information may be fed into intelligence reports. However, SupCO noted that while importers have “traditionally” been individuals who identified “a gap in the market” (SupCO), such as price and preferred products or brands, there has been a shift in recent years:

“What we’re seeing now is actually organised criminals deliberately involved because, where there’s money to be made, they want to be that person.” (SUPCO).

Customs investigations have revealed that organised criminal groups are now importing large quantities of tobacco in single shipments, often using sophisticated smuggling tactics that mirror those used for drug smuggling. For example, the Malaysian group behind Customs seizure of 2,208,000 cigarettes in 2020 concealed them in roofing frames. The earlier biggest single shipment seizure was 340,000 cigarettes in 2018 (Kronast, 2020).

Customs reported focusing their resources on organised criminal groups to cause the biggest disruption to the illicit market. These groups use large-scale smuggling and concealment tactics, often using sea freight:

“We’ll be looking at people who are setting up shell companies or organising containers for cigarettes.... the people that are involved in this are serious criminals - they’re not just opportunists having a go because they’re worried about the price of tobacco. They’ve seen an illicit market that’s profitable and they’ve decided that they’re going to exploit it.... Australia and New Zealand together have very high prices and so both countries are essentially ripe for the picking for organised criminal groups.” (CCO).

While the term ‘organised criminal groups’ often evokes images of gangs, Customs noted that gangs are only one subset of this category. The Crimes Act 1961 defines an organised criminal group as any group of three or more people who jointly pursue an offence (Crimes Act 1961, sec. 98a).

Customs also reported recent cases where tobacco smuggling was connected to drug smuggling. For example, Officers recently executed a search warrant for a cigarette manufacturing operation and discovered a sophisticated cannabis growing operation on the floor above.

Why are people buying illicit tobacco?

Customs asserted that people buy illicit tobacco for two main reasons. First, buyers want to save money:

“... this is anecdotal but there’s obviously people out there that aren’t well off and they’re not going to pay \$37 for a packet of cigarettes.” (CCO).

Both informants said that the Ministry’s set prices were a key reason people engage with the illicit market, particularly buyers with limited resources. Second, people engage with the illicit market to access their preferred products or brands which are not locally available. Often these reasons overlap, as their preferred brands are cheaper than legal products:

“And what we’ve seen is that depends on their predilection...as to what part of the market they’ll then touch. If we look at ... the Pasifika community, they’re going to be more inclined to go for the Tapaka Tonga and Fijians might be more inclined to go for suki. But if we talk about Pākehā New Zealand Europeans, well, if we go down to the West Coast ... of the South Island, most pubs that you walk into there will be able to hook you up with some chop-chop.” (CCO).

As noted above, organised criminal groups exploit these preferences. (See Question 1 above for a more detailed breakdown of products).

Customs also said that buyers believe it is acceptable to buy illicit tobacco:

“... to be very honest most of these [sales] are done in really blatant marketplaces ... somewhat different to ... drug commodities and ... child sexual material, where they trade on the dark web.... Tobacco’s still got that genuine ... acceptance where people say it is not a big deal.... they know it is unlawful, but it is not a big deal to them. They just get a warning if [they] get caught.... people can simply go online, even on Alibaba, just search and then you can buy them.” (SUPCO).

Compared to other illegal products within Customs remit, illicit tobacco is still seen as a legitimate product.

What are the changes in the size and nature of the market over time?

Customs reported that the illicit tobacco market is changing and growing. (See Table 5 below for more detail). Loose tobacco seizures have increased in comparison to readymade cigarettes and cigars. Customs named this as a key driver behind the recent legislation change to prohibit the importation of tobacco products by air cargo and international mail. Customs also predicted that cigarettes would continue to be a big part of seizures but that loose tobacco importations will increase, targeting the RYO market, with products likely to be imported via sea cargo.

Table 5. Seizures of illicit tobacco products by NZ Customs 2017-2022

Year	Cigarettes & Cigars (per stick)	No. of incidents	Loose tobacco (grams)	No. of incidents	Sticks from loose tobacco*	Total sticks seized
2017	3,126,922	1,079	559,750	182	799,643	3,926,565
2018	4,281,504	1600	541,326	285	773,323	5,054,827
2019	4,765,648	3,937	461,793	303	659,704	5,425,582
2020	10,804,897	1,826	1,903,432	464	2,719,189	13,524,086
2021	2,995,892	2,777	13,391,20	841	19,130,299	22,126,191
2022**	3,484,938	936	856,909	299	1,224,156	4,709,094

*Estimates based on 0.7 g tobacco per cigarette stick. ** From 1 January 2022 to 30 June 2022.

