

May 2023



Illicit tobacco in Australia

2022 Full Year Report

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Glossary

Term	Definition
Key data sources	
ABF	Australian Border Force
ABS	Australian Bureau of Statistics
ATO	Australian Taxation Office
AIHW	Australian Institute of Health and Welfare
Consumer survey	Roy Morgan Research (RMR) conducts a survey of daily (at least 5 times per week) adult smokers (those over 18 years old). The survey sample is designed to be representative of the population by using Single Source data to weight respondents based on location, age, gender, income, occupation and work status of smokers.
Empty discarded pack survey	WSPM has, since 2019, conducted a survey every six months (and formerly AC Nielsen and MSIIntelligence) which has since 2012 comprised of a sample of 12,000 empty cigarette packs collected across 16 cities covering 75.2% of the population. The empty discarded pack survey (EDPS) records the pack size of each pack to allow for measurement, based on the number of cigarettes, of the proportion of cigarettes that are not Australian (non-domestic or with no health warnings and brands not sold in Australia) and classes these cigarettes as 'non-domestic'.
Euromonitor	Euromonitor is a global market research on consumer products, commercial industries, demographics trends and consumer lifestyles. We use it as a primary source of data for tobacco consumption rates across key source countries

	<p>which are used to estimate the extent of non-domestic legal sales from tourists visiting Australia.</p>
IRI scan data	<p>To estimate legal domestic sales, a range of data sources are examined, including IRI scan data and industry estimates based on exchange of sales and off-take data, supplied by independent research agencies and industry stakeholders. IRI scan data reflects the sales made to consumers only and are reflective of the market size to the extent that each sale is scanned (and therefore included in the aggregate sales data collected and provided to FTI Consulting).</p>
Key terminology	
Contraband	<p>Legally manufactured cigarettes that are sold without the payment of excise taxes in Australia. Contraband cigarettes tend to be brought into the applicable country illegally or acquired without taxes and illegally re-sold in the market. This category includes genuine products that are brought into a country in amounts exceeding the personal allowance; in Australia, this limit is 25 cigarettes or 25 grams of RYO per person.</p>
Counterfeit	<p>Illegally manufactured cigarettes that carry the trademark/branding of a legally manufactured brand without the consent of the trademark owner. Counterfeit cigarettes are also known as fake cigarettes.</p>
Domestic illicit plains	<p>Flows of Illicit Whites brands that have packaging designed for the domestic Australian market.</p>
Legal domestic sales	<p>Legal domestic sales refers to the estimated volume or value of sales of manufactured (cigarette) and roll your own products.</p>
Non-domestic cigarettes	<p>Cigarettes that are not Australian (carry no Australian health warning, comprise of brands not typically sold in Australia, with some exceptions, and/or packs with identifying marks</p>

	<p>from other markets such as tax stamps). Non-domestic cigarettes include both legal (referred to as ‘non-domestic legal’) and illicit products (known as ‘contraband’ which incorporates ‘non-domestic illicit whites’ excluding ‘domestic illicit plains’).</p>
Non-domestic illicit whites	<p>Flows of illicit whites brands that do not have plain packaging designed for the Australian domestic market. In previous years, it has been referred to as ‘Illicit Whites (non-domestic)’. In the illicit tobacco consumption model, non-domestic illicit whites is included in the contraband measurement.</p>
Non-domestic legal	<p>Non-domestic legal is the legitimate tobacco purchased duty free or abroad within personal allowance limits (in Australia, this limit is currently 25 cigarettes or 25g of RYO).</p>
Non-domestic incidence	<p>The proportion of non-domestic cigarettes recorded in the empty discarded pack survey is referred to as the non-domestic incidence. The cigarettes generally have coloured or branded packaging.</p>
RYO	<p>Roll your own</p>
Total manufactured cigarettes consumption	<p>The sum of legal domestic sales of manufactured cigarettes and total non-domestic manufactured cigarettes.</p>
Unbranded tobacco	<p>Illegal loose leaf tobacco upon which no duty has been paid and which typically carries no labelling or health warnings. It is sold and consumed either in roll your own (RYO) form (called “chop chop”) or inserted into empty cigarette tubes. It is commonly sold in both bags or boxes. Blended estimates for unbranded tobacco consumption adopt an average of the consumer survey results for the calendar year, or most recent quarters, where an equal weighting is applied to results from each quarter.</p>

AUD	Australian dollar
BATA	British American Tobacco Australia
FTI Consulting	FTI Consulting (Australia) Pty Ltd
ITA	Imperial Tobacco Australia
PML	Phillip Morris Limited

Executive Summary and key findings

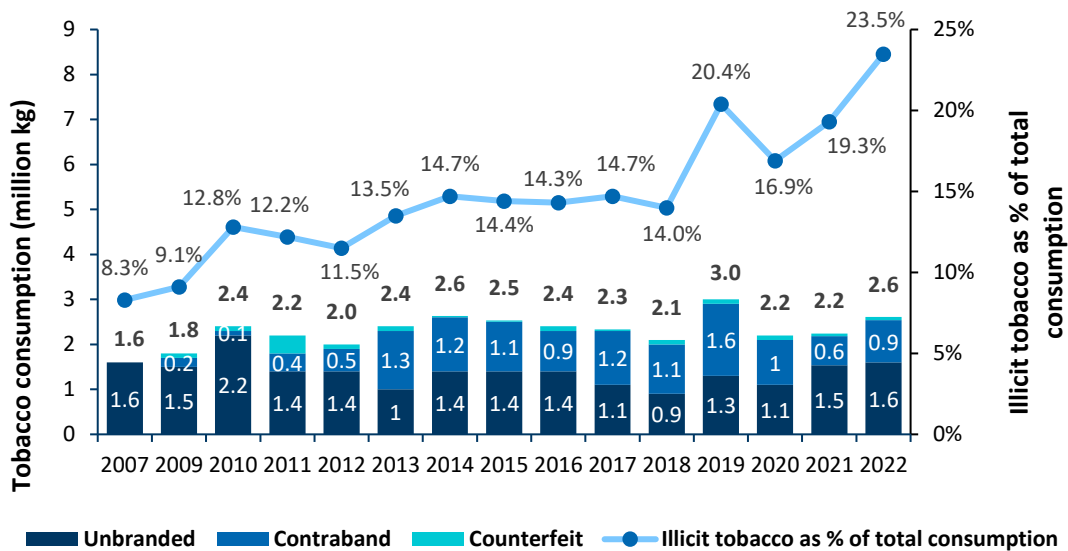
In 2022, total consumption of tobacco in Australia declined by 4.6% to 11.1 million kg in 2022.

The increase in total illicit consumption by 16.3% to 2.6 million kg was more than offset by the decline in legal domestic tobacco sales by 9.6% to 8.5 million kg.

In 2022, almost 1 in 4 tobacco products consumed were identified as illicit.

The proportion of illicit tobacco consumption in total consumption increased by 4.2 percentage points to 23.5% (see **Figure 1**). This was caused by both an increase in total illicit tobacco consumption and a decrease in total tobacco consumption.

Figure 1: Consumption of illicit tobacco products by category, 2007 – 2022



Source: FTI Consulting estimation model output in 2022, and historical estimates by KPMG LLP, Deloitte and PWC.

Legal domestic sales have continued to decline

Total legal domestic sales of tobacco in Australia has experienced a sustained decline since 2013-14 and, in 2022, dropped by 9.6%. This was comprised of a decrease in the sales of both manufactured cigarettes and roll your own tobacco (by 8.7% and 12.6%, respectively).

Illicit tobacco consumption has increased meaningfully across all categories

Despite the decrease in overall legal sales, all components of illicit tobacco consumption have increased during 2022. The jump in the consumption of illicit tobacco is driven by increases in the consumption of all illicit tobacco components, including unbranded (4% increase), contraband (44.8% increase) and counterfeit (27.3% increase).

Unbranded tobacco consumption is the largest component of total illicit tobacco consumption estimates, with a 4% increase in volume terms since 2021. This uptick is driven by the increase in the number of consumers who reported purchasing unbranded (chop chop) tobacco across 2022. Purchase incidence has progressively increased by over 12 percentage points since the pre-COVID period (to 31% in Q2 2022 and 33% in Q4 2022).

Contraband, the second largest component, grew by 44.8% in 2022. A key reason for this is increasing availability following the opening of Australian borders for international travellers following the COVID-19 pandemic. The share of contraband consumption has increased dramatically, from 29.0% in 2021 to 36.0% in 2022. Counterfeit consumption makes up the smallest part of illicit tobacco consumption, although it increased by 27.3% in 2022.

Non-domestic incidence has increased in all sampled population centres

Non-domestic incidence increased quite significantly across all 16 sampled population centres in Q4 2022 compared to Q4 2021, particularly for the four major cities together (Sydney, Perth, Melbourne and Brisbane) where non-domestic incidence almost doubled from 7.7% to 14.1%.

The flow of non-domestic brands is recovering to the pre-COVID-19 pandemic period, accounting for 13.0% of total manufactured cigarette consumption in 2022. Double Happiness and Manchester make up more than 40% of the volume of total non-domestic brands' inflow. Data shows that the biggest proportion of cigarette inflows to Australia are from China and the Middle East.

Growing relative price gap between illicit and legal tobacco markets

The continuation of decreases in the relative price of illicit tobacco products during recent years explains how customers are potentially motivated to switch from the legal tobacco market to the illicit tobacco market. From September 2013 to

September 2021, the overall excise duty on tobacco products has more than tripled while personable disposable income has increased marginally (by circa 15%).

The relative price of illicit products has fallen to between 20% (for chop chop) and 43% (for contraband) of the price of a 25-pack of Winfield. In December 2022, the price of a 25-pack of Winfield rose by 7% compared to prices in the previous year, while the price of contraband and chop chop loose tobacco decreased by 4.4% and 17.4%, respectively. As such, the relative price of contraband and chop chop loose tobacco have considerably decreased in 2022.

Furthermore, vaping is a significant (predominantly) illicit product providing a relatively inexpensive alternative to traditional tobacco smoking. The decline in legal domestic sales of cigarettes corresponds to a dramatic increase in the number of Australians that are vaping, particularly among young Australians. RMR survey data indicates that over 1.2 million adults residing in Australia used e-cigarettes in September 2022, an increase of over 100,000 Australia *per quarter* over the previous 12 months to September 2022.

Seizures and potential excise lost

For the 2021-22 financial year, seizures increased by 32% to 1,790 tonnes due to record ABF seizures of more than 1,679 tonnes of illicit tobacco. The total estimated value of duty evaded for 2021-22 seizures is \$2.86 billion.

In 2022, the estimated consumption of illicit tobacco in Australia is 2.6 million kg. If this volume of illicit tobacco were instead consumed legally in Australia, we estimate it could generate \$4.2 billion in excise. This represents an increase of \$0.8 billion or 23.5% compared to the estimated value of lost excise in 2021 (of \$3.4 billion).

1. Australian tobacco market

FTI Consulting Australia has been commissioned to estimate the size of the illicit tobacco market in Australia. It is important to monitor the size of the illegal tobacco market as the tobacco industry has links to other sectors in the economy including government, firms (including retailers), and households (which are comprised of consumers). Any shrinkage in the tobacco sector due to the presence of illicit tobacco will have repercussions across the entire economy, as well as consumers from consuming products outside of the regulated market including to health.

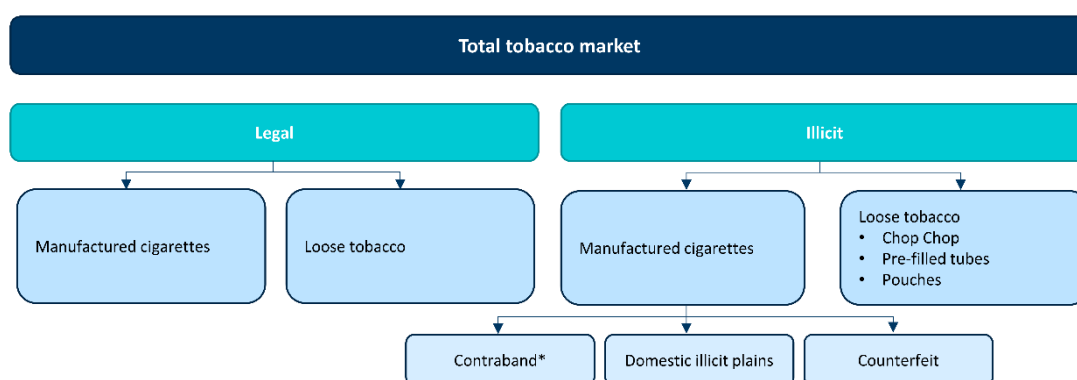
Illegal tobacco markets incorporate ‘manufactured cigarettes’ – covering “contraband”, “illicit whites” and “counterfeit” – and unbranded tobacco including “chop chop” (loose leaf tobacco), “pre-filled tubes” and “pouches”. These are detailed below.

It is important to note that there are emerging categories that are not included in the methodology and illicit tobacco consumption estimates such as counterfeit pouches. The study also does not cover the consumption of nicotine vapes which is a rapidly growing and substitute market for traditional tobacco products which are predominantly consumed illegally.

1.1. Components of the tobacco market

Tobacco consumption refers to the total volume of both legal and illicit consumption for all types of tobacco (refer **Figure 2**).

Figure 2: Australian tobacco market covered in this study



*: Contraband includes non-domestic illicit whites.

Source: FTI Consulting.

1.1.1. Legal tobacco products

The tobacco market includes a range of different products, all of which are required to comply with Australian plain packaging requirements. This includes but is not limited to cigarettes, loose leaf tobacco, cigars, shisha/waterpipe tobacco and bidis. There is currently no legal tobacco locally manufactured in Australia. This means that any domestically produced tobacco is illegal, and all legal products are imported as finished products. These products are subject to customs duty paid at the time they arrive at the border. Tobacco excise applies across tobacco products including tobacco, cigars, cigarettes and “snuff” (smokeless tobacco).

Manufactured cigarettes

Manufactured cigarettes are made for the legal tobacco market and sold in packets.

Loose tobacco

Legal loose leaf tobacco is sold in pouches and is used in RYO cigarettes.

Non-domestic legal

Tobacco products may be purchased abroad by consumers and imported legally into Australia through personal allowance limits or by paying the duty over this allowance. This may include non-domestic cigarettes or loose tobacco that are not designed for the Australian market: for instance, they carry no Australian health warning, do not contain the required plain packaging, comprise of brands not sold in Australia or with attributes not designed for the Australian market.

Adult travellers can, without a permit, bring tobacco products with them into Australia equivalent to 25 cigarettes or 25g of other tobacco products (in an unopen packet) and one open packet of cigarettes. Any amounts exceeding this must be declared.

Our analysis indicates that the non-domestic legal component of tobacco consumption is minimal. Moreso, it was negligible in 2020 and 2021 given the closure of the borders due to the COVID-19 pandemic.

For those with no permit, it has been banned since July 2019 to purchase tobacco products through the mail (other than cigars, chewing tobacco and snuff for oral

use up to 1.5kg).¹ Non-domestic brands exceeding the amount that travellers can theoretically bring to Australia are therefore illegal and estimated in contraband.

1.1.2. Illegal tobacco products

Illicit tobacco products may be grown or produced locally or acquired illegally from overseas. All illegal tobacco products are sold without the appropriate collection of duties and/or taxes and, predominantly, do not comply with Australian plain packaging and health labelling requirements with the exception of ‘domestic illicit plains’. Typically, the tobacco is sold to consumers at below market value, given the absence of taxation and duties applicable to illicit tobacco.

The backdrop to tobacco sales is fast changing, with increases in the smoking of non-tobacco ‘substitutes’ such as e-cigarettes or vapes (containing nicotine). Shisha – a flavoured tobacco product – has also grown significantly as a social form of tobacco smoking. These products are excluded from our study.

Four types of illicit manufactured products are covered in this study that are each discussed below.

Unbranded tobacco

Illegal loose leaf tobacco upon which no duty has been paid and which carries no labelling or health warnings. It is sold and consumed either in roll your own (RYO) form (called “chop chop”) or inserted into empty cigarette tubes. It is commonly sold in both bags or boxes.

Contraband

These are products not complying with Australian regulations such as plain packaging (or exceed personal limits for returning overseas travellers) and smuggled to Australia, avoiding duties and taxes.

Counterfeit

Counterfeit including in this study comprises of cigarettes manufactured illegally (without the trademark owner’s consent) and smuggled to Australia (or could include production without a licence in Australia), avoiding duties and taxes.

Illicit whites

¹ Australian Border Force (ABF), prohibited goods, accessed 5 May 2023, <<https://www.abf.gov.au/importing-exporting-and-manufacturing/prohibited-goods/categories/tobacco>>

Illicit whites are cigarettes manufactured legally overseas that are smuggled and sold in Australia through limited or no legal distribution channels, avoiding taxes (and potentially customs excise). Flows of illicit whites brands may have packaging designed for the domestic Australian market and these are referred to as domestic illicit plains. Alternatively, those brands that do not have packaging for the Australian market are referred to as non-domestic illicit whites.

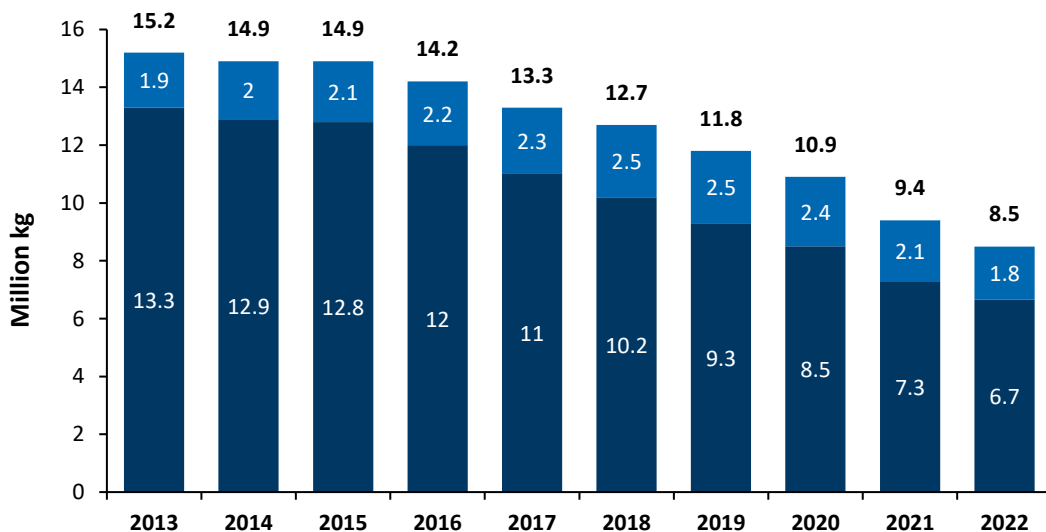
1.2. Legal tobacco market

1.2.1. Historic legal domestic sales

Total legal domestic sales of tobacco in Australia has experienced a sustained decline since 2013-14 (see **Figure 3** and **Table 1** in the next page). In 2022, total legal domestic sales dropped by 9.6%, representing a decrease in sales of both manufactured cigarettes and roll your own tobacco (by 8.7% and 12.6%, respectively).

Where manufactured cigarette sales continued its steady decline, the roll your own tobacco sales volume represents a significant reduction, which continues a decline that has been observed since 2019 and coincides with an increase in unbranded tobacco sales.

Figure 3: Legal domestic sales in Australia (million kg), 2013 – 2022¹



Source: FTI Consulting estimations using IRI scan data and industry data.

Table 1: Annual growth of legal domestic sales in Australia, 2014 – 2022

Annual growth (%)	2014	2015	2016	2017	2018	2019	2020	2021	2022
Manufactured	(2.8)	(1.0)	(6.1)	(8.9)	(6.8)	(9.1)	(8.5)	(14.1)	(8.7)
RYO	6.5	4.4	4.0	5.6	6.2	2.1	(3.3)	(13.2)	(12.6)
Total	(1.7)	(0.3)	(4.7)	(6.7)	(4.6)	(6.9)	(7.4)	(13.9)	(9.6)

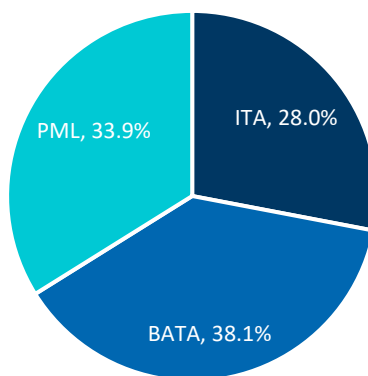
Source: FTI Consulting, and historical estimates by KPMG LLP.

1.2.2. Market share by manufacturer

Figure 4 and **Figure 5** present the 2022 market share of the three major tobacco manufacturers (BATA, PML, and ITA) for manufactured cigarettes and loose tobacco, respectively.