Adapted from Goods intercepted, by New Zealand Customs Service, 16 September 2022. <https://www.customs.govt.nz/about-us/statistics/non-drug-interceptions/goods-intercepted/>

Table 6 shows our estimates of the proportion of all illicit sticks seized by Customs, drawing on the data on the total number of sticks seized in Table 5 and the consumption gap analysis (total illicit sticks) in Table 4, for the same years. The table shows that Customs activities led to a very low success rate for 2017-2019, with growth in success since 2020, although the successful year in 2021 is almost certainly a COVID-19-related anomaly when the volume of tobacco entering the market plummeted and border seizures grew.

Table 6. The proportion of total illicit sticks seized by NZ Customs 2017- 2022

Year	Total sticks seized	Total Illicit sticks*	Proportion of Illicit sticks seized by customs
2017	3,926,565	357,602,213	1.10%
2018	5,054,827	328,056,592	1.54%
2019	5,425,582	454,349,542	1.19%
2020	13,524,086	264,587,375	5.11%
2021	22,126,191	56,763,373	38.98%
2022 (6 months)	4,709,094	71,619,172**	6.58%

*Data from Table 3. **Annual data for Table 3 for 2022 halved to estimate 6 months.

A recent market change has been the importation of “cheap whites.” This has been happening internationally for some time, but NZ Custom’s first seizure was in 2020. (See Question 1 above for further details).

What brands are being sold?

Officers reported that Chinese cigarettes are the single largest part of the illicit market. Chinese cigarettes accounted for 39% of all cigarette seizures from 2019 to 2022 (based on OIA 22-259). Of this, the well-known Chinese cigarette brand Double Happiness “is the cliched Chinese cigarette brand but there are other Chinese brands out there,” including Lesser Panda, Mevius, and Chunghwa (CCO).

Are there specific crimes related to tobacco (e.g., ram raids)?

There has been recent media coverage of concerns from several commentators and libertarian groups asserting that the growth in ram raids of convenience stores is evidence that illicit trade is growing because of increasing tobacco control policies. One informant explained:

“[It] won’t be in our domain because ... by the time it gets to a ram-raid situation...it’s ... domestic distribution.” (SupCO).

Customs has a border protection remit and do not focus on what may be a local distribution issue:

“... we’re at the border, we’re getting the importers rather than local distributors.”
(SupCO).

Customs reported that they focus their resources further upstream:

“... we try and use our resource to its greatest effect. We end up focussing our efforts on the things that are going to have the most disruptive effect, which means we’ll be looking at people who are setting up shell companies or organising containers for cigarettes. There’s usually money laundering involved, there’s often drug smuggling involved as well.” (CCO).

Customs use their resources to intercept those at the top of the supply chain and seize illicit products before they reach the market.

Discussion

While Customs cannot measure the size of the illicit market, they offered valuable insights into the illicit trade in tobacco in NZ. We highlight several points.

First, the number of seizures and the amount of tobacco in those seizures is growing. One explanation for a growing amount of tobacco being found in interceptions is that the profit in the illicit market has increased over time. Whereas a decade ago the price for a carton (ten packets) of cigarettes would have been much closer to the retail prices of legal cigarettes, a carton of illicit cigarettes now typically sells for between NZ\$120- \$160. Over the same time the cost of cigarettes overseas has not significantly increased. Consequently, smugglers stand to make more profit from fewer cigarettes, increasing their tolerance to losses through border seizures.

Second, there is an increase in loose tobacco importations, which Customs expect will continue to grow. Third, the type of importer is changing, from opportunistic smuggling by individuals to organised criminal groups who use sophisticated smuggling tactics. This change is reflected in related offences, including money laundering and drug smuggling.

Customs asserted that buyers are driven first by price then by preference for country of origin, brand, flavour etc. and that social media and messaging platforms have made illicit tobacco trade easier for sellers and buyers. However, they claim that most sales do not occur on these online channels but in settings such as workplaces, ethnic restaurants, and language schools, where people can use existing networks to buy and sell illicit tobacco products.

These interviews will be repeated in 2024 to identify any changes that may take place in the intervening years.

Cyber and social media analysis

Background

The rapid growth of e-commerce and the proliferation of postal and small parcel delivery services have had a significant impact on the trade in illicit tobacco products in many countries (RUSI, 2021). Illicit tobacco products are now readily available to buy with little effort and minimal risk through online marketplaces, purpose-built hosted websites, and social media platforms. As the number of social media users has increased dramatically, platforms have become the primary medium through which illicit tobacco products are sold online, although online marketplace websites continue to be exploited (Przewozniak et al., 2020). By using internet tools (e.g., social media and social messaging platforms), a few sellers may be responsible for a substantial proportion of all illicit sales without legal control.