British American Tobacco Australia has the largest share of manufactured cigarettes, at 38.1%, followed by Philip Morris Limited (at 33.9%) and Imperial Tobacco (at 28.0%).

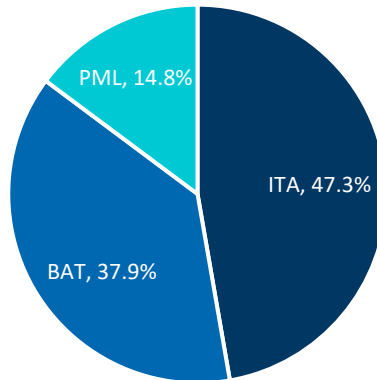
Figure 4: Market share of manufactured cigarettes by manufacturer, 2022



Source: Exchange of sales data supplied to FTI Consulting.

Figure 5 (see next page) shows that ITA has the largest share of loose tobacco, retaining 47.3% market share (-0.2% since 2021). PML has slightly increased its market share to 14.8% (+1.9% since 2021). BATA’s market share has declined further to 37.9% (-1.7% since 2021).

Figure 5: Market share of loose tobacco by manufacturer, 2022

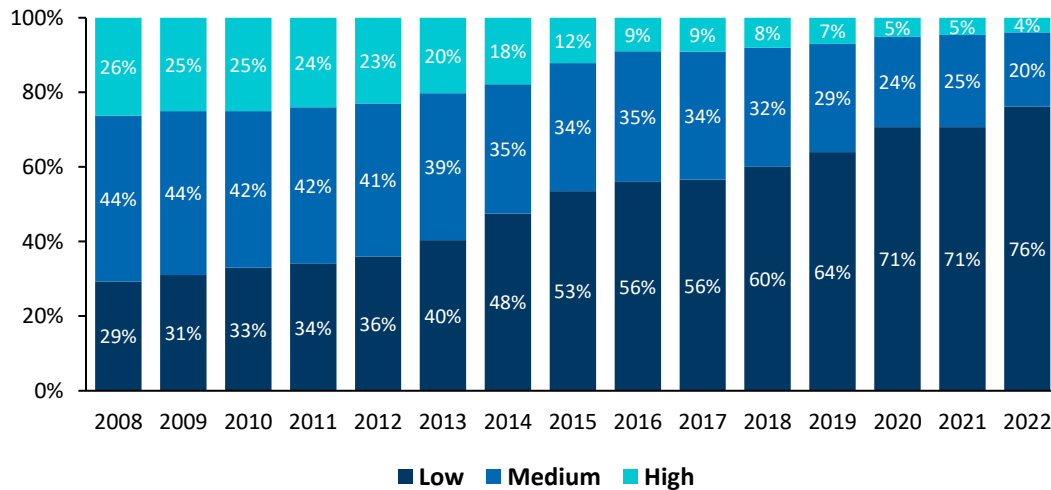


Source: Exchange of sales data supplied to FTI Consulting.

1.2.3. Price category

The market share of low-priced cigarettes has increased by a further 5 percentage points in 2022 to 76%, indicating that consumers continue to switch to cheaper cigarettes (see **Figure 6**). This was at the expense of the medium-priced category (-5 percentage points decrease since 2021), while high priced cigarettes have declined more modestly (by 0.6 percentage points).

Figure 6: Market share of manufactured cigarettes by price category, 2008 – 2022



Source: IRI scan data.

1.3. Macroeconomic environment

The decline in legal domestic sales experienced since 2013 may reflect a range of regulatory and non-regulatory factors culminating in a decline in smoking rates over time. Changes in the relative consumption of illicit tobacco also reflect broader declines in affordability of legal tobacco products. In this section we highlight the broader macroeconomic environment for consumers, as measured by unemployment, the Consumer Price Index (CPI) and Wage Price Index (WPI) in 2022.

1.3.1. Unemployment

The Australian unemployment rate of 3.5% is lower than the OECD average of 4.9% as at October 2022. Australia has been consistently below the OECD average for unemployment, with the difference between the two rates steadily decreasing from 2014. Australia did not see as severe a spike in unemployment at the onset of the COVID-19 pandemic as the other OECD nations experienced.

At the onset of the COVID-19 pandemic, unemployment rose to a peak of 7.5% in July 2020, its highest level since 1998, and has since dropped drastically. As of December 2022, the ABS reported the unemployment rate at 3.5%.

The year 2022 saw the return of high inflationary pressure due to both international supply side disruptions and domestic ('expansionary') policies to support businesses and workers during the pandemic. In 2022, the Reserve Bank of Australia increased the cash rate to curb demand-side inflationary pressure which has increased the cost of living through raising the mortgage repayments (and associated impacts to rent and other prices) across many Australian households.

1.3.2. Consumer Price Index and Wage Price Index

Despite the 'rosy' unemployment outlook, according to ABS data, Australia's Consumer Price Index (CPI) for 2022 was 7.8%. Although lower than the OECD average of 9.6% for the same period, this represents a significant impost on Australian consumers. The ABS suggests the largest drivers of these cost increases are Recreation and Culture (+5.4%), Clothing and Footwear (+2.6%) and Insurance and Financial Services (+2.0%).

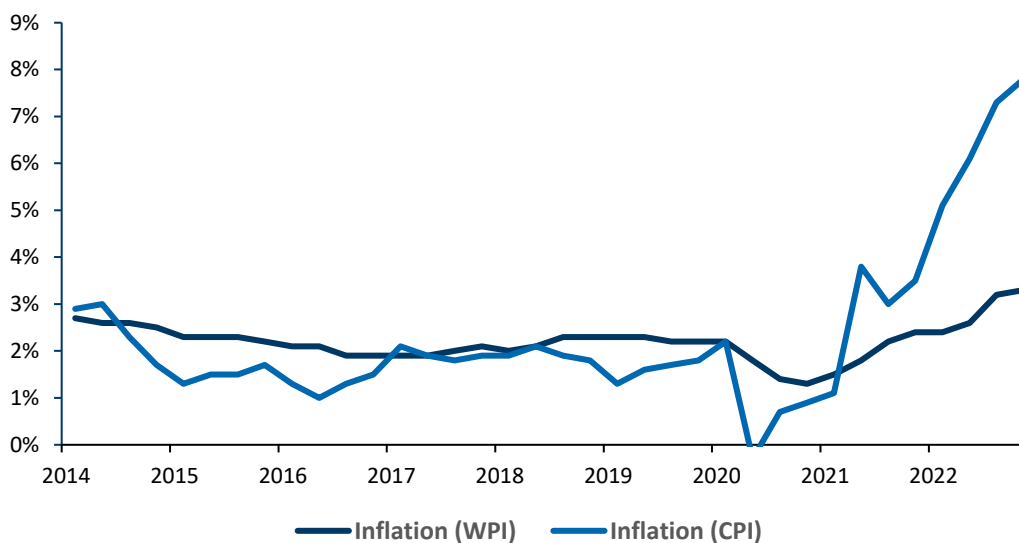
Contrasting CPI, the Wage Price Index (WPI) in Australia has seen a growth rate of only 3.3% for the year ending December 2022. Western Australia and Tasmania have seen the largest wage growth over 2022, recording a 3.6% increase, while the

Northern Territory has seen the lowest growth of 2.6%. Wage growth has been stagnant for most of the previous decade, fluctuating around 2% since 2013.

The tobacco excise rate is indexed by the average weekly earnings (AWOTE). ABS data shows that during the year to November 2022, the original full-time adult AWOTE has increased by 3.4%. This indexation is applied on top of any legislated annual increases, such as the 12.5% annual increase applicable for the eight years between 2013 and 2020. This has resulted in greater increases in excise rates than individuals’ disposable income (refer Section 4.1).

Figure 7 shows that wages have grown much slower than the consumer price index, especially since 2020. While never reaching negative growth, the rate dropped to its lowest value in the last decade of 1.3% in December 2020, when the COVID-19 restrictions had their greatest effect. The OECD average growth rate has been 1.1% per annum over the last decade, with a 1.9% growth rate for the year ended December 2021.

Figure 7: CPI vs WPI growth in Australia, 2014 – 2022



Source: ABS.

2. The illicit tobacco market in Australia

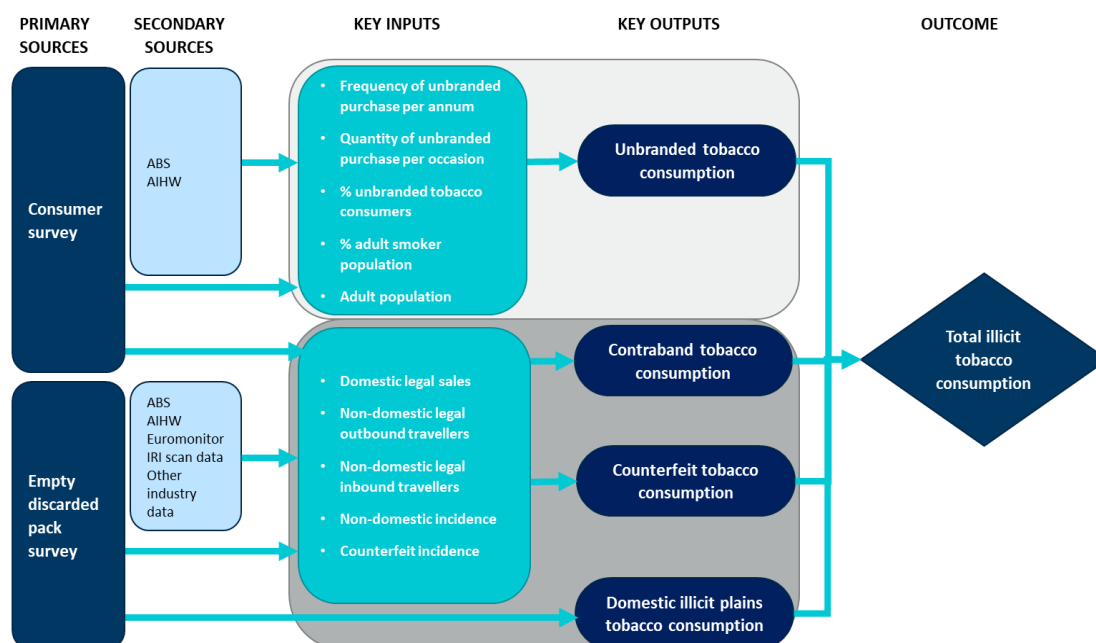
2.1. Methodology for estimating the illicit tobacco market

The annual estimation of illicit tobacco consumption in Australia has been undertaken by KPMG LLP in recent years (during 2012 – 21). FTI Consulting Australia adopted a consumption model consistent with the model previously used by KPMG LLP to arrive at illicit tobacco consumption in Australia and to ensure the comparability of the results between years. We have satisfied ourselves, where possible, the information presented in this report employs the same principles and methodology adopted by the previous service provider. There are some minor exceptions to this however these are not considered to have a material impact on the consistency of the estimates of illicit tobacco consumption in Australia in 2022.

2.1.1. Framework for the estimation of illicit tobacco

There are two key elements of the annual illicit tobacco market estimation which each have a primary research source (Refer **Figure 8**). The approach uses private data sources (RMR consumer survey, WSPM EDPS survey, IRI Scan, Euromonitor and industry partners) and publicly available data sources (AIHW survey and ABS).

Figure 8: Overview of approach to estimating illicit tobacco



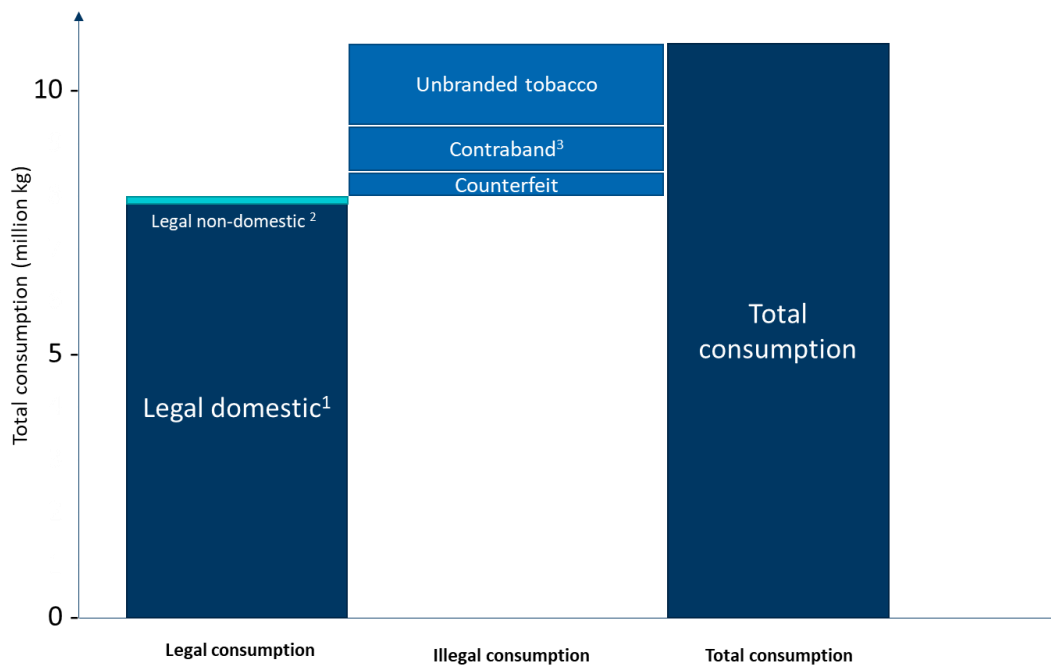
Source: FTI Consulting.

- *The unbranded tobacco analysis* is primarily based on the Roy Morgan Research (RMR) consumer survey (and AIHW and ABS data).
- *The estimation of illicit manufactured cigarettes* draws primarily on the empty discarded pack survey (EDPS) conducted by WSPM.

The consumption model also relies on a range of other data sources including IRI scan data and industry estimates (based on exchange of sales) on legal sales of tobacco in Australia, the Australian Institute of Health and Welfare (AIHW) for the smoking incidence, the Australian Bureau of Statistics (ABS) for the smoking population and arrivals information as well as Euromonitor data for the estimation of legal non-domestic tobacco consumption.

Figure 9: Estimation of legal, illicit and total tobacco consumption illustrates how the components of legal consumption and illegal consumption combined to estimate total tobacco consumption.

Figure 9: Estimation of legal, illicit and total tobacco consumption



Source: FTI Consulting.

1 KPMG LLP previously refer to legal domestic outflows, as a deduction from legal domestic sales. However, in past reports they state 'the illicit outflows from Australia are not considered to be material due to the high prices relative to other parts of the world'.

2 IRI scan data, ABS and Euromonitor.

3 Contraband includes domestic illicit plains.

To report on the size of illicit tobacco *as a share of total consumption*, it is necessary to estimate the size of the domestic legal market and non-domestic legal consumption.

For verification purposes we analyse trends in seizure data, while other approaches or data sources previously used are no longer used as a reliable basis for comparison (e.g. the rolling paper analysis, and AIHW consumer survey).

The information sources and the scope and source limitations are carried over from previous years and are summarised below (with further detail provided in the relevant appendix).

2.1.2. Consumer Survey: the main source of unbranded tobacco analysis

Unbranded tobacco consumption is the largest component of illicit tobacco consumption. It is calculated through the consumption model, using data from the RMR consumer survey, AIHW, and ABS.

RMR is an established Australian market research company with significant experience working with consumer surveys monitoring legal and illicit tobacco consumption and has provided consumer research for all previous versions of this report.

Since 2016, RMR has conducted consumer surveys bi-annually. These estimations are then blended to reduce the fluctuation of illicit tobacco purchases throughout the quarters. The consumer survey focuses on the tobacco consumption behaviour of Australian adult smokers who smoke on a regular basis. In this survey, consumers are asked about their consumption and purchase of legal and illicit products, and specifically their consumption of unbranded tobacco products (which are all treated as illicit). It covers chop chop (unbranded loose tobacco sold in bags), unbranded tobacco sold in pre-filled tubes and pouches.

For the estimation of unbranded tobacco consumption, the consumer survey provides key parameters used to form these estimates which include the frequency of purchasing unbranded tobacco and the quantity of purchase per occasion. In this

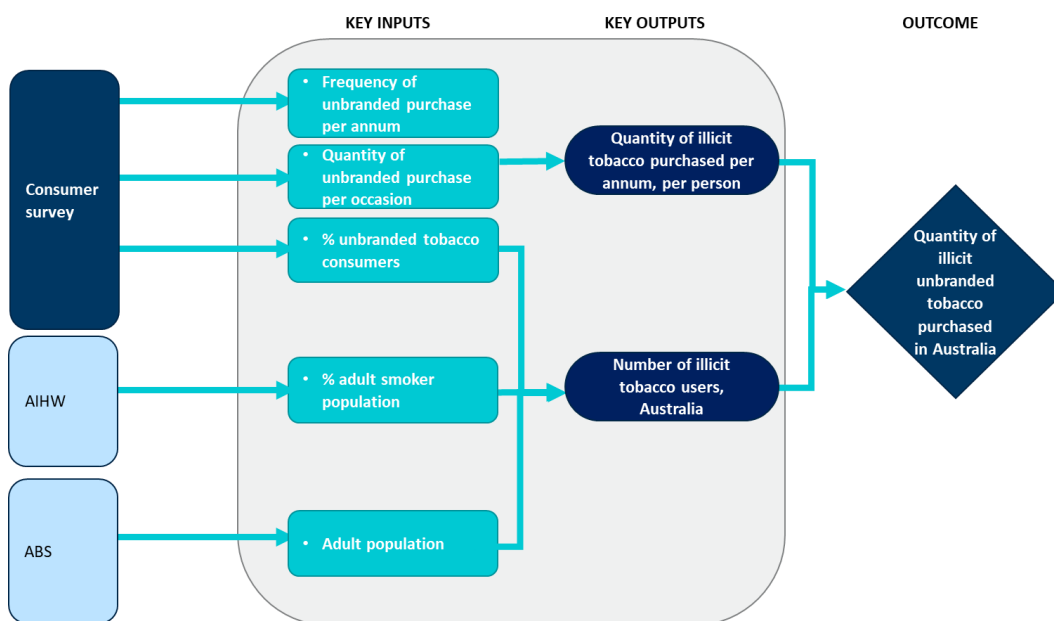
regard, considerations are given on the reliability of responses provided by the participants to the survey.

In addition, the survey provides an additional key input to the consumption model, which is the percentage of regular consumers of tobacco that are currently purchasing (consuming) unbranded tobacco.

Broader market insights that can be obtained through the survey include the supply outlets for unbranded tobacco, ease of purchasing unbranded tobacco, and the proportion of smokers who are aware of unbranded tobacco.

Figure 10 illustrates the unbranded tobacco consumption model used in this study. Further details of the components making up unbranded tobacco consumption are provided in Appendix 1.

Figure 10: Unbranded illicit tobacco consumption model



Source: FTI Consulting.

2.1.3. EDPS survey: the main source of other illicit components

The empty discarded packs survey (EDPS) is a survey conducted by WSPM group independently on a six-monthly basis (Q2 and Q4 of each calendar year). This survey collects 12,000 discarded cigarette packs per survey across 16 different population

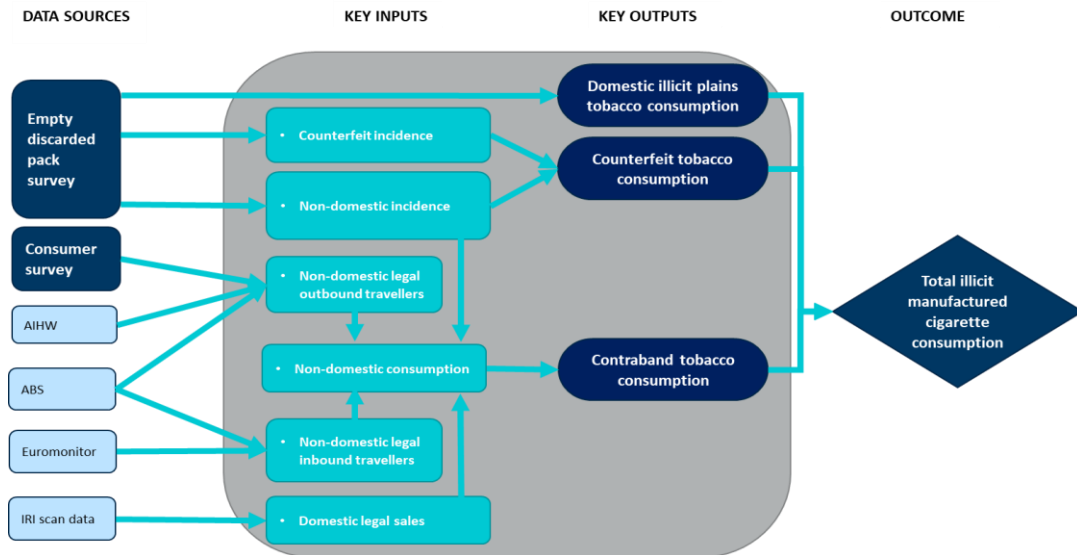
centres in Australia. WSPM has conducted this survey since 2019 and prior to this, MSIntelligence (MSI).

EDPS provides the required information to calculate illicit tobacco components except unbranded tobacco consumption. These components include contraband, counterfeit and domestic illicit plains. To do this, WSPM collects empty discarded packs, identifies the brand and country of origin of each collected pack and classifies them as domestic and non-domestic. It then sends the information to the participating manufacturers to identify genuine and counterfeit packs.

FTI Consulting applies the percentage of identified non-domestic cigarettes (referred to as 'non-domestic incidence') and counterfeit cigarettes (referred to as 'counterfeit incidence') to the estimates for the consumption of total manufactured cigarettes to arrive at contraband and counterfeit consumption volumes in Australia. The Domestic illicit plains is calculated using EDPS results by identifying domestic illicit brands and calculating the proportion of these brands from the total volume of packs collected by EDPS.

Figure 11 illustrates how EDPS results contribute to the estimate of illicit manufactured consumptions. This methodology is consistent with the approach undertaken by KPMG LLP during the past ten years. Further details about the approach undertaken to calculate individual components listed in this figure are explained in Appendix 2.

Figure 11: Contraband, counterfeit and domestic illicit plains model



Source: FTI Consulting.

2.1.4. Total legal sales

Total legal sales are made up of both legal domestic sales within legal supply chains and non-domestic legal sales comprised of legitimate tobacco purchased duty free or abroad within personal allowance limits.

To estimate legal domestic sales, a range of data sources are examined, including IRI scan data and industry estimates based on exchange of sales and off-take data, supplied by independent research agencies and industry stakeholders. IRI scan data reflects the sales made to consumers and are only reflective of the market size to the extent that each sale is scanned (and therefore included in the aggregate sales data collected and provided to FTI Consulting).

Non-domestic legal sales is the legal tobacco carried to Australia by international travellers for consumption in Australia. To calculate it involves using ABS data on arrivals from key source countries combined with Euromonitor data on the propensity of those adults to smoke to establish (estimates of) legal non-domestic consumption. A full description of the methodology for estimating non-domestic legal sales is provided at Appendix 2.2.

2.1.5. Supplementary analysis on seizures

Using seizure data to size the illicit market is potentially unreliable since it is difficult to determine the proportion of total illicit product seized. However, it can be used to understand and corroborate information related to significant changes or trends in the illicit tobacco market (for instance, the product mix) and appraise the reasonability of the illicit tobacco market estimates.

Seizures data is supplied by the Australian Border Force (ABF) which is a part of the Illicit Tobacco Taskforce which was established on 1 July 2018 and includes a range of agencies including the ABF, the Australian Taxation Office (ATO) and a range of other organisations. The ABF is responsible for excise equivalent duty payable on imported tobacco and tobacco products, while the ATO is responsible for excise duty payable on domestically grown and/or manufactured tobacco.² Total seizures represent both the ABF seizures of tobacco through border surveillance and ATO data on the detection of domestically grown and manufactured tobacco through cross-party agencies.

2.1.6. Other primary survey data

AIHW's National Drug Strategy Household Survey (NDSHS) is other major consumer survey in Australia providing an overview on the prevalence of the use of illicit tobacco in Australia. It is updated only every three years, and AIHW has contracted RMR to undertake the survey fieldwork to be distributed between July 2022 and June 2023. At the time of this study, the NDSHS survey was not ready for release to the public.

Consumer surveys have historically under-reported tobacco consumption, especially in countries where it has become increasingly less socially acceptable. AIHW highlights the possibility of under-reporting in smoking related questions as some respondents do not answer the smoking related questions. This is noted in the Data Quality Statement provided by the AIHW in relation to the NDSHS in 2019.

A key difference between the NDSHS survey and the RMR survey is its focus, with the AIHW survey focused on knowledge of and attitudes towards drugs, drug consumption histories and related behaviours. The RMR survey used in this report

² ATO website, 2022. 'Latest estimate and findings'. <https://www.ato.gov.au/About-ATO/Research-and-statistics/In-detail/Tax-gap/Tobacco-tax-gap/?page=2>

asks respondents about purchase behaviour rather than actual consumption habits. Research shows that illicit tobacco consumption is likely to be under-reported to a larger degree. KPMG LLP previously concluded that the movement in AIHW's NDSHS results suggests reasonably similar movements in consumption estimated through the consumption model approach pursued for this study.

2.2. Estimates of illicit tobacco consumption in 2022

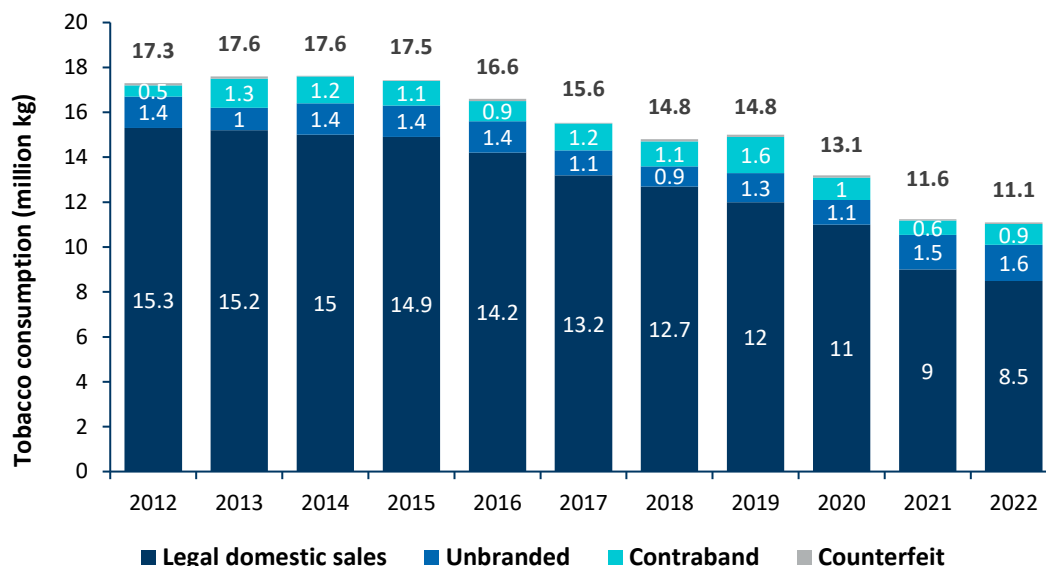
2.2.1. Summary of all illicit products included in market study

Using the consumption model approach described above, FTI Consulting estimates that the total tobacco consumed in Australia, across both legal and illicit categories, was 11,109 tonnes in 2022, representing a decline of 4.6%.

A key driver of this decline is the ongoing reduction in legal domestic sales (including both manufactured and roll-your-own products) since 2018 (-9.6% in 2022). The fall in domestic legal sales comprised of a decrease in sales of both manufactured cigarettes and roll your own tobacco (by 8.7% and 12.6%, respectively).

All components of illicit tobacco consumption have increased materially during 2022 (+16.3% in 2022) however this was more than offset by the decline in legal domestic sales (see **Figure 12**). This is compared to 2021 where only unbranded tobacco consumption showed an increase while both counterfeit and contraband consumption fell.

Figure 12: Tobacco consumption by category, 2012 – 2022



Source: FTI Consulting estimates using consumer survey results, EDPS results, IRI scan data, ABS, Euromonitor, Industry partner data, and historical estimates in previous years.

2.2.2. Components of illicit tobacco consumption in 2022

Table 2 (presented on the next page) shows components of the estimates of illicit tobacco consumed in Australia in 2022 and provides the percentage change from the previous year.

Unbranded tobacco consumption is the largest component of total illicit tobacco consumption with a 4% increase in the volume since 2021. The increase in unbranded tobacco consumption is driven by an increase in the number of consumers that reported purchasing unbranded tobacco. This is a part of a consistent upward trend observed from the survey, where the share of tobacco consumers that are purchasing unbranded tobacco (known as the ‘purchase incidence’) has progressively increased by over 12 percentage points since the pre-COVID period.

Contraband, the second largest component, grew by 44.8% in 2022 as international borders re-opened for international travellers following the COVID-19 pandemic.

Counterfeit consumption makes up the smallest part of illicit tobacco consumption, although it increased by 27.3% in 2022.

Non-domestic legal consumption has increased in 2022 by almost 15 times since 2021. In volume terms, however, this increase is comparatively low (from 0.4 to 6.4 tonnes). The main reason for the increase in non-domestic legal sales is the opening of Australian borders for international travellers following the COVID-19 pandemic. This led to a significant rise in the number of travellers to Australia during 2022.

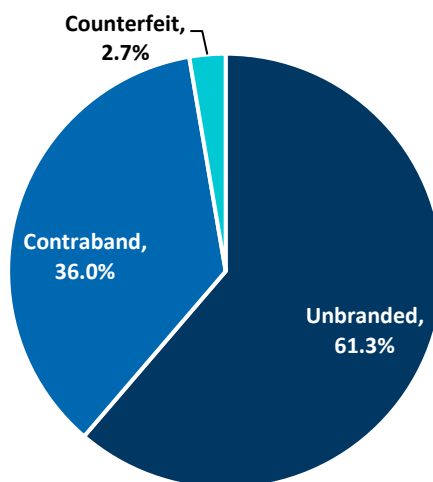
Table 2: Tobacco consumption by category, 2021 and 2022

Component ('000 kg)	2021	2022	% change
Counterfeit	55	70	27.3%
Contraband	582	862	48.1%
Domestic illicit plains	67	78	16.0%
Unbranded	1,537	1,598	4.0%
Total illicit consumption	2,242	2,608	16.3%
Non-domestic (legal)	0.4	6.4	1,495%
Legal domestic sales	9,397	8,495	(9.6%)
Total consumption	11,639	11,109	(4.6%)

Source: FTI Consulting estimates using consumer survey results, EDPS results, IRI scan data, ABS, Euromonitor, Industry partner data, and historical estimates in 2021.

While the volume of unbranded tobacco consumed remains consistent, and growing, contraband has rebounded following the re-opening of the Australian borders after the COVID-19 pandemic.

Figure 13 (shown on the next page) illustrates the share of different types of illicit tobacco consumption from total illicit tobacco consumption. In 2022, the share of unbranded tobacco consumption decreased, from 68.6% in 2021 to 61.3% in 2022. Instead, the share of contraband consumption has increased dramatically, from 29.0% in 2021 to 36.0% in 2022. The share of counterfeit from total tobacco consumption remained almost stable.

Figure 13: Share of illicit tobacco consumption, 2022

Source: FTI Consulting estimates using consumer survey results, EDPS results, IRI scan data, ABS, Euromonitor, and Industry partners data.

2.3. Supplementary analysis on seizures

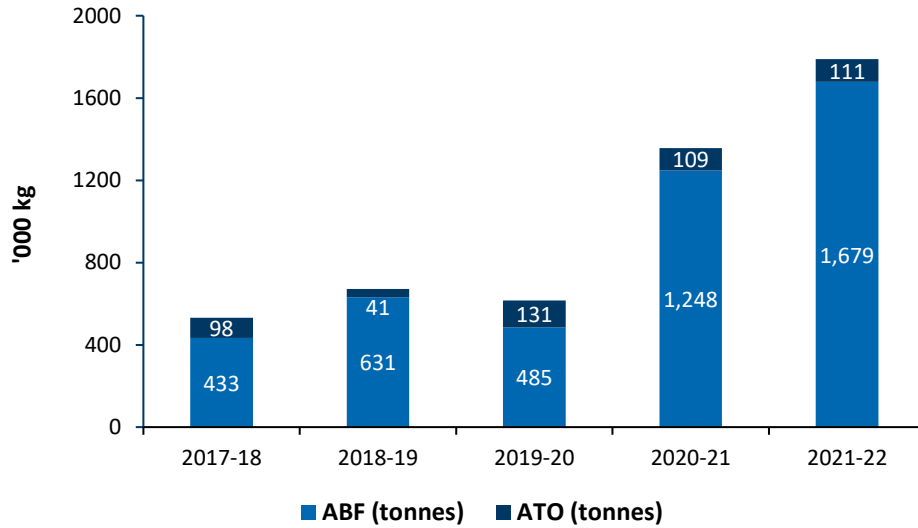
Seizures data can be compared to the size of the illicit tobacco market to verify the direction of change in tobacco market estimates and to observe trends in the product mix.

2.3.1. Seizures for 2021-22

For the 2021-22 financial year, seizures by the ABF and ATO increased by 32% to 1,790 tonnes (see **Figure 14**, next page), compared to FTI Consulting's estimated increase in the tobacco consumed of 16.3% in 2022. Consistent with the illicit tobacco consumption estimates, the dominant illicit tobacco product detected was unbranded tobacco, however seizures of smuggled contraband (cigarettes) have grown significantly (see **Figure 15**, next page).

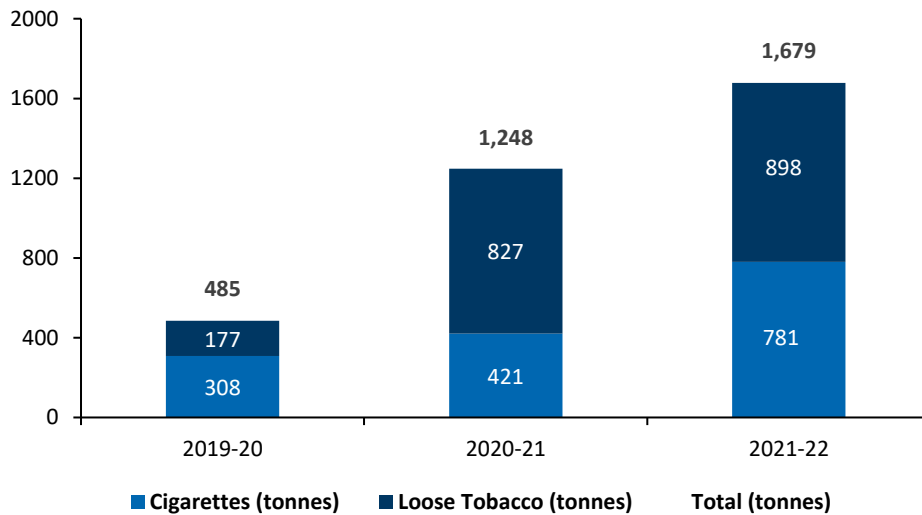
The increase in detections is attributed predominantly to an increase in large-scale detections in the sea cargo environment. The ABF is responsible for the detection of illicit shipments of tobacco and these accounted for nearly 94% of tobacco seized. In 2022, the ABF increased its detection of illegal cigarettes by 86% to 781 tonnes (over 1.12 billion illegal cigarettes), and increased its detection of unbranded 'loose-leaf' tobacco by 8% to 898 tonnes. Overall, detections of shipments of illicit tobacco by the ABF grew by 34% in volume terms.

Figure 14: ABF and ATO seizures, 2017–18 to 2021–22



Sources: ABF and ATO Tax gap calculations.

Figure 15: ABF seizure data by tobacco product type, 2019–20 to 2021–22



Sources: ABF and ATO Tax gap calculations.

The ratio of seizures to ‘gross’ illicit tobacco (that is, seized tobacco plus illicit tobacco consumed) is shown in **Table 3**. Seizures data is reported on a financial year basis, whereas illicit tobacco consumption is estimated on a calendar year basis. FTI

Consulting has calculated gross illicit tobacco based on the estimated illicit tobacco consumption averaged across the two corresponding (calendar) years.

Table 3: Seizures to gross illicit tobacco, 2018-19 to 2021-22

	2018-19	2019-20	2020-21	2021-22
Ratio of seizures to gross illicit tobacco	21%	19%	38%	42%

Source: FTI Consulting based on ATO seizures data and Illicit Tobacco Taskforce estimates 2021-22; and KPMG LLP reports (years 2018-2021) and FTI Consulting (2022) estimates for the consumption of illicit tobacco in Australia.

Note: We note that seizures data is provided by financial year and the illicit consumption is estimated on a calendar year basis. As such, FTI has used a blended number for illicit consumption.

2.3.2. Half yearly seizures for 2022-23

The half year results for 2022-23 (covering 1 July 2022 to 31 December 2022) suggest a continuation to increasing seizures in volume terms, and seizures of more cigarettes. For the six months of 2022 alone, across 62,900 individual consignments, seizures of illicit tobacco comprised more than 823 million cigarette sticks (equivalent to 576 tonnes³) and 355 tonnes of loose-leaf tobacco.⁴

2.4. Enforcement context

While the ABF collected \$35 billion in customs duties in the previous two years⁵, the ABF Commissioner estimates that billions in leakage could be captured with better border technology. FTI Consulting estimates that the potential excise value of illicit tobacco consumed in Australia in 2022, if it was consumed legally, was \$4.2 billion⁶. This represents an increase of \$0.8 billion compared to the estimated value of excise applicable to illegal product consumed in 2021 (of \$3.4 billion), and is also far greater than the estimated excise value of tobacco seized (of \$2.68 billion).

ABF Commissioner Michael Outram stated that enforcement has been under-resourced, and reports concerns about ‘trusted insiders’ assisting in the importation

³ At 0.7 grams per cigarette.

⁴ Supplementary Budget Estimates Hearing, February 2023.

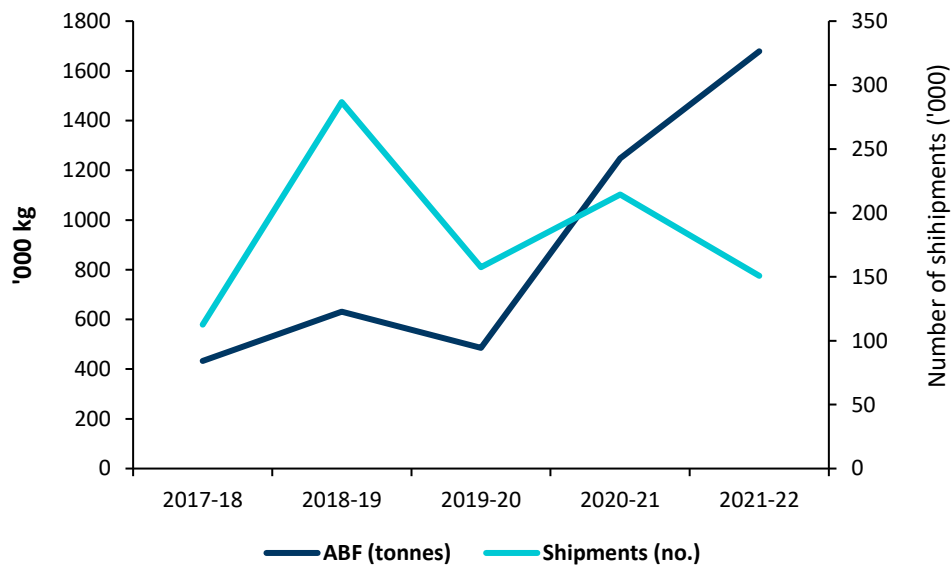
⁵ Australian Financial Review, 2022. “Our borders are being infiltrated”: Border Force seeks more powers’. By Patrick Durkin. Cited [online] February 2023 at: <https://www.afr.com/policy/foreign-affairs/our-borders-are-being-infiltrated-border-force-seeks-more-powers-20221114-p5by7b>.

⁶ If the 2.6 million kg of tobacco consumed illegally had instead been consumed legally.

of illegal tobacco and the widespread undervaluing of goods.⁷ The Commissioner has argued for investing and modernising ABF systems to improve trade simplification and increase detections without imposing on the economic value of trade.

The increase in illicit tobacco seizures in 2021-22 highlighted the significant burden on cargo and mail screening operations. ABF seizures were detected across fewer shipments of 150,000 in 2021-22 compared to 214,000 in 2020-21 (see **Figure 16**).⁸

Figure 16: ABF detections in tonnes and '000 shipments, 2017-18 to 2021-22



Sources: ABF home affairs annual report 2021-22.