Aim

To set up and use an automated system for tracking internet promotion for tobacco products in NZ.

Methods

We began by exploring a range of tools to examine the scale and nature of illicit tobacco trading activity on the Internet. Initially, the literature pointed to the 'dark web' as a possible locus of activity. The only research tool we found suitable to examine the 'dark web' was DATACRYPTO (Décary-Hétu & Giommoni, 2017), a web crawler and scraper, which works similarly to Google indexing robots. Once it is provided with the homepage of a website DATACRYPTO downloads a website homepage and parses it for hyperlinks to other webpages on the same website, then adds these hyperlinks to its queue and downloads them sequentially, parsing each time for more hyperlinks. Once all the webpages have been downloaded, DATACRYPTO switches to its scraping mode and extracts the relevant information from the webpages it has downloaded. DATACRYPTO has been used in past research to monitor online illicit trade.

However, we discovered that development of DATACRYPTO was funded by a grant from the tobacco industry. On that basis, we excluded it from further consideration.

Furthermore, the information we gleaned from discussions with dark web researchers (including with Décary-Hétu) is that the volume of tobacco-related traffic is small, and therefore the vigorous pursuit of this avenue was likely to be unrewarding. This finding is consistent with the findings from our interviews with Customs.

Experts on social media analysis at the University of Auckland and information from our interviews with Customs personnel indicated that monitoring traffic on social media sites such as Facebook Marketplace was the strategy most likely to detect illicit trade. We consulted with colleagues and with the literature to select terms for the search.

We used algorithms to detect tobacco-relevant posts about illicit tobacco in New Zealand and Power BI visualisation to track traffic in real-time on Facebook Marketplace. The terms and descriptors shown below were included in the algorithms, with updated terms added as they were discovered in the traffic we monitored.

- Tobacco: Cigarettes; Cigs, Cigars, Cigarillos, Smokes, Shisha
- Tapaka: Tupeka, Malila, Suki, Chop, Chop-Chop, Bidi, Kretek
- Price: Cheap, Cheapest, Discount, Special, Cut-price, Low-cost
- Format: Leaf, Dip, Pouch, Paste, Gel
- Source or brand name: Tonga, Virginia, Marlboro, Camel.

Results

A low level of trade is occurring on Facebook Marketplace. As of 16th December 2022, the programme has collected only 12 'true' cases since 7th September 2022. These are shown in Table 7.

Table 7. Facebook Marketplace listings for tobacco products September - December 2022

Date	Title	Price	Location	Details
31-Aug-22	Malila	\$1.00	Auckland	
31-Aug-22	Malila	\$40.00	Auckland	
31-Aug-22	Malila	\$10.00	Auckland	
31-Aug-22	Malila Tops	\$10.00	Auckland	
14-Aug-22	Tongan Tpka	\$10.00	Auckland	Hi guys selling Tongan tpka on my dad's behalf! Pm me for more info thanks
12-Oct-22	30Gram Smokes	\$50	Temuka	Easy sailors' rum
26-Oct-22	Tongan Tpka	\$10	Auckland	Pm for more info & pickup addy. No time wasters! Thankyou
23-Nov-22	Cigarette Benson & Hedges	\$25	Auckland	
30-Nov-22	Just over 2 litres of home-grown tobacco (SOLD)	\$50	Bay of Plenty	Just over 2 litres of home-grown tobacco
7-Dec-22	Tongan Tpka	\$10	Auckland	Selling Tapka Tonga on behalf of my uncle & others! We have strong, mild & normal! PM for more info. No time wasters thanks!
14-Dec-22	Suki leaves x20 leaves from Fiji	\$100	Auckland	

Adapted from Facebook Marketplace tracking database, from August 2022 – December 2022. <https://www.customs.govt.nz/about-us/statistics/non-drug-interceptions/goods-intercepted/>

Discussion

We have set up a semi-automated system to monitor trade in illicit tobacco in NZ on Facebook Marketplace. To date, the system is detecting extremely low traffic on this platform. The terms and traffic suggest that the sources may be from the Pacific region and targeting buyers from NZ Pacific communities. Sellers change their terms for tobacco

often, so keeping abreast of the terms used for tobacco is likely to be challenging. We aim to explore traffic on other online marketplaces in 2023.

Conclusions

Substantial progress has been made on the baseline data collection for the component studies in this body of research. In 2022 we surveyed discarded packs in four cities and towns in the South Island, and five cities in the North Island of New Zealand. We completed the first round of consumption gap analyses and New Zealand Customs Service (Customs) interviews. We set up a system for surveillance of social media (Facebook Marketplace) marketing.