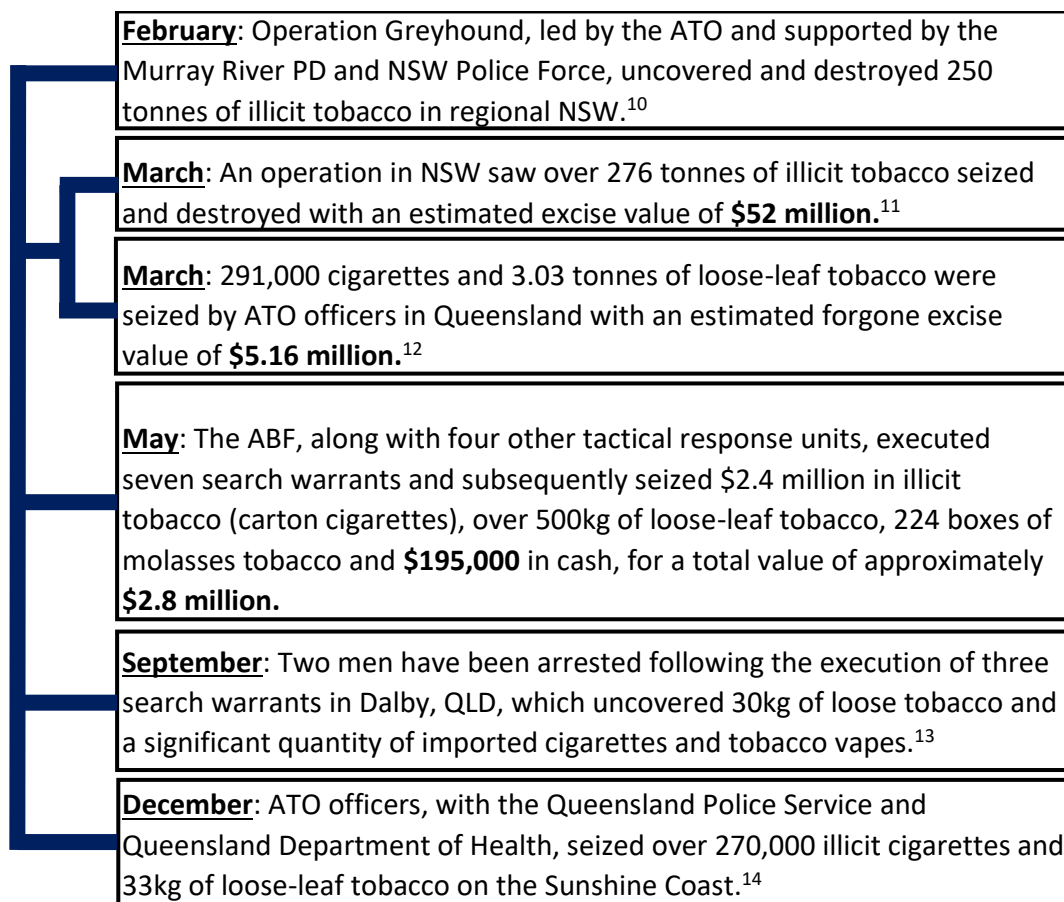
Figure 17 below presents key seizures in 2022. Since the beginning of the pandemic, ABF reports that it has lost up to 20% of its workforce at airports due to attrition, promotions and a reduction in new recruit numbers undertaking training throughout 2020-21 financial year.⁹

⁷ Australian Financial Review, 2022.

⁸ Department of Home Affairs, 2022. 2021-22 Annual Report. p144, <https://www.homeaffairs.gov.au/reports-and-pubs/Annualreports/home-affairs-annual-report-2021-22.pdf>

⁹ ABF, undated. 'ABF Incoming Government Brief'. FOI Request FA 22/06/00105, Document 4, p 9, <https://www.homeaffairs.gov.au/foi/files/2022/fa-220600105-document-released-part-5.PDF>

Figure 17: Key seizures in 2022



The impact of the workforce shortage during the pandemic was managed by shifting airport-based officers to screen cargo and mail¹⁵, however the return of passenger flights has meant that additional cargo screening resources may not be sustained.

¹⁰ Australian Taxation Office, 2022. 'Operation Greyhound sniffs out \$42 million in illicit tobacco', February 2022

¹¹ Australian Taxation Office, 2022. 'ATO burns a \$52 million hole in illicit tobacco trade', April 2022

¹² Australian Taxation Office, 2022. '\$5.1 million in illicit tobacco smoked out', March 2022

¹³ myPolice 2022, 'Men arrested over sale of illegal tobacco, Dalby', September 2022

¹⁴ Australian Taxation Office, 2022. 'ATO takes the shine out of Sunshine Coast illicit tobacco trade', December 2022

¹⁵ ABF, undated. 'ABF Incoming Government Brief'. FOI Request FA 22/06/00105, Document 4

3. Drivers of estimates

3.1. Direct and indirect drivers of estimates

Various factors drive the illicit tobacco estimations in 2022. Some factors directly affect our model estimations, whereas other factors could be considered as indirect drivers of the illicit tobacco market estimates. This chapter discusses only the direct drivers of model estimations (other drivers are discussed in Chapter 4).

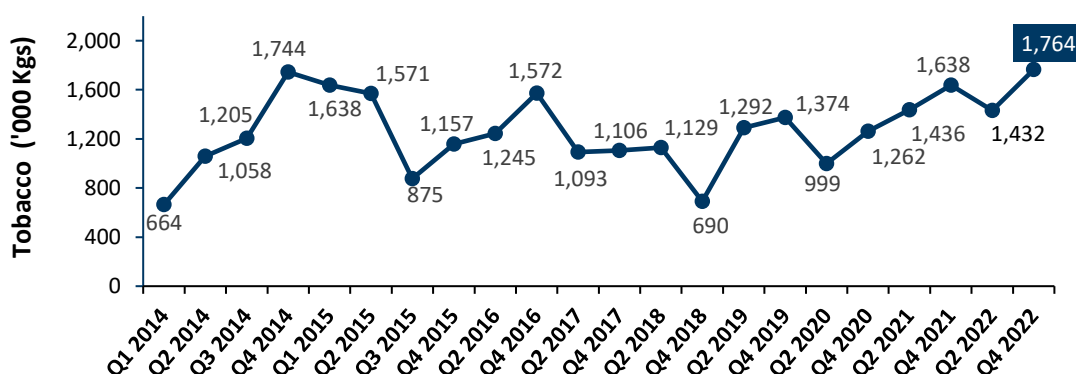
The drivers of the illicit tobacco consumption estimates in 2022 are the results of the consumer survey and empty discarded packs survey (EDPS). These two surveys provide key inputs to our model, and hence, any changes in survey results compared to the survey results in previous years will drive variations in estimates. More details about these drivers are presented below.

3.2. Consumer survey results

The consumer survey provides key inputs to the unbranded tobacco consumption model. Our model estimates show that the consumption of unbranded tobacco has increased in 2022 by 4.0%.

Figure 18 shows how actual consumption of unbranded tobacco increased over time. The actual consumption in each quarter indicates the estimation of unbranded tobacco consumption for a full year using information provided by the consumer survey results in that quarter. For example, the unbranded tobacco consumption in 2022 using consumer survey results in Q4 2022 is 1,764 tonnes.

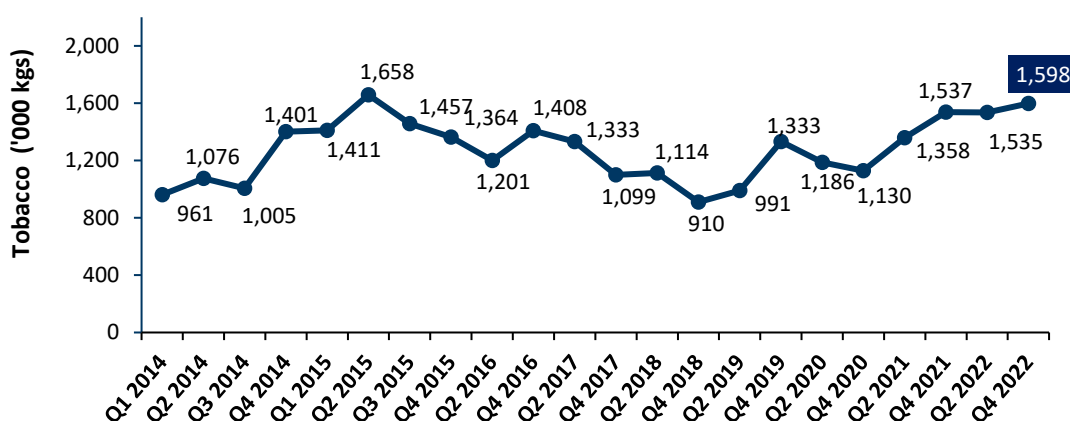
Figure 18: Actual consumption of unbranded tobacco, Q1 2014 – Q4 2022



Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

To balance the fluctuations of estimations throughout the two surveys conducted in each year, we estimate blended consumption of unbranded tobacco using the simple average of the two consecutive estimates. **Figure 19** illustrates how the blended consumption of unbranded tobacco (used in the consumption model) increased to 1,598 tonnes in 2022.

Figure 19: Blended consumption of unbranded tobacco, Q1 2014 – Q4 2022



Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

The main drivers of this increase include the increasing share of tobacco consumers who purchased unbranded tobacco (for own consumption), and changes in average purchase (for own consumption) of unbranded tobacco per person per year. These reflect the increasing ease of purchasing unbranded tobacco (although this parameter is not used in the consumption model).

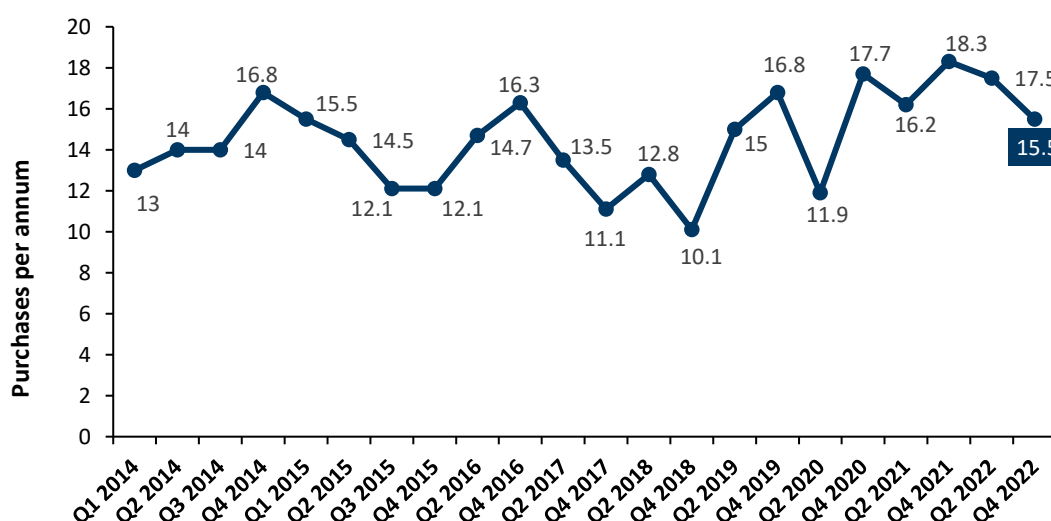
3.2.1. Unbranded tobacco consumed per user has remained relatively stable

Our estimations show that in 2022, the average volume of unbranded tobacco purchased by each smoker throughout the year dropped by 1.5%. The volume of unbranded tobacco consumption per smoker per year depends on the average frequency of purchase per annum and the volume of purchase per occasion.

Figure 20 and Figure 21 (see next page) show how these two parameters have changed in 2022.

Figure 20 shows that in 2022, consumers of unbranded tobacco have made more frequent purchases in recent years compared to pre-2019. Among the reasons, we can refer to the consumers’ confidence on the availability and ease of access to unbranded tobacco products. The purchase frequency has dropped slightly in 2022 but still remains higher than in previous years. This could be due to the increasing ease of purchase.

Figure 20: Average frequency of purchase per annum, Q1 2014 – Q4 2022

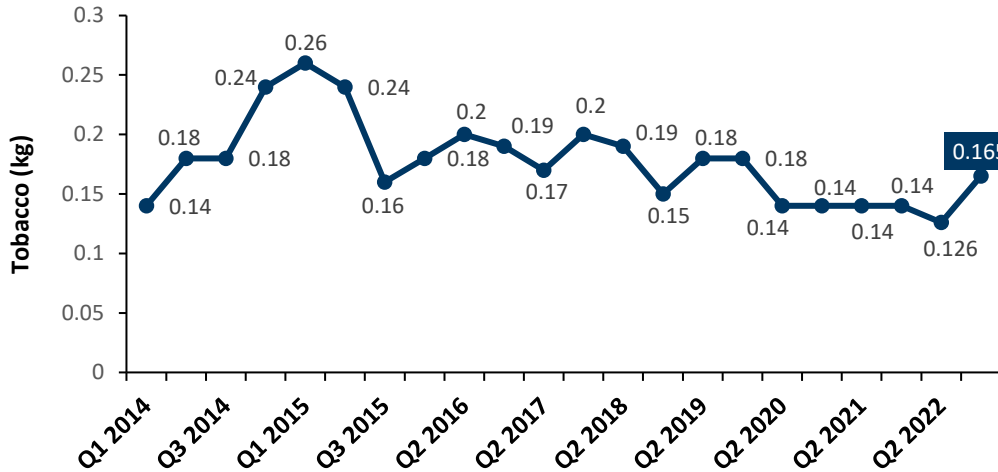


Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

The average volume of purchase per occasion is another parameter working with the frequency of purchase per year. **Figure 21** (presented in the next page) shows that in Q4 2022, the volume of unbranded tobacco consumption purchased per occasion has increased significantly.

The increase in average purchase per occasion has not been fully offset by the decrease in frequency of purchase per year, such that the overall effect has been a slight decrease in the average volume of purchase per smoker per year. It has been relatively stable at 2,420 grams of unbranded tobacco consumed per user each year in 2022, compared to 2,384 grams of unbranded consumed per user each year in 2021 (-1.5% change in 2022).

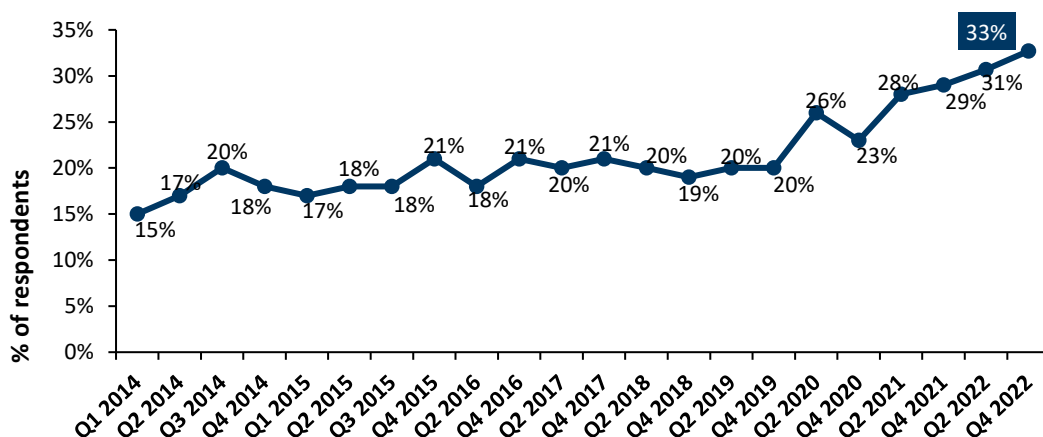
Figure 21: Average volume purchased per occasion, Q1 2014 – Q4 2022



Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

3.2.2. A higher proportion of smoking population consumes unbranded tobacco
 With relatively stable consumption per unbranded tobacco user, the impact of increasing purchase incidence (despite a decline in the actual smoking population) is to increase unbranded tobacco consumption. **Figure 22** shows that the proportion of smokers who are purchasing unbranded tobacco has been historically high in 2022. That is, the total consumption of unbranded tobacco has increased due to a climb in the number of unbranded tobacco consumers.

Figure 22: Respondents (%) purchasing unbranded tobacco, Q1 2014 – Q4 2022

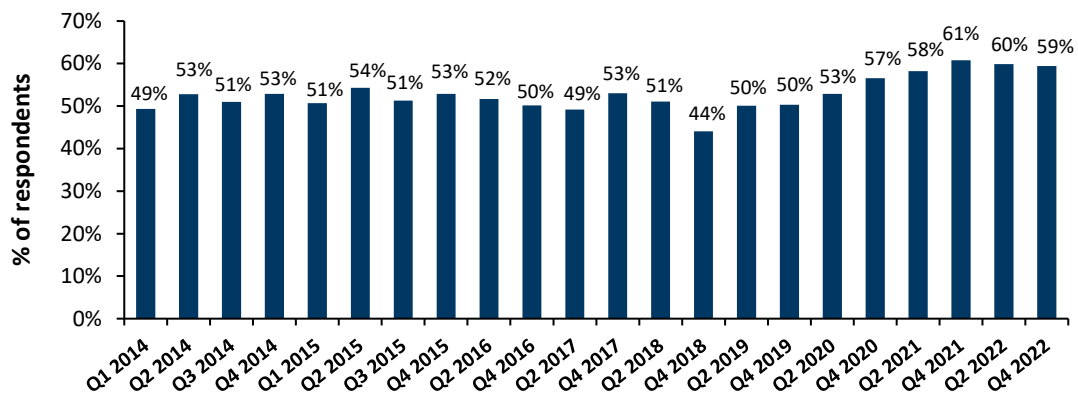


Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

3.2.3. Other insights from the consumer survey

The consumer survey also shows that there is no considerable changes in the consumers’ awareness of unbranded tobacco products (**Figure 23**). This finding suggests the increase in the consumption of unbranded tobacco may be related to smokers already aware of unbranded tobacco products (switching from the legal market to the illicit market). In addition, media coverage is expected to play an important role in the awareness of new unbranded tobacco customers.

Figure 23: Respondents (%) aware of unbranded tobacco, Q1 2014 – Q4 2022

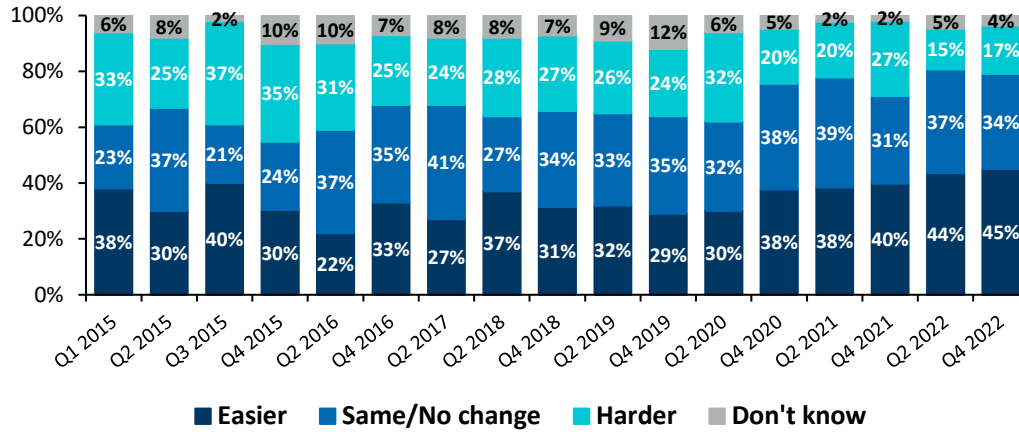


Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

3.2.4. Purchasing unbranded tobacco was easier for consumers

Over the longer term, due to ease of access to the illicit market and unbranded tobacco products, consumers can make more frequent purchases with a lower volume of purchase per occasion. Figure 24 shows that the ease of purchasing unbranded tobacco has continued to increase over 2022, with more respondents reporting it is ‘easier’ or ‘the same as before’ to purchase unbranded tobacco in 2022 (79% in Q2 2022, and 81% in Q4 2022) compared to the previous year (71% in Q2 2021, and 77% in Q4 2021).

Figure 24: Ease of purchasing unbranded tobacco in Australia, Q1 2015 – Q4 2022

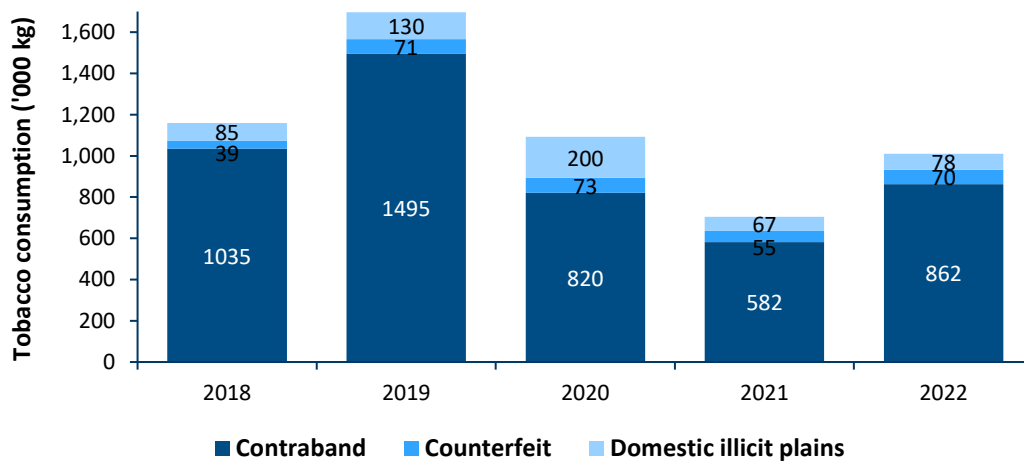


Source: FTI Consulting using 2022 consumer survey results, and historical estimates.

3.3. Empty discarded packs survey results

The EDPS provides key inputs to the estimates of counterfeit, contraband, domestic illicit plains and non-domestic illicit whites consumption. In 2022, the consumption of contraband, counterfeit and domestic illicit plains tobacco have increased by 48.1%, 27.3% and 16.0%, respectively (see **Figure 25**, next page).

Figure 25: Contraband, counterfeit, and domestic illicit plains, 2018 – 2022



Source: FTI Consulting using 2022 EDPS results, and historical estimates.

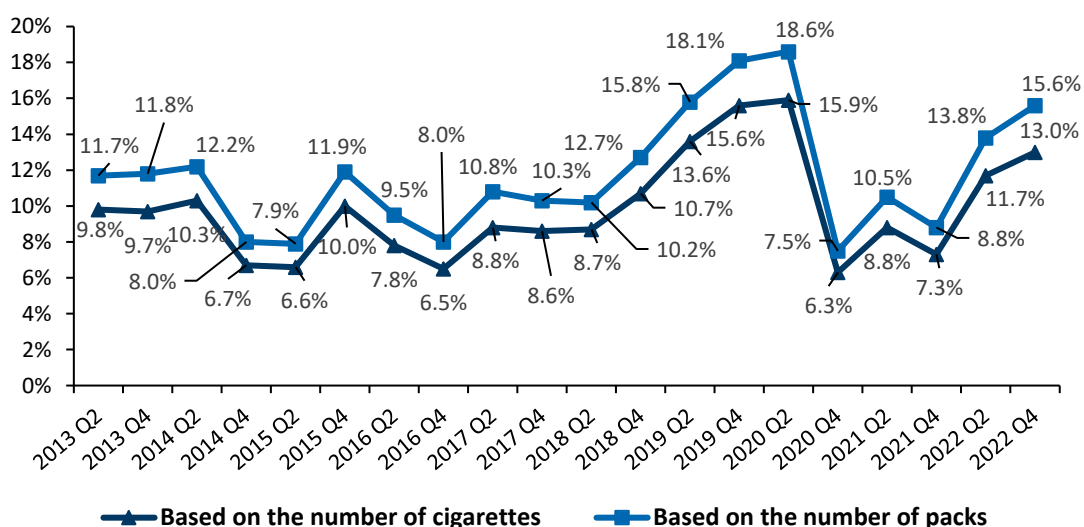
3.3.1. The non-domestic incidence grew up considerably

The non-domestic incidence represents the proportion of non-domestic cigarettes reported by the EDPS. It is a key input to the estimation of total non-domestic manufactured cigarettes. Total non-domestic manufactured cigarettes include illicit and legal consumption. The illicit part of the non-domestic manufactured cigarettes includes counterfeit and contraband consumption. Where counterfeit is calculated directly using EDPS, the changes in non-domestic incidence will drive the changes in contraband consumption.

In 2022, the non-domestic incidence has increased by 4.4 percentage points (from 8.0% in 2021 to 12.4% in 2022). This resulted in an increase of total illicit tobacco consumption by 16.2% (or an increase by 362.9 tonnes).

Figure 26 illustrates non-domestic incidence reported by EDPS for 2022 and previous years, expressed in the number of packs and the number of sticks (and the number of cigarette packs). For the model, we use the non-domestic incidence figures expressed in the number of sticks. The considerable increase in the non-domestic incidence is primarily due to the ease of international movements (both people and commodities) in the post COVID-19 pandemic period.

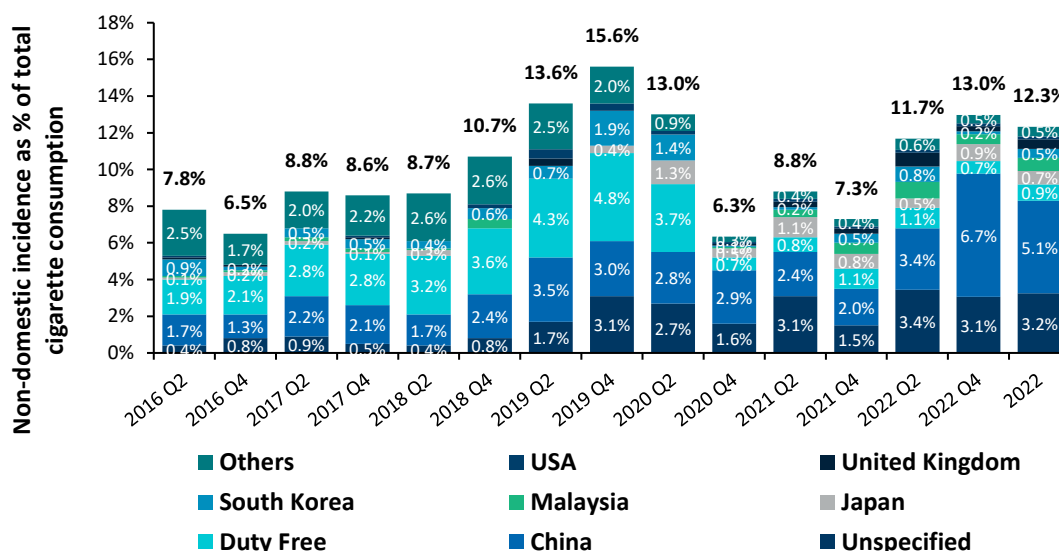
Figure 26: Total non-domestic incidence, Q2 2013 – Q4 2022



Source: FTI Consulting using 2022 EDPS results, and historical estimates.

Figure 27 shows that with duty free volume remaining stable since 2021, non-domestic flows increased in 2022, driven primarily by a significant rise in inflows from China and ‘Unspecified’ countries which typically refers to the Middle East.

Figure 27: Non-domestic incidence by country of origin, Q2 2016 – Q4 2022



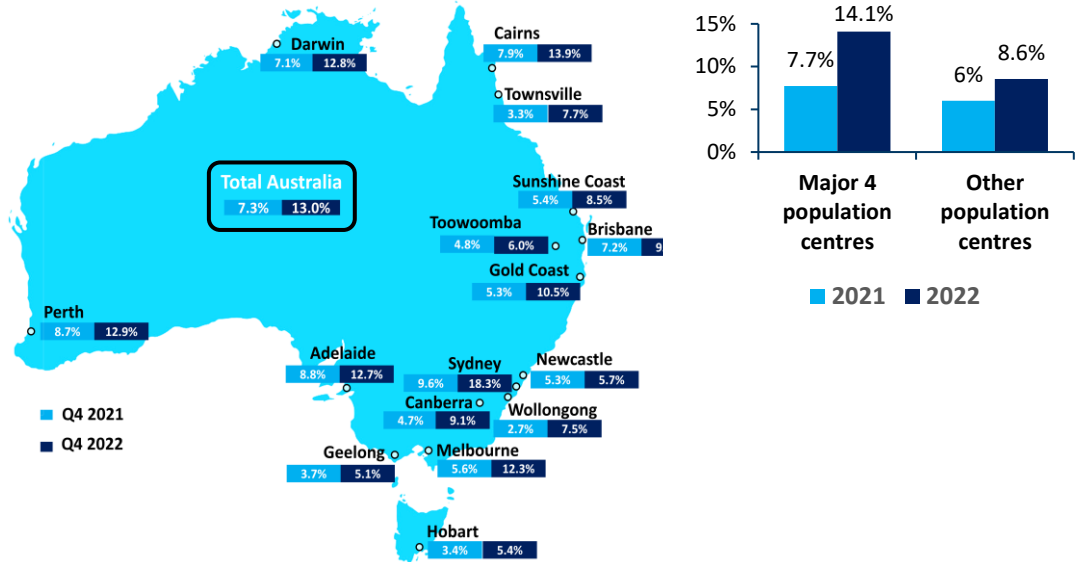
Source: FTI Consulting using 2022 EDPS results, and historical estimates.

The 0.01% duty free inflows from China besides its 5.1% non-domestic inflows maintains China’s overall non-domestic inflows at 5.1% as the biggest contributor to Australia’s non-domestic inflows. The 0.9% duty free inflows in 2022 is mainly attributable to Indochina (including Cambodia, Laos, Myanmar, Thailand and Vietnam) by 0.28%, South Korea by 0.2%, Gulf Cooperation Council (or GCC, including Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman) by 0.18%, Hong Kong by 0.05%, and other countries by 0.2%.

Similar to previous years, Asian countries – led by China - remained the main source of inflows for non-domestic manufactured products. The non-domestic manufactured cigarette flows from China have dramatically increased, representing 41% of all non-domestic inflows in 2022, compared to 27% in 2021.

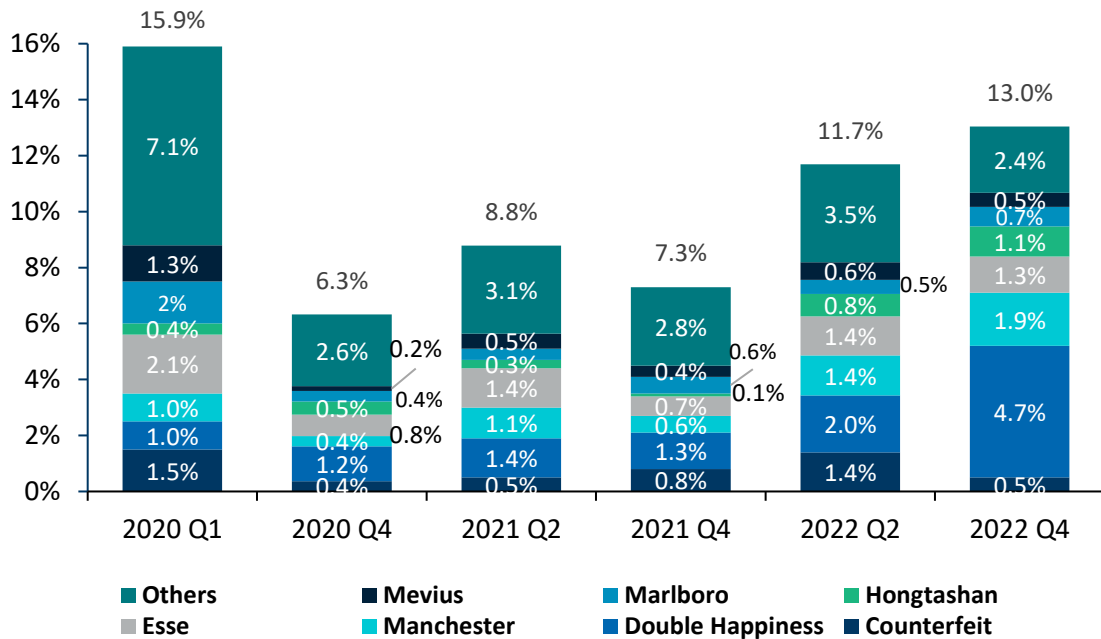
Figure 28 (see next page) shows that in Q4 2022, the non-domestic incidence rose dramatically across all 16 sampled population centres, particularly for the four major cities together (Sydney, Perth, Melbourne and Brisbane) where non-domestic incidence almost doubled from 7.7% to 14.1%.

Figure 28: Non-domestic incidence by population centre, 2021 - 2022



Source: FTI Consulting using 2022 EDPS results, and historical estimates.

Figure 29: Total non-domestic incidence by brand, Q1 2020 – Q4 2022



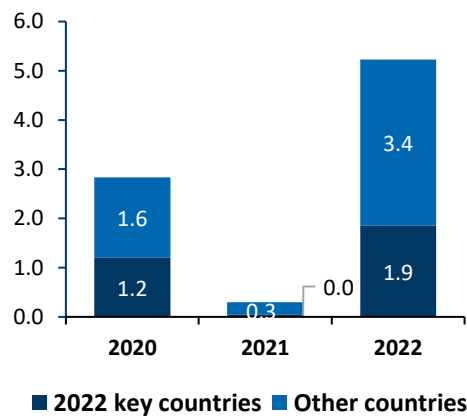
Source: FTI Consulting using 2022 EDPS results, and historical estimates.

Figure 29 (see previous page) shows that the flow of non-domestic brands is recovering to the pre-COVID-19 pandemic period. The EDPS results show that among all non-domestic brands, the inflow of Double Happiness has grown quite significantly, from 1.3% in 2021 to 3.3% in 2022 (based on the simple average inflow). Double Happiness and Manchester make up more than 40% of the volume of total non-domestic brands’ inflow in 2022 and are considered as popular brands for many consumers.

3.3.2. The number of international travellers’ movements increased significantly
 International travellers to Australia are a source of tobacco inflow to the country. The volume of legal tobacco brought to Australia by international travellers is one of the inputs to our model, in particular, non-domestic legal sales. Thus, the changes in the number of international travellers affect our estimates directly.

Figure 30 shows that in 2022, more than 5.2 million Australians returned Australia through the borders. This reflects an increase of more than 16 times compared to 2021. In this figure, the key countries indicate countries with the highest inflow of tobacco to Australia (from overseas travel of Australian residents). These countries include China, Malaysia, Korea, UK, Japan, Taiwan, USA, Indonesia, and Philippines.

Figure 30: Overseas travel of Australian residents, millions, 2020 – 2022

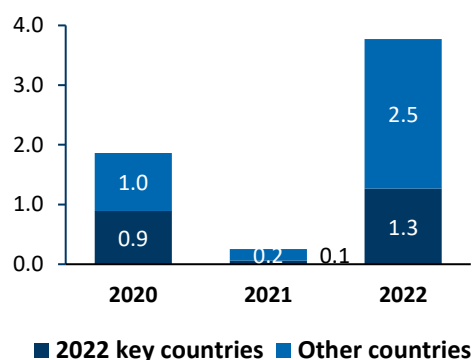


Source: FTI Consulting using 2022 EDPS results, and historical estimates.

Australians returning to Australia are not the only international travellers to Australia. Short-term visitors and permanent settlers also contribute to the model.

Figure 31 shows that the number of short-term visitors and permanent settlers increased by more than 14 times in 2022.

Figure 31: Overseas travel of short-term visitors, 2020 – 2022¹⁶



Source: FTI Consulting using 2022 EDPS results, and historical estimates.

The increase in the number of international travellers in 2022 resulted in a massive increase of almost 15 times in total non-domestic legal sales (from 0.4 tonnes in 2021 to 6.4 tonnes in 2022). These increases follow the lifting of the Australian Government restrictions for international travel.

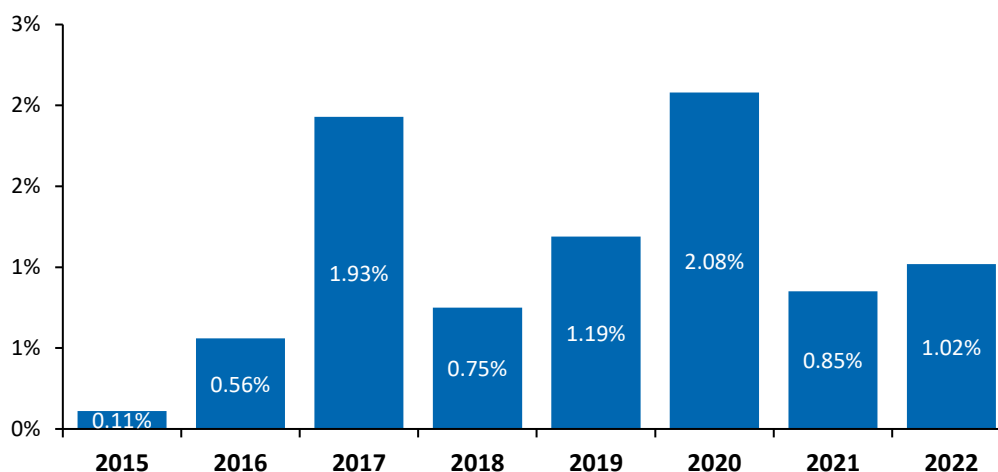
3.3.3. The volume of Illicit whites cigarettes increased

As already discussed, illicit whites include domestic illicit plains, and non-domestic illicit whites. We add the estimated domestic illicit plains to the consumption model to estimate total illicit tobacco consumed, whereas non-domestic illicit whites is a component of contraband (already included).

Figure 32 illustrates the increase in domestic illicit plains *as percent of total manufactured cigarettes*. The figure shows that the consumption of domestic illicit plains has increased by 0.17 percentage points (from 0.85% in 2021 to 1.02% in 2022) which has increased the consumption estimates from (67 tonnes in 2021) to 78 tonnes in 2022. This increase resulted in a 0.4% increase in total illicit tobacco consumption in 2022.

¹⁶ This figure includes the number of estimated permanent settlers. For more information, see Appendix 2.

Figure 32: Domestic illicit plains as % of manufactured cigarettes, 2015 – 2022



Source: FTI Consulting using 2022 EDPS results, and historical estimates.

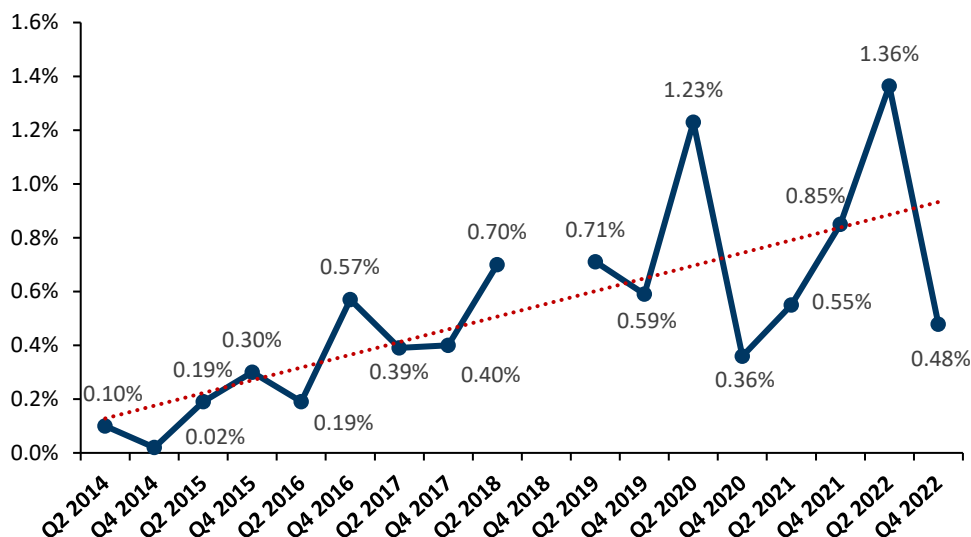
In 2022, non-domestic illicit whites were estimated to be 179.8 tonnes (or 2.4% of total manufactured cigarettes). Our analysis shows that, among all non-domestic illicit whites brands, Manchester accounts for the largest share (1.7% out of 2.4% total illicit whites). Due to minor changes to the methodology for estimating non-domestic illicit whites, we cannot make a proper comparison between the 2022 estimate and estimations of previous years. In Appendix 3, we have provided further information on non-domestic illicit whites.

3.3.4. The average counterfeit incidence increased

Counterfeit incidence represents the proportion of counterfeit cigarettes reported by the EDPS. It makes a significant contribution to the estimation of counterfeit consumption.

In 2022, counterfeit incidence increased by 0.22 percentage points (from 0.70 in 2021 to 0.92 in 2022). This increase resulted in a rise of 0.3% in total illicit tobacco consumption (or 7.7 tonnes). **Figure 33** (presented on the next page) shows the quarterly counterfeit incidences in 2022 and previous years, and how counterfeit incidence has grown up over time.

Figure 33: Counterfeit incidence, Q2 2014 – Q4 2022¹⁷



Source: FTI Consulting using 2022 EDPS results, and historical estimates.