The discarded pack surveys found remarkably little tobacco waste. Discarded pack surveys lack precision and should not be relied on as a single method to estimate the extent of the illicit trade. The finding that most of the discarded illicit packs were from Auckland aligns with Customs data showing that 90% of seizures from 2019 to 2022 were made in Auckland, and with findings from other NZ discarded pack surveys.

The consumption gap analysis revealed a declining illicit trade in tobacco. The scale of the trade is difficult to assess with precision. Sharp changes in the market between 2020-2022 were likely due to the border closures in NZ's COVID-19 pandemic control response. The real value of these analyses lies not so much in the absolute amounts but in their ability to show if changes occur in relation to new tobacco control measures. An incidental finding from our data extraction from the tobacco company reports was that the formatting and quantification methods vary from company to company. Tobacco companies releasing products in the NZ market should be required to submit their data in a standardised format using the same tobacco units.

The volume of illicit tobacco intercepted by Customs has grown in recent years, and our analyses suggest better detection is occurring at the border over recent years.

It is not possible to measure the extent of the trade conducted over social media channels because of the multiple terms and diversity of platforms used. However, social media monitoring provides useful insights into the ways some illicit trade is occurring in NZ.

In conclusion, our use of a range of sources of information is helpful for cross-validation of the different data sources and for identifying areas for further exploration. The absolute amount at any single point in time is useful but changes over time will be more informative as new tobacco control strategies take effect over the next few years.

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Appendices

Appendix 1

Sensitivity analysis for cigarette sticks using 0.45 g per RYO cigarette stick

Year	Total sticks consumed, Q	Total legal sticks released into the market, QL	Total illicit sticks, QI (Q-QL)	Proportion of all sticks that are illicit (%), QI/Q x 100
2012	3,215,212,000	3,334,777,778	-119,565,778	-3.72
2013	3,119,552,800	3,181,555,556	-62,002,756	-1.99
2014	3,103,230,000	3,125,666,667	-22,436,667	-0.72
2015	2,937,344,800	3,027,777,778	-90,432,978	-3.08
2016	2,773,262,700	2,929,777,778	-156,515,078	-5.64
2017	2,780,902,150	2,797,302,524	-16,400,374	-0.59
2018	2,628,730,000	2,663,517,011	-34,787,011	-1.32
2019	2,595,515,000	2,494,145,648	101,369,352	3.91
2020	2,301,514,800	2,398,344,092	-96,829,292	-4.21
2021	1,954,180,800	2,235,625,070	-281,444,270	-14.40
2022	1,699,089,600	1,813,489,351	-114,399,751	-6.73

Appendix 2

Sensitivity analysis using an uplift factor of 1.16 (HM Customs)

Year	Total sticks consumed, Q	Total legal sticks released into the market, QL	Total illicit sticks, QI (Q-QL)	Proportion of all sticks that are illicit (%), QI/Q x 100
2012	2,868,958,400	2,864,000,000	4,958,400	0.17
2013	2,783,600,960	2,719,000,000	64,600,960	2.32
2014	2,769,036,000	2,673,000,000	96,036,000	3.47
2015	2,621,015,360	2,593,000,000	28,015,360	1.07
2016	2,474,603,640	2,523,000,000	-48,396,360	-1.96
2017	2,481,420,380	2,423,299,937	58,120,443	2.34
2018	2,345,636,000	2,300,673,408	44,962,592	1.92
2019	2,315,998,000	2,141,165,458 **	174,832,542	7.55
2020	2,053,659,360	2,036,927,425	16,731,935	0.81
2021	1,743,730,560	1,897,417,427***	-153,686,867	-8.81
2022	1,516,110,720	1,555,851,255****	-39,740,535	-2.62

Appendix 3

Tobacco consumption gap analysis for New Zealand in 2022 with current smokers (shaded) and daily smokers

Number of people who smoked tobacco every day in 2022 (Upper limit of the 95% CI)	373,000
Average number of cigarettes smoked per smoker per day in 2022	9.6
Total number of cigarettes smoked per daily smoker in 2022	3504
[Number of people who smoked tobacco at least once a month] (Upper Limit of the 95% CI)	425,000
[Average number of cigarettes smoked per smoker per month in 2022]	1
Total number of cigarettes smoked per current smoker in 2022	12
Q = Quantity of cigarettes smoked in 2022 [(3504 x 373,000) + (12 x (425,000- 373,000))] = (1,306,992,000 + 624,000)	1,307,616,000
Uplift factor (UF) to account for underreporting	1.3
Total (Q x UF)	1,699,900,800
QL = Quantity of legal cigarettes released into the NZ market in 2022	1,555,851,255
QI = Quantity of illicit cigarettes in 2022 (= Q - QL)	144,049,545
Proportion of all cigarettes consumed in 2022 that were illicit (=QI/Q x 100)	8.47%