3.4. Other drivers

3.4.1. The consumption of legal domestic cigarettes reduced

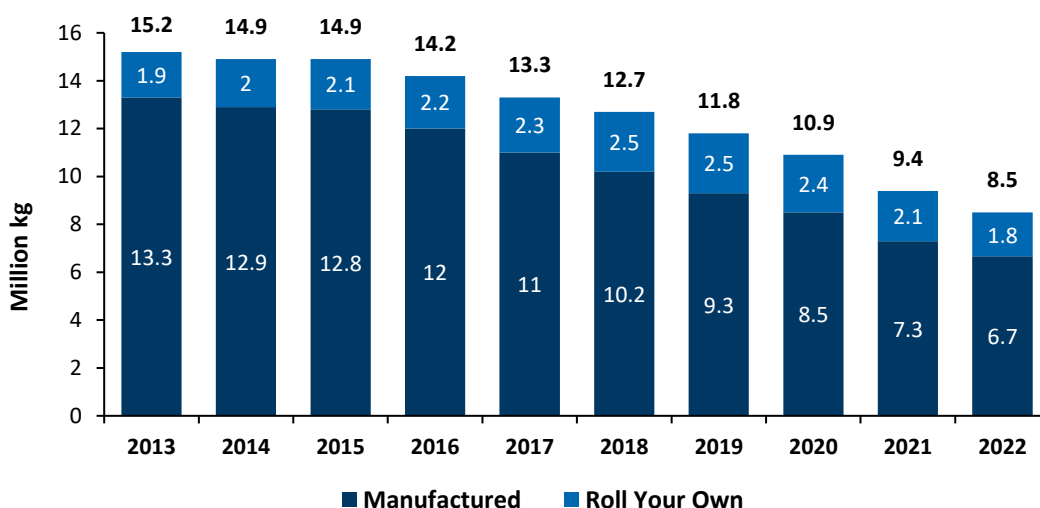
The consumption of legal domestic cigarettes play an important role in our model estimations. It contributes significantly to the consumption of total manufactured cigarettes which drives counterfeit, contraband and domestic illicit plains estimations. The model assumes that the volume of domestic cigarettes represents the consumption of domestic cigarettes. Our analysis of legal domestic sales is based on the IRI scan data, exchange of sales and confidential information from the industry partners in the market.

Figure 34 and **Table 4** (see next page) show that in 2022, legal domestic sales continued to decline. The total legal domestic sales of tobacco in Australia has experienced a sustained decline since 2013-14. In 2022, total legal domestic sales dropped by 9.6%, representing a decrease in sales of both manufactured cigarettes and roll your own tobacco (by 8.7% and 12.6%, respectively).

¹⁷ There is no historical data available for counterfeit incidence in Q4 2018.

Where manufactured cigarette sales continued its steady decline, the roll your own tobacco sales represent a significant reduction and continuation of a decline observed since 2019, which coincides with an increase in unbranded tobacco sales.

Figure 34: Legal domestic sales, 2013 – 2022



Source: FTI Consulting using IRI scan data, exchange of sales data, and industry partners.

Table 4: Percentage changes in domestic legal sales, 2014 – 2022

Annual growth (%)	2014	2015	2016	2017	2018	2019	2020	2021	2022
Manufactured	(2.8)	(1.0)	(6.1)	(8.9)	(6.8)	(9.1)	(8.5)	(14.1)	(8.7)
RYO	6.5	4.4	4.0	5.6	6.2	2.1	(3.3)	(13.2)	(12.6)
Total	(1.7)	(0.3)	(4.7)	(6.7)	(4.6)	(6.9)	(7.4)	(13.9)	(9.6)

Source: FTI Consulting using IRI scan data, exchange of sales data, and industry partners.

Notes: brackets represent negative sign.

3.4.2. The number of smoking population in Australia decreased

The estimated smoking population is an input to the unbranded tobacco consumption model (see Appendix 1). AIHW and ABS are the main data sources for this parameter. Our estimates using these two data sources show that in 2022, the adult smoking population in Australia has dropped by 1.8% (from 2.15 million in 2021 to 2.11 million in 2022). This change has resulted in a reduction of 1.1% (or a decrease of 29.6 tonnes) of total illicit tobacco consumption in 2022.

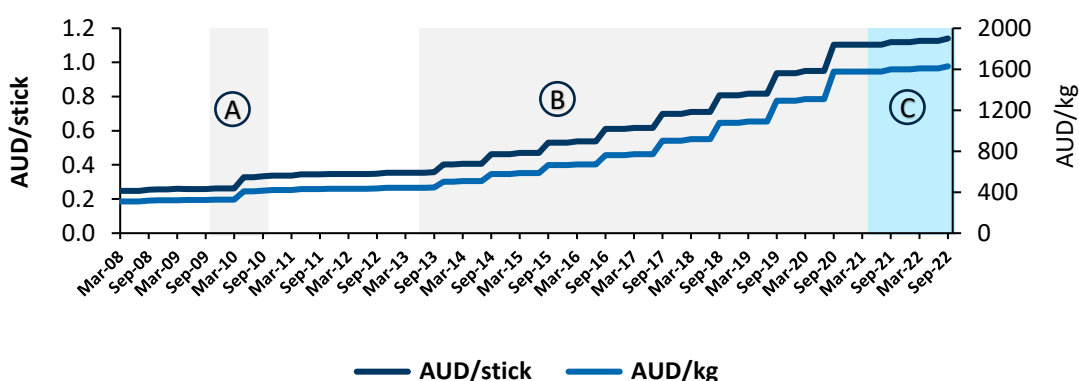
4. Broader market drivers: Relative pricing

4.1. Recent development of excise duty and tobacco affordability

Broader market drivers are factors that can indirectly affect elements of the consumption model such as through the incidence of unbranded tobacco consumption and the amount of non-domestic product observed in the market ('non-domestic incidence'). One of these broader factors is the relative price of legal and illicit tobacco products, and a key driver of legal prices is excise duty.

Altogether, from September 2013 to September 2021, the overall excise duty on tobacco products has more than tripled (see **Figure 35**). In September 2022, excise was \$1.63 per gram or \$1.14 per stick in September 2022, compared to \$0.45 per gram or \$0.36 per stick in September 2013.

Figure 35: Tobacco excise and customs duty, Mar 2008 – Sep 2022



Source: Tobacco in Australia, www.tobaccoinaustralia.org.au.

Notes:

A: 25% increase in excise duty in April 2010.

B: 12.5% increase in excise duty in December 2013 and every March and September during 2014-2020.

C: 3.3% increase in excise duty from March 2021 to September 2022 based on average weekly ordinary time earnings (AWOTE).

Australia experienced the largest percentage increase in excise duty in April 2010, where the rate increased by 25%. From April 2010 to August 2013, the excise duty increased irregularly (overall, by 9%). However, in September 2013, the excise duty increased by 12.5% annually for the four years to 2017. In addition, since March 2014, tobacco excise increases have been applied (in addition to annual increases) in line with six-monthly increases in average weekly ordinary time earnings (AWOTE)

AWOTE, whereas they were previously applied based on CPI. Indexation has since occurred in March and September each year and). In addition, legislative amendments in 2016 resulted in a further four annual increases of 12.5% in excise duty during 2017-2020 in September of each year (in addition to the AWOTE adjustment which is added on top of the 12.5%).

Prior to 2018, the excise equivalence on manufactured cigarettes and loose-leaf tobacco were based on 0.8g of tobacco content for each cigarette. In 2017, the Australian Government determined that the customs duty and excise on RYO tobacco (and cigars and cigarettes weighing greater than 0.8 grams of tobacco per stick) would be harmonised with FM cigarettes over a period of four years beginning September 2017.

To reconcile excise rates for various tobacco products, consistent adjustments were made in excise rates for loose leaf tobacco during 2017-20 (from 0.8 grams per stick in 2016, 0.775 grams in 2017, 0.75 grams in 2018, 0.725 grams in 2019, and 0.7 grams in 2020 which was typical to a factory-made cigarette).¹⁸ This adjustment resulted in a significant increase in excise rate for loose leaf tobacco beyond the regular indexation applied on 1st of September each year.¹⁹

For 2022, there was an increase in the excise rate of 0.7% in March 2022, and a further increase of 1.2% in September 2022. Between November 2021 and November 2022, the original full-time adult AWOTE increased by 3.4%.²⁰ As mentioned earlier, the excise indexation to AWOTE is added on top of the legislative amendments of annual 12.5% increases. The increases in excise duty are reflected in tobacco prices. As such, tobacco prices have increased faster than average disposable income, particularly in recent years.

This is evident in **Figure 36** : the index of per capita disposable income has increased from 133 in 2017 to (the forecast) 142 in 2022 (6.8%), while the index of tobacco

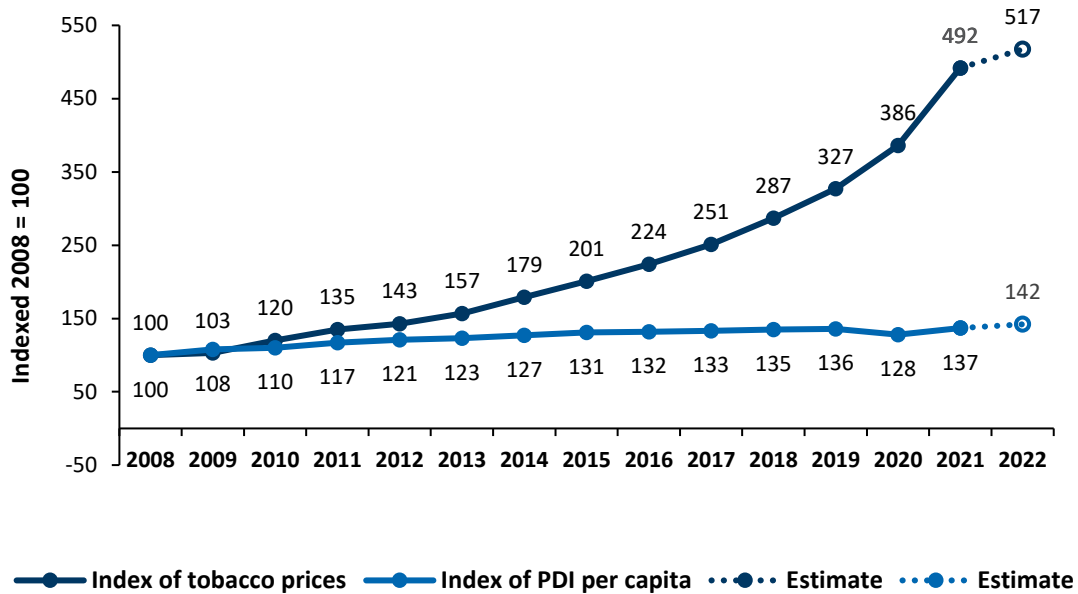
¹⁸Scollo, M, and Bayly, M. 13.2 Tobacco taxes in Australia. In Greenhalgh, EM, Scollo, MM and Winstanley, MH [editors]. Tobacco in Australia: Facts and issues. Melbourne: Cancer Council Victoria; 2023. Available from <http://www.tobaccoinaustralia.org.au/chapter-13-taxation/13-2-tobacco-taxes-in-australia>

¹⁹ Customs Tariff Amendment (Tobacco duty harmonisation) Bill 2017.

²⁰ Australian Bureau of Statistics (ABS), accessed 5 May 2023, <<https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/average-weekly-earnings-australia/latest-release>>

prices during this period shows further increases, from 251 in 2017 to (the forecast) 517 in 2022 (105.9%). The excise increases have significantly raised the cost of legal tobacco relative to disposable income over the period 2008 to 2022 (see Figure 36).

Figure 36: Index of tobacco prices and per capita PDI in Australia, 2008 – 2022



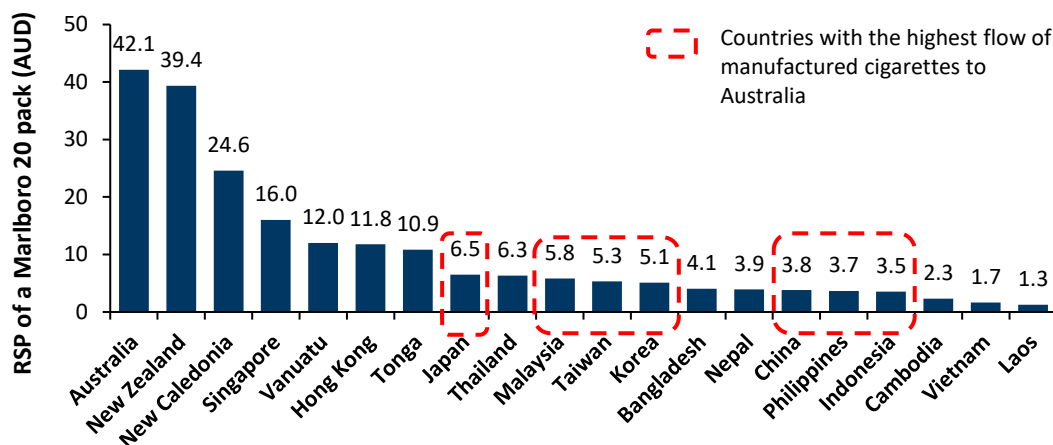
Source: FTI Consulting using 2021 Illicit Tobacco in Australia (by KPMG LLP); IRI scan data and ABS.

Where the difference between the increase in tobacco prices and the increase in consumers disposable income was high in 2021, our estimates for 2022 shows that the two parameters have increased by 4-5% each. This however, has not improved consumers’ affordability to purchase legal tobacco.

4.2. Regional tobacco prices

Australia has the highest cigarette prices in the Southeast Asia market, followed by New Zealand (see Figure 37).

Figure 37: Price of Marlboro 20s in Australia and selected countries, Jan 2023



Source: Industry data, January 2023.

Notes: FTI Consulting analysis using industry partners’ data, and the exchange rate as on 15 Jan 2023.

Foreign exchange rates as on 15th January 2023.

Data shows that the *difference* in the price of a 20-pack Marlboro between Australia and China (as the primary non-domestic market) in January 2023 is A\$38.30. As **Figure 37** above shows, most of the countries listed above are similar to China in terms of cigarette price differentiation. This incentivises customers to be involved in the illicit market, provides significant opportunity for illegal traders to profit and costs Australian legal manufacturers and importers.

4.3. Relative price of illicit tobacco

The significant difference in regulated tobacco prices between Australia and other countries results in strong incentives for customers to be involved in illicit tobacco market. Illicit tobacco products are considerably cheaper than regulated tobacco products.

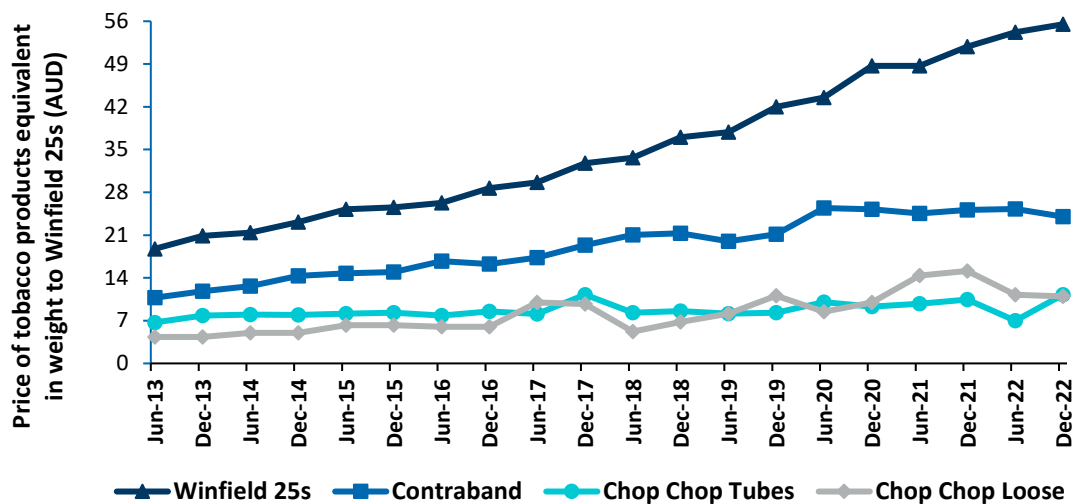
Researchers from the University of Queensland have recently reported that the rising cost of cigarettes had been crucial in convincing Australians to quit.²¹ However, increases in the price disparity between illicit and legal products is a likely key driver of the consumption of illicit products. This can impact the most

²¹ University of Queensland, 2022. ‘Cost now biggest turn-off to smoking’. <https://www.uq.edu.au/news/article/2022/08/cost-now-biggest-turn-smoking>

disadvantaged communities which are more price sensitive and already have higher smoking rates.²²

To understand the difference between illicit tobacco and legitimate tobacco prices in Australia, we compare the price of a 25 pack Winfield cigarettes with the prices of various illicit tobacco products (see **Figure 38**).

Figure 38: Price of illicit products and Winfield 25s, Jun 2013 – Dec 2022



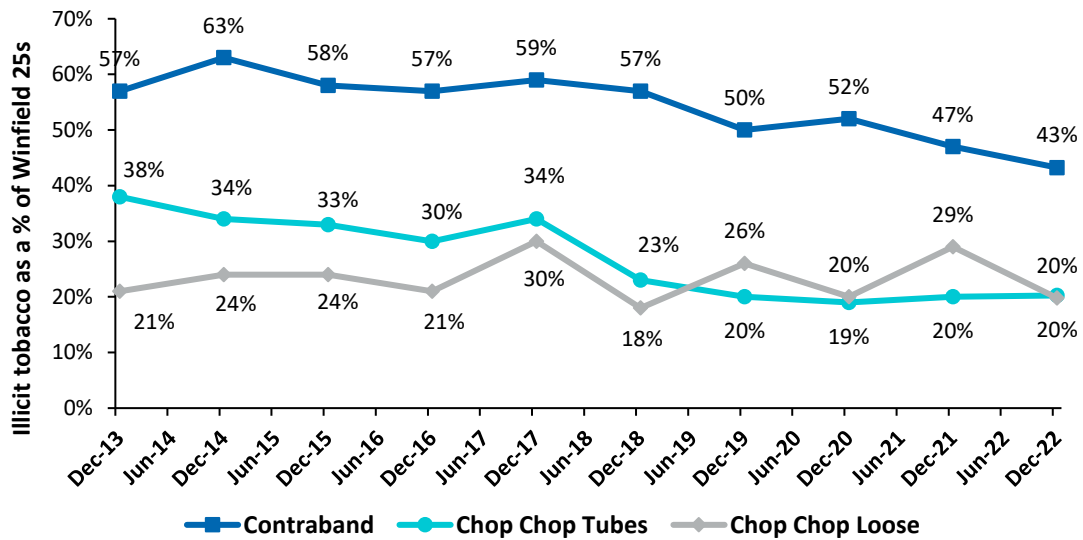
Source: Industry data, and covert enquiries supplied to FTI Consulting.

Figure 38 shows that a 25 pack Winfield in June 2013 was more expensive than illicit products, and the magnitude of this price gap has since grown over the decade to 2022. The price gap between a 25-pack Winfield and illicit tobacco products in 2022 is higher than in 2021: in December 2022, the price of a 25-pack Winfield rose by 7% compared to the same time in 2021, whereas during this period, the price of contraband and chop chop loose tobacco decreased by 4.4% and 17.4%, respectively. Only the price of chop chop tubes increased by 7.4% (the same as the increase in the price of a 25 pack of Winfield cigarettes).

²² Sydney Morning Herald, 2022. 'States join fight against blackmarket cigarettes as border seizures jump 86%'. By Sean Parnell, August 18 2022. <https://www.smh.com.au/national/states-join-fight-against-blackmarket-cigarettes-as-border-seizures-jump-86-percent-20220817-p5bahy.html>

Figure 39 shows the proportion of illicit tobacco products prices from the price of a 25 pack Winfield.

Figure 39: Illicit tobacco prices as % of Winfield 25s, Dec 2013 to Dec 2022



Source: industry covert enquiries data provided by the industry partners.

In 2022, the decrease in the relative price of illicit tobacco products was considerable. The figures show that the relative price of contraband and chop chop loose tobacco has considerably decreased in 2022, while the relative price of chop chop tubes has remained stable during this time.

The continuation of drops in the relative price of illicit tobacco products during recent years explains how customers are potentially motivated to switch from the legal tobacco market to the illicit tobacco market.

4.4. Vaping as a growing, cheaper alternative

A recent report examining the market for tobacco and vaping products provides an econometric analysis of the price elasticity of demand for tobacco products.²³ It identifies that the price elasticity of demand for tobacco is influenced by the rate and proportion of taxation on tobacco products, the price elasticity of demand and

²³ Llewellyn Consulting Independent Economics, 2022. *Tobacco and vaping products in Australia: An economic assessment.*

the existence (and prices) of substitutes. Increasingly, a key substitute to tobacco is the availability of nicotine e-cigarettes.

The decline in legal domestic sales of cigarettes corresponds to a dramatic increase in the number of Australians that are vaping.

As of October 2021, Australians over 18 years require a prescription to legally access nicotine containing e-cigarette products. Under state and territory laws it is illegal to possess, supply or sell nicotine containing e-cigarettes except where they are supplied and accessed through a prescription or in specific circumstances.²⁴

Research data indicates that the sale of most nicotine e-cigarettes in Australia are illegal. CMA Consulting examined the preferred place to purchase for current vapers across Australia (with a sample of 1209 vapers) in 2022. Only 12% reported using a prescription to make their vape purchase, including online overseas with a Script (7%) and online in Australia with a Script (3%).²⁵ An article produced on the website of the Royal Australian College of General Practitioners states that the GP prescriber-route is rarely used for nicotine vapes.²⁶

This is consistent with evidence from the Victorian survey data for 2022, where it was reported that 9% of past-year e-cigarette users reported having a prescription for nicotine from their doctor.

4.4.1. Rapid rise in vaping incidence

RMR has been commissioned by the Australian Association of Convenience Stores to provide consumer survey data on the incidence of vaping based on monthly nationwide surveys of 4500 adults in the Single Source Survey.

RMR survey data indicates that incidence of vaping was 1.7% in June 2018, 4.3% in October 2021 and 6.1% in September 2022. That is, latest data indicates that over 1.2 million adults residing in Australia used e-cigarettes in the previous year²⁷, an increase of over 100,000 Australia per quarter over the previous 12 months to September 2022. The strongest period of growth from June 2021 to June 2022

²⁴ Australian Government Department of Health and Aged Care, 2021. 'About e-cigarettes'.

²⁵ AACs, 2022. 'Nicotine vaping product usage and change'. CMA Consulting, June 2022.

²⁶ Attwooll, J. 2023. 'GP prescriber-route rarely used for nicotine vapes'.

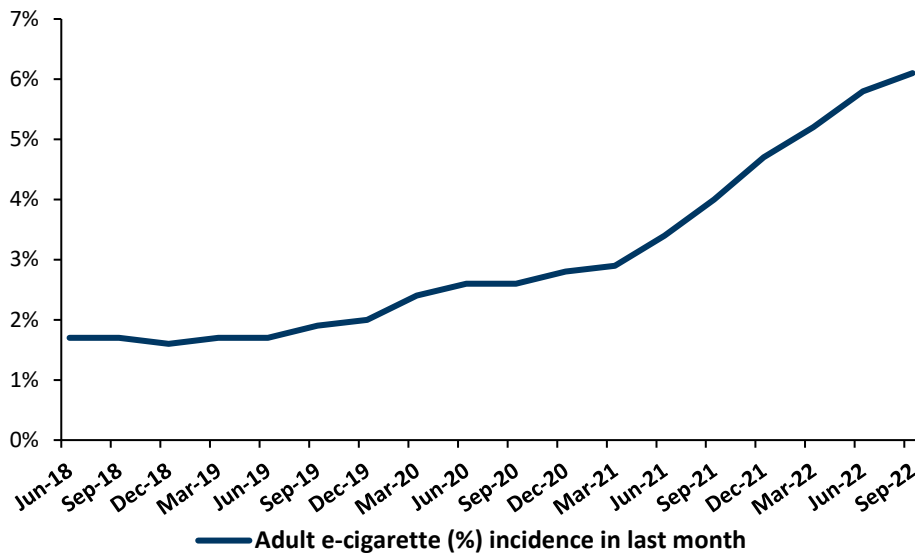
<https://www1.racgp.org.au/newsgp/clinical/gp-prescriber-route-rarely-used-for-nicotine-vapes>

²⁷ Based on the resident population, ABS 3101.0 National, state and territory population, Table 59.

where it is estimated that just under half a million *additional* adults used e-cigarettes.

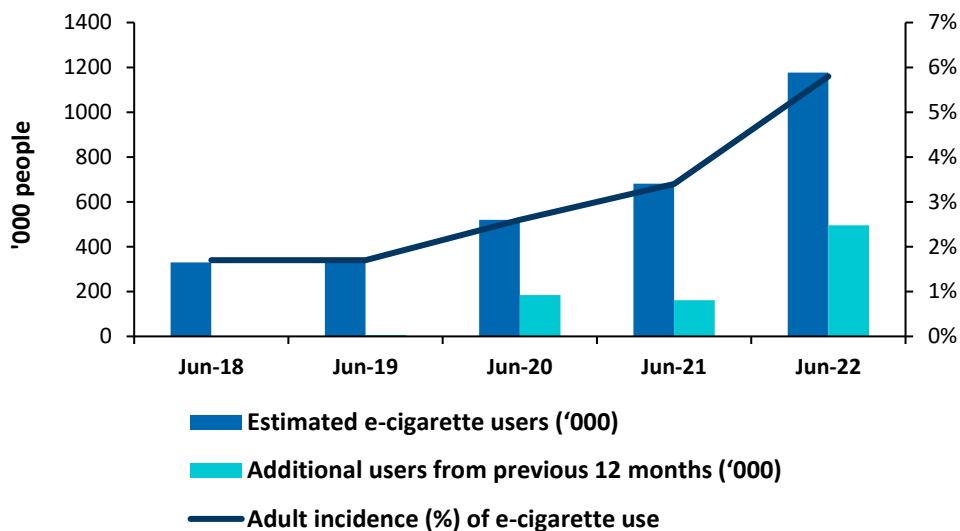
FTI Consulting has used incidence survey data for e-cigarettes and applied this to the ABS resident population (for June each year) to estimate the population using e-cigarettes at June from 2018 to 2022. The estimated incidence of e-cigarette use across the Australian 18+ population between June 2018 and September 2022 is shown in **Figure 40** (see next page). The implied population estimates (number) and additional number added since the previous year is shown in **Figure 41** (see next page).

Figure 40: Monthly incidence of adult e-cigarette use, Jun 2018 – Sep 2022



Source: Incidence data, Roy Morgan Single Source, Moving Annual Total September 2022.

Figure 41: Incidence of e-cigarette consumption, Jun 2018 – Jun 2022



Source: Incidence data, Roy Morgan Single Source, Moving Annual Total September 2022; ABS resident population (3101.0; TABLE 59. Estimated Resident Population By Single Year Of Age, Australia); FTI Consulting.

A separate study released by the Cancer Council²⁸ on the use of e-cigarettes in Victoria across a sample of 12,000 adults in Victoria indicates that 6.1% currently use, compared to 3.0% in 2018-19 across a sample of 8,284.²⁹ This is consistent with the estimates arising from the RMR e-cigarette incidence data undertaken across the Australian population.

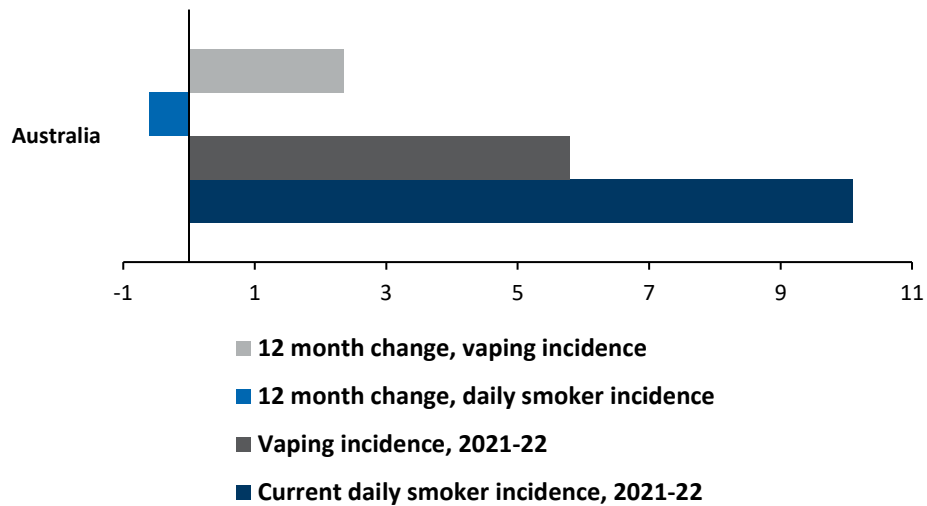
4.4.2. The shift to vaping in younger age brackets

Generally, incidence of daily smoking fell across Australia (including in NSW and Queensland) in 2021-22 with the exception of Victoria (+0.2 percentage points). The decline in the incidence of smoking corresponds to an increase in vaping across Australia (see **Figure 42**).

²⁸ Cancer Council Victoria, 2022. *E-cigarette use and purchasing behaviour among Victorian adults Findings from the 2018-19 and 2022 Victorian Smoking and Health Surveys*. Prepared by M. Bayly, E. Mitsopoulos, S. Durkin and M. Scollo. October 2022.

²⁹ Results are statistically significant to $p < 0.0001$ for all comparisons other than less than monthly use.

Figure 42: Incidence of vaping compared to daily smoker incidence, 2021 – 2022



Source: ABS, *Smoker Status 2020-21 – Australia, Table 1.3*; Roy Morgan Single Source July 2021-June 2022.

There is also a strong indication that the incidence of vaping is dependent on age bracket, with younger age brackets far more likely to commence vaping. RMR incidence data suggests that vaping incidence increases for the 18-64 year age bracket: 6.5% in June 2022 and increasing to 7.3% in September 2022.³⁰

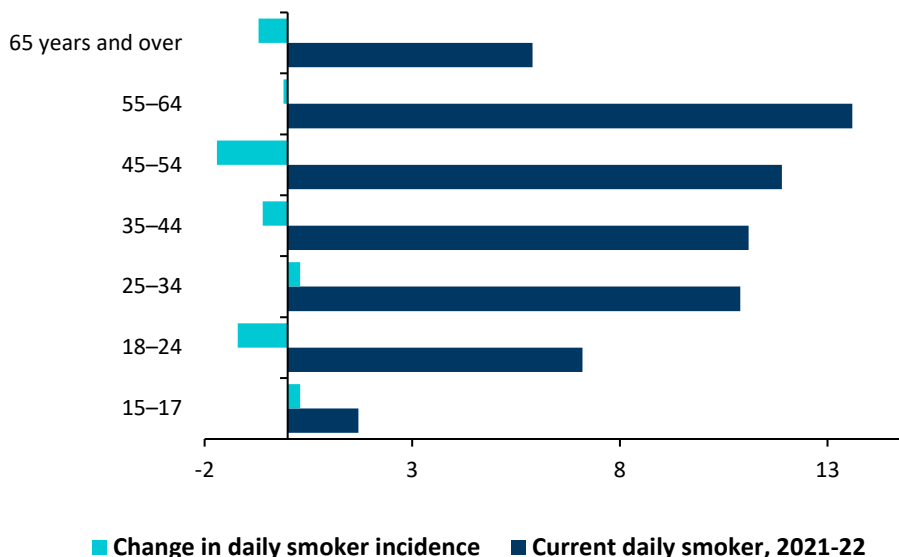
Cancer Council research on e-cigarette use and purchasing behaviour among Victorian adults indicates that incidence is highest among young males aged 18-24 years, males aged 25-29 years, females aged 18-24 years, and females aged 25-29 years.³¹ The Australian and New Zealand Journal of Public Health published research which suggests that almost half young people aged from 15–30 have tried vaping, with 14% of the 1006 people surveyed categorising themselves as ‘current users’.³² This corresponds to a decline in smoking incidence among 18-24 years (see Figure 43, next page).

³⁰ Roy Morgan Research, 2022. Vaping incidence in Australia among 18+ population.

³¹ Cancer Council Victoria, 2022. *E-cigarette use and purchasing behaviour among Victorian adults: Findings from the 2018-19 and 2022 Victorian Smoking and Health Surveys*. Prepared by Bayly, M. Mitsopoulos, E. Durkin, S. and Scollo, M. Centre for Behavioural Research in Cancer Council Victoria. October 2022.

³² Attwooll, J. 2023. ‘GP prescriber-route rarely used for nicotine vapes’.
<https://www1.racgp.org.au/news/gp/clinical/gp-prescriber-route-rarely-used-for-nicotine-vapes>

Figure 43: Australian smoking incidence by age, 2021 – 2022



Source: ABS, *Smoker Status 2020-21 – Australia, Table 1.3.*

4.4.3. Price as a key driver of the shift to vaping illicit consumption

A driver of the shift from smoking to vaping is price. High prices of duty-paid products encourage smuggling and domestic production of illicit tobacco products as well as a range of illicit vaping products.

The cost of illicit nicotine vapes range from \$5 to \$30 (per product), and they contain between hundreds to thousands of puffs per vaping product.³³ Market intelligence suggests that the average price in 2022 is \$24.90 (per product), and that puff counts per unit of vaping products varies between 600 to 4000 per unit. The estimated average ‘cost per puff’ on average is 1.3 cents per puff based on circa 2000 puffs per unit.

To compare the estimated per cigarette equivalent cost of vaping, it is necessary to assume a value for ‘puffs per cigarette’. However, it is not clear how many puffs equal the amount of one cigarette, given that the nicotine levels across all brands and styles of cigarettes and vapes vary.

³³ Guardian, 2022. ‘Australian government to crack down on nicotine e-cigarettes as rates of teen vaping skyrocket.’ <https://www.theguardian.com/australia-news/2022/nov/29/government-to-crack-down-on-nicotine-e-cigarettes-as-rates-of-teen-vaping-skyrocket>

Nonetheless, for illustrative purposes, we assume conservatively that there are 14 puffs per cigarette given that the average smoker finishes their cigarette between 8-14 puffs.³⁴ On this basis, we estimate the potential equivalent cost of vaping in December 2022 is:

- 18 cents per cigarette (on average across 2022) or
- \$4.41 per pack of 20 cigarettes (compared to \$42.10 per Marlboro 20 pack³⁵).

That is, vaping may be *less than 10%* of the cost of mainstream brands of cigarettes.

³⁴ Relx, 2023. 'How much nicotine is in a cigarette compared to vape? Accessed online in March 2023. <https://www.relxaustralia.com/blogs/news/how-much-nicotine-is-in-a-cigarette-compared-to-vape>

³⁵ Price at October 2022.

5. Summary

FTI Consulting Australia adopted a consumption model consistent with the model previously used by KPMG LLP to arrive at illicit tobacco consumption in Australia to ensure the comparability of the results between years. There are some minor exceptions to this, however these are not considered to have a material impact on the consistency of the estimates of illicit tobacco consumption in Australia in 2022.

5.1. The illicit tobacco market in Australia

Using a consistent approach with previous years, we have estimated the size of the illicit tobacco market in Australia. Below is a summary of our findings discussed in this document:

Total tobacco consumption

- In 2022, total tobacco consumption in Australia declined by 4.6%.
- The increases in total illicit tobacco consumption (16.3%) and non-domestic legal sales (1,495%) were more than offset by the decline in legal domestic sales (9.6%).

Illicit tobacco consumption

- In 2022, the consumption of illicit tobacco jumped by 16.3%.
- This change is driven by the increases in the consumption of all illicit tobacco components, including unbranded (4% increase), contraband (48.1% increase), counterfeit (27.3% increase) and domestic illicit plains (16.0% increase).
- Due to an increase in total illicit tobacco consumption and a decrease in total tobacco consumption, the proportion of illicit tobacco consumption in total consumption increased by 4.2 percentage points to 23.5%.

Unbranded (chop chop) consumption

- Unbranded tobacco consumption is the largest component of total illicit tobacco consumption with a 4% increase in the volume since 2021.
- The increase in unbranded tobacco consumption is driven by an increase in the number of consumers who reported purchasing unbranded (chop chop) tobacco.
- The purchase incidence has progressively increased by over 12 percentage points since the pre-COVID period.

Contraband consumption

- Contraband, the second largest component, grew by 48.1% in 2022 as international borders re-opened for international travellers following the COVID-19 pandemic.

Potential excise lost

- For the 2021-22 financial year, seizures by the ABF and ATO increased by 32% to 1,790 tonnes due to record ABF seizures of more than 1,679 tonnes of illicit tobacco. The total estimated duty evaded of ABF and ATO seizures (1,790 tonnes) in 2021-22 is \$2.86 billion.
- In 2022, the estimated consumption of illicit tobacco in Australia is 2.6 million kg. If this volume of illicit tobacco were instead consumed legally in Australia, we estimate it could generate \$4.2 billion in excise. This represents an increase of \$0.8 billion or 23.5% compared to the estimated value of lost excise in 2021 (of \$3.4 billion).

5.2. The legal tobacco market in Australia

Monitoring the changes in the legal tobacco market in Australia enhances our analysis of the movements in the illicit tobacco market in Australia. Further, it contributes to the consumption model estimates. Below is a summary of findings on the legal tobacco market in Australia in 2022:

- The legal tobacco market in Australia covers both domestic and non-domestic sales.
- In 2022, the legal domestic sales of tobacco in Australia dropped by 9.6%, representing a decrease in sales of both manufactured cigarettes and roll your own tobacco (by 8.7% and 12.6%, respectively).
- Where manufactured cigarette sales continued its steady decline, the roll your own tobacco sales represents a significant reduction, which seems to be part of a decline that has been observed since 2019 and coincides with an increase in unbranded tobacco sales.
- In 2022, despite the decrease in domestic tobacco legal sales, total non-domestic legal sales, which represents 0.1% of total tobacco consumption in Australia, increased by almost 15 times. This was driven by a massive increase in the number of both inbound and outbound international travellers to Australia after the Australian Government lifted the strict border closures applied during the COVID-19 pandemic.

Appendix 1. The consumer survey and estimating methodology of unbranded tobacco consumption

Unbranded tobacco consumption is the largest component of the illicit tobacco consumption. In 2022, it accounted for more than 61% of the total illicit tobacco consumption in Australia. Chapter 2 explained that the RMR consumer survey is the main data source of unbranded tobacco consumption. There are, however, a few other data sources contributing to the estimation of unbranded tobacco consumption. In this appendix, we provide more information about these data sources and explain our methodology of estimating unbranded tobacco consumption using these data sources.

The approach adopted to estimate the unbranded tobacco consumption is consistent with the method undertaken by KPMG LLP in previous years. However, we acknowledge that due to the nature of the qualitative analysis required for some components of the unbranded tobacco consumption, there might be minor discrepancies between FTI Consulting results and KPMG LLP results, which do not meaningfully affect the final estimates.

A1.1. What is RMR consumer survey?

The consumer survey is primary market research conducted by Roy Morgan Research (RMR) in Australia. The survey is carried out to estimate the size of the unbranded tobacco market in Australia.

RMR was founded in 1941. It has had expertise to run the consumer survey for all illicit tobacco studies conducted in previous years. These surveys provide information to study the purchase behaviour of adult smoking population in Australia, with respect to purchases made for their own consumption. Through the

survey, participants are asked many questions about their smoking behaviour and their consumption of illicit and legal tobacco products.

RMR provided the surveys on an annual basis during 2009 – 13, and biannually afterwards. Currently, the survey uses a computer-assisted web-based interviewing system. In previous years, the survey has benefitted from computer aided telephone interview as well. For the purposes of this report, 2,250 eligible participants in Q2 and 2,261 eligible participants in Q4 2022 completed the survey. The number of participants in 2022 are comparable with 2,248 participants in Q2 and 2,166 participants in Q4 2021. Hence, fewer participants have completed the survey in Q4 2022.

The survey covers both urban and rural areas in Australia, with exclusions of non-private dwellings and institutions, non-smokers and occasional smokers. RMR rim weights the participants' responses using some criteria it collects from respondents, such as location, age, gender, income, occupation and work status. FTI Consulting implements the weighted sample data in our analysis which are best representatives of the whole population of Australia.

A1.2. What is AIHW survey?

The Australian Institute of Health and Welfare (AIHW) is a secondary data source which supplies smoking population information to our model. It runs the National Drug Strategy Household Survey (NDSHS) every three years. The survey which focuses on attitudes and behaviours across a wide range of health and drug related issues, includes questions on smoking prevalence for 14 years of age and older smoking population in Australia.

AIHW has undertaken the surveys since 1991. The survey uses a combination of drop-and-collect, online and computer aided telephone interview methods. The survey excludes observations from non-private dwellings and institutions. The responses may under-report the smoking population. This is because the participants are known to under-report their smoking prevalence, primarily due to social pressures such as other household members or parents being present at the interviews. Further, some respondents may avoid responding smoking related questions due to social pressures at the time of interview.

The latest survey results released by AHW covers the 2019 calendar year. Regarding the three-yearly publication of the results, the next survey results should have been for 2022 calendar year. At the time of preparing this report, the 2022 AIHW survey results were not available. As such, we continued using CAGR approach to forecast the 2022 smoking population using previous AIHW survey results. Once the 2022 AIHW survey results are released, we would rebase the smoking population for all estimations conducted between 2019 – 22 using the updated AIHW survey results.

A1.3. How is unbranded tobacco consumption estimated?

Table 5 (presented on the next page) shows the estimation process required to arrive at the unbranded tobacco consumption in Australia. As the table shows, RMR consumer survey is used as the main data source besides AIHW and ABS.

Our primary data set is built based on the survey participants' responses who indicate they are over 19 years of age³⁶, consume unbranded tobacco and purchase unbranded tobacco for their own use. Once the participants' responses are filtered on this basis, we validate the consumers' overall smoking and unbranded smoking behaviour. For instance, a participant's unbranded smoking volume in a year could not exceed their overall smoking volume per year. This results in the elimination of some responses which helps to get more genuine outcomes.

The process explained in Table 5 is applicable to each quarter. As explained before, the RMR consumer survey is conducted on a 6-monthly basis (in Q2 and Q4). The unbranded tobacco consumption for the corresponding year (named blended unbranded tobacco consumption) equals the simple average of the estimated volume of unbranded tobacco consumptions in each survey 'quarter'.

As Table 5 shows, the adult population in Australia is extracted from the ABS and adult smoking population in Australia (in percentage terms) from AIHW. ABS updates its data every 5 years through the census. For the census years, actual data released by ABS are used in the model. For other years, however, the forecast adult population using the compound annual growth rate (CAGR) method is implemented. We have used this method to calculate the forecast adult population in 2022 where ABS latest population data covers 2021 census.

³⁶ For ethical considerations the participants must be 19 years of age to participate in the survey.

Table 5: Unbranded tobacco consumption estimation process³⁷

Step	Parameter	Reference
1	Quantity of unbranded tobacco purchased per occasion per consumer (g)	RMR consumer survey, Bi-annual (Q2 and Q4)
2	Frequency of unbranded tobacco purchased per annum per consumer (#)	RMR consumer survey, Bi-annual (Q2 and Q4)
3	Quantity of unbranded tobacco purchased per annum per consumer (g)	(1) x (2)
4	Adult population in Australia ('000) ³⁸	ABS - Annual
5	% adult smoking population in Australia (%) ³⁹	AIHW – Forecast annual
6	Number of adult smoking population in Australia ('000)	(4) x (5)
7	% Australian adult smoking population who consume unbranded tobacco (%)	RMR consumer survey – Bi-annual (Q2 and Q4)
8	Number of unbranded tobacco consumers in Australia ('000)	(6) x (7)
9	Quantity of unbranded tobacco consumption in Australia ('000 kg)	(3) x (8)

Source: FTI Consulting.

ABS has also rebased the Australian adult population data for 2017 and afterwards. In forecasting the adult population for 2022, we have replaced the previous forecasts of the Australian adult population (made by KPMG LLP for 2017 and

³⁷ Please note that the process is applied to each consumer survey result in 2022 (Q2 and Q4), and the full-year result is calculated using a simple average of the final estimates in Q2 and Q4.

³⁸ Please note that the adult definition in the AIHW survey is different from that in the RMR consumer survey. While the consumer survey considers Australians 18 years of age and older as adults, AIHW applies 14 years of age and above to its definition. We are correspondingly extracting 14+ population from the ABS for consistency with AIHW. In the consumer survey, the 19+ smoking population are interviewed. This, however, does not affect our estimation of unbranded tobacco consumption due to implementing the average volume of consumption per consumer per year.

³⁹ Ibid.

afterwards) with the ABS rebased data. This allow FTI Consulting to provide the most precise estimate of the adult smoking population.

AIHW data are released every 3 years. Where the latest update by AIHW was for 2019, we continued applying the forecast percentage of the adult smoking population for 2022 using the CAGR method. These forecasts need rebasing once the 2022 AIHW data are released.

Table 6 presents the results of the unbranded tobacco consumption estimation using the process explained in this appendix.

Table 6: Unbranded tobacco consumption, 2022

Step	Parameter	Q2 2022	Q4 2022	2022
1	Quantity of unbranded tobacco purchased per occasion per consumer (g)	125.7	164.9	
2	Frequency of unbranded tobacco purchased per annum per consumer (#)	17.6	15.5	
3	Quantity of unbranded tobacco purchased per annum per consumer (g)	2,210.3	2,556.9	
4	Adult population in Australia ('000)	21,277.4	21,277.4	
5	% adult smoking population in Australia (%)	9.9%	9.9%	
6	Number of adult smoking population in Australia ('000)	2,110.3	2,110.3	
7	% Australian adult smoking population who consume unbranded tobacco (%)	30.7%	32.7%	
8	Number of unbranded tobacco consumers in Australia ('000)	647.9	690.1	
9	Quantity of unbranded tobacco consumption in Australia ('000 kg)	1,432.0	1,764.5	1,598.2

Source: FTI Consulting.

Appendix 2. The empty discarded packs survey and estimating methodology of other illicit tobacco consumption components

As discussed in chapter 2, the total illicit tobacco consumption consists of four major elements, including unbranded, contraband, counterfeit, and domestic illicit plains. In 2022, contraband, counterfeit and domestic illicit plains consumptions made up almost 39% of the total illicit tobacco consumption together. EDPS is the major data source for these illicit components, however, other primary and secondary data sources such as consumer survey, AIHW, ABS and IRI scan contribute to the final figures of these parameters. In this appendix, we provide more information about EDPS and our methodology to calculate each of the corresponding illicit tobacco components. The methodology used is consistent with the approach undertaken by the KPMG LLP in previous years.

A2.1. What is the empty discarded packs survey?

The empty discarded packs survey (EDPS) is an independent bi-annual study undertaken by WSPM. The survey collects 16,000 empty discarded cigarette packs across 16 population centres in Australia. WSPM has been undertaking the EDPS since 2019. Prior to WSPM, AC Nielsen and MSIIntelligence (MSI) were collecting the sample information.

For each pack collected by WSPM as sample, WSPM identifies its brand and country of origin, and domestic or non-domestic origin. Also, after consultation with the participating manufacturers in Australia (ITA, BATA and PML), it identifies whether a collected sample is genuine or counterfeit. Among all, the most important outputs of the survey for our modelling purposes include the number of collected packs and the number of weighted sticks per pack.

As the survey is not subject to respondents' behaviour, it is considered as a survey with considerably less sampling error. The survey covers locations comprising of over 75% of Australia's population.

EDPS results provide key inputs to our estimations of non-domestic manufactured cigarettes, counterfeit consumption, domestic illicit plains, non-domestic illicit whites, contraband and several other inputs to the analyses. EDPS results are available for Q2 and Q4 in each year. In many cases, we use the simple average of the parameters calculated based on Q2 and Q4 data sets.

A2.2. How is counterfeit consumption estimated?

Counterfeit cigarettes are manufactured cigarettes that are illegally manufactured with a legal branding or trademark without any consent from the trademark owner. These cigarettes are usually smuggled to Australia in a large scale through ports and other channels.

The method implemented to estimate the volume of counterfeit consumption in Australia includes extracting the counterfeit incidence from the EDPS results for each survey (Q2 and Q4) in percentage terms, and applying it to the volume of total manufactured cigarettes consumption in kg terms.

Counterfeit incidence shows the percentage of counterfeit packs identified by the Australian manufacturers participating in the survey during the EDPS, from the total number of packs collected for the survey. The average counterfeit incidences of Q2 and Q4 are calculated for input to the consumption model.

The other parameter required for estimating counterfeit consumption is the volume of total manufactured cigarettes. This parameter includes the volume of legal domestic manufactured cigarettes and total (legal and illicit) non-domestic manufactured cigarettes.

The volume of domestic legal sales is calculated using IRI scan data and estimates provided by the main manufacturers (ITA, BATA and PML). To estimate the volume of total non-domestic manufactured cigarettes, FTI Consulting uses the non-domestic incidence extracted from EDPS results for each survey. The non-domestic incidence shows the proportion of non-domestic cigarettes recorded in the EDPS. The average non-domestic incidence of Q2 and Q4 is calculated and used in the estimations.

Following the formula provided in **Table 7**, we use legal sales of domestic manufactured cigarettes and total non-domestic manufactured cigarettes to arrive at the total manufactured cigarettes. The volume of counterfeit cigarettes is then estimated by applying the average counterfeit incidence to the total manufactured cigarettes.

This method is consistent with the approach undertaken in previous years to estimate the volume of counterfeit consumption. Table 7 shows the process of estimating counterfeit consumption using EDPS survey results.

Table 7: Counterfeit consumption estimation process

Step	Parameter	Reference
1	Legal sales of manufactured cigarettes ('000 kg)	IRI scan, Main manufacturers data - Annual
2	Average non-domestic incidence (%)	EDPS - Bi-annual (Q2, Q4)
3	Total manufactured cigarettes consumption ('000) kg	(1) / (100% - (2))
4	Average counterfeit incidence (%)	EDPS - Bi-annual (Q2, Q4)
6	Counterfeit consumption ('000 kg)	(3) x (4)

Source: FTI Consulting.

Applying the methodology described above provides the results for 2022 counterfeit consumption presented in **Table 8**.

Table 8: Counterfeit consumption, 2022

Step	Parameter	Q2 2022	Q4 2022	2022
1	Legal sales of manufactured cigarettes ('000 kg)	NA	NA	6,659.5
2	Average non-domestic incidence (%)	11.7%	13.0%	12.4%
3	Consumption of total manufactured cigarettes ('000) kg	NA	NA	7,597.9

4	Average counterfeit incidence (%)	1.4%	0.5%	0.9%
6	Counterfeit consumption ('000 kg)	NA	NA	70.0

Source: FTI Consulting.

A2.3. How is domestic illicit plains consumption estimated?

Domestic illicit plains is one of the two components of illicit white cigarettes which contributes to the total illicit consumption. It refers to the flows of illicit whites brands that usually have packaging designed for the domestic Australian market.

The primary data source of domestic illicit plains is EDPS results. The general methodology is that we first extract a list of brands primarily identified as domestic illicit plains from the EDPS results. These brands are then validated through analysis of secondary data sources to arrive at the final list of domestic illicit plains brands. Once the volume of domestic illicit plains is identified, using the weighted number of sticks for these brands, the proportion of these brands from the volume of total EDPS packs is calculated to arrive at the domestic illicit plains (in percent terms).

Similar to the counterfeit consumption method, this percentage is applied to the consumption of total manufactured cigarettes to arrive at domestic illicit plains in kg terms. This method is consistent with the approach undertaken in previous years for this study.

The process of identifying the primary list of domestic illicit plains is described below:

- Using EDPS results for each quarter, a brand analysis is undertaken to identify a preliminary list of domestic illicit plains brands. These brands are the result of excluding all supplied brands by known domestic manufacturers from the list of all brands identified in the EDPS. At this stage, the number of weighted sticks for each illicit brand is extracted from EDPS results.
- Brands are cross-checked using other data sources, such as Australian Retail Tobacconist (latest available, 2021), ABF permits⁴⁰ and industry partners' data.

⁴⁰ ABF permit information was cited for the brand analysis, however it identifies legal manufacturers/distributors rather than specific brands on which the analysis is based.

At this stage, the brands identified as non-illicit are eliminated from the preliminary list.

- FTI Consulting then compares the volume of each illicit brand identified in the list with the volume of legal sales of that brand (sourced by IRI scan data). If the preliminary identified illicit brand’s volume was equal to or more than 99% of legal sales of that brand, or if the brand was not available in the list of brands reported by IRI scan data, it means the corresponding brand is illicit. Otherwise, if this proportion was less than 99%, it means the identified brand is not an illicit brand and should be eliminated from the list.
- FTI Consulting then lists the illicit brands identified through the above process and calculate the proportion of each brand from the volume of total packs collected by EDPS (using weighted sticks).

Table 9 summarises the process of preparing the preliminary list of domestic illicit plains brands through a simple example.

Table 9: Example: Process to identify primary list of domestic illicit plains brands

Proposed illicit brand from EDPS	Volume identified by EDPS (bn sticks) (1)	Legal sales of the brand (bn sticks) (2)	% (1)/(2)	Illicit? (Y/N)
Brand A	0.01	Not available	Not available	Yes
Brand B	0.02	0.02	99.1%	Yes
Brand C	0.01	0.00	25%	No

Source: FTI Consulting.

Once the final list of the domestic illicit plains was prepared, FTI Consulting calculate the sum of proportion of illicit brands from the total EDPS packs in each quarter (expressed in percentage), calculate the weighted average of these estimates for 2022, and apply it to the consumption of total manufactured cigarettes to arrive at the volume of domestic illicit plains in tonnes. The results of our domestic illicit plains estimation are provided in Table 10 (see next page).

Table 10: Domestic illicit plains consumption, 2022

Step	Parameter	Q2 2022	Q4 2022	2022
1	% Volume of domestic illicit plains from EDPS (%)	0.9%	1.7%	1.0%
2	Consumption of total manufactured cigarettes ('000 kg)	NA	NA	7,597.9
3	Domestic illicit plains consumption ('000 kg) ((1) x (2))	NA	NA	77.7

Source: FTI Consulting.

A2.4. How is contraband consumption estimated?

To calculate the contraband consumption, we first need to know that the contraband and counterfeit consumptions are the two components making up non-domestic illicit consumption. As such, we first need to calculate the total non-domestic illicit consumption, and then, eliminate the contraband consumption already estimated (explained in the last section). Because EDPS is the main data source of counterfeit consumption, it would be considered as the main source of contraband consumption as well. Further, we use EDPS results to identify the key source countries to estimate the legal tobacco brought to Australia by international travellers through the Australian borders.

Table 11 (see next page) shows our approach undertaken to estimate the contraband consumption. This approach is consistent with the method implemented by KPMG LLP in previous years. Among the parameters listed in Table 11, we have explained the methodology to estimate counterfeit consumption, legal sales of manufactured cigarettes and consumption of total manufactured cigarettes in the last section.

Table 11: Contraband consumption estimation process

Step	Parameter	Reference
1	Counterfeit consumption ('000 kg)	See counterfeit consumption section
2	Legal sales of manufactured cigarettes ('000 kg)	IRI scan data, main manufacturers' data
3	Consumption of total manufactured cigarettes ('000 kg)	See counterfeit consumption section
4	Non-domestic legal inbound consumption ('000 kg)	EDPS, ABS, Previous years' estimates
5	Non-domestic legal outbound consumption ('000 kg)	Consumer survey results, EDPS, AIHW, ABS
6	Non-domestic legal consumption ('000 kg)	(4) + (5)
7	Total non-domestic consumption ('000 kg)	(3) – (2)
8	Non-domestic illicit consumption ('000 kg)	(7) – (6)
9	Contraband consumption ('000 kg)	(8) – (1)

Source: FTI Consulting.

Non-domestic legal sales is another component contributing to the contraband consumption. It indicates the legal tobacco consumption carried to Australia by international travellers. Once the non-domestic legal consumption was estimated, it is deducted from the total non-domestic consumption to arrive at the non-domestic illicit consumption.

Non-domestic legal tobacco is sourced by data driven by three types of international travellers, including non-Australian short-term visitors (named 'inbound' travellers), permanent settlers and Australians returning to Australia (named 'outbound' travellers). ABS is the main source of data for these three components.

In all these cases, we consider international travellers' movements only for the key source countries. Key source countries include countries with the highest inflow of non-domestic tobacco to Australia. EDPS is the data source for the identification of key source countries. For 2022, we used EDPS results for both Q2 and Q4 together

to determine these countries. As presented in **Table 12**, these countries include China, Malaysia, Korea, UK, Japan, Taiwan, USA, Indonesia and Philippines.

Table 12: Non-domestic legal inbound consumption, 2022⁴¹

Key source countries (2022) - EDPS	Inbound visitor arrivals (million)	% Adult population	% Adult smoking population	Visitors' tobacco allowance (g)	Total ('000 kg)
China	0.09	67%	28%	25	0.4
Malaysia	0.09	65%	21%	25	0.5
Korea	0.07	69%	20%	25	0.3
UK	0.41	60%	13%	25	0.8
Japan	0.08	57%	15%	25	0.2
Taiwan	0.03	69%	12%	25	0.1
USA	0.33	61%	13%	25	0.7
Indonesia	0.09	63%	37%	25	0.5
Philippines	0.09	59%	23%	25	0.3
Non-domestic legal consumption ('000 kg)					3.5
Data source	ABS	Estimated in 2020 and 2021 by KPMG LLP	Estimated in 2020 and 2021 by KPMG LLP	ABF	

Source: FTI Consulting.

Notes: In absence of Euromonitor data for % adult population and % adult smokers' population in 2022 for key source countries, we implemented the latest available estimates by KPMG LLP used in previous years. These include 2021 estimates for China, Japan, Malaysia, Korea, UK, USA, and Taiwan, and 2020 estimates for Indonesia and Philippines.

ABS has stopped publishing data for permanent settlers' movements in 2017. Following a methodology consistent with the approach undertaken in previous

⁴¹ Inbound travellers indicates non-Australian travellers to Australia, while outbound travellers refer to Australians returning to Australia.

years, an uplift factor is applied using the average of five-year permanent settlers' movements data from ABS for the duration of 2013 – 17. We then applied the estimated uplift to the number of non-Australian short-term visitors travelling from key source countries. Table 12 presents the estimates for non-domestic legal inbound consumption, the required inputs and their data sources. It should be noted that Euromonitor is typically the main data source for the number of adult smoking population in each country. At the time of preparing this report, the required data from Euromonitor was not accessible, hence FTI Consulting used the latest available estimates used by KPMG LLP in previous years (including 2020 and 2021). As these estimates are demographic measurements, we do not expect significant changes moving from 2020 and 2021 to 2022. Further, possible minor variations in 2022 do not cause significant contributions to our estimates. These estimates will be rebased once the latest data inputs from Euromonitor becomes available.

Table 13 (see next page) shows the estimates of non-domestic legal outbound consumption, the required inputs and data sources. ABS is the source of data for the number of Australians returning to Australia from source countries.

The proportion of smoking population is sourced by AIHW data, however, as AIHW data are published every three years and there was no data for 2022, we used CAGR method to forecast this figure for 2022. This is the input already used in the consumption model for unbranded tobacco. FTI Consulting also collects the required data for the percentage of Australian smokers who purchase tobacco for their own use from the consumer survey results. These parameters finally provide the volume of consumption by the outbound travellers to Australia.

Table 13: Non-domestic legal outbound consumption, 2022⁴²

Step	Parameter	Reference	Amount (2022)
1	Overseas visits to the key source countries (million)	ABS	1.6
2	Non-domestic uplift (%) ¹	Previous years' assumption	10%
3	% Smokers' population (%)	AIHW	9.9%
4	% Smokers buying tobacco	Consumer survey results	57.6%
5	Smokers' population buying tobacco (million)	(100% + (2)) x (1) x (3) x (4)	0.1
6	Outbound traveler allowance (g)	ABF	25
7	Non-domestic legal outbound ('000 kg)	(5) x (6)	2.9

Source: FTI Consulting.

Notes: 1: For consistency with the estimations in previous years, we continued applying 10% uplift to the estimated non-domestic legal outbound.

The estimated non-domestic legal consumption using the process explained above sits beside other parameters (presented in Table 14) and follows the methodology described earlier, to arrive at the contraband consumption. Table 14 (see next page) presents the results of our estimated consumption of contraband tobacco in 2022.

⁴² Outbound travellers refer to Australians returning to Australia, while Inbound travellers indicate non-Australian travellers to Australia.

Table 14: Contraband consumption, 2022

Step	Parameter	Amount (2022)
1	Counterfeit consumption ('000 kg)	70.0
2	Legal sales of manufactured cigarettes ('000 kg)	6,659.5
3	Consumption of total manufactured cigarettes ('000 kg)	7,597.9
4	Non-domestic legal inbound consumption ('000 kg)	3.5
5	Non-domestic legal outbound consumption ('000 kg)	2.9
6	Non-domestic legal consumption ('000 kg)	6.4
7	Total non-domestic consumption ('000 kg)	938.3
8	Non-domestic illicit consumption ('000 kg)	932.0
9	Contraband consumption ('000 kg)	862.0

Source: FTI Consulting.

Appendix 3. Non-domestic illicit whites

Illicit whites cigarettes are manufactured cigarettes that are usually produced legally in one country and transited to Australia illegally. These cigarettes do not have a legal distributor in Australia, and more importantly, they are sold without paying tax to the Australian Government.

Illicit whites cigarettes includes domestic illicit plains, and non-domestic illicit whites. Domestic illicit plains include brands with packaging design for the Australian domestic market. In appendix 2, we explained how we estimate the volume of domestic illicit plains. On the other hand, non-domestic illicit whites do not have plain packaging design for the Australian domestic market.

The important point about these two illicit whites components is that domestic illicit plains is a separate contributor to the illicit tobacco consumption model and should be added to the other illicit tobacco consumption components to estimate the total illicit tobacco consumptions in Australia. Contrasting this, non-domestic illicit whites does not require separate estimation as it is already included in the model, although it is separately estimated for monitoring and reporting purposes.

In fact, as explained in Appendix 2, the method to calculate contraband consumption is to deduct counterfeit consumption from total non-domestic illicit consumption. Thus, as a component of non-domestic illicit consumption, non-domestic illicit whites is already included in the contraband consumption.

FTI Consulting understands that from 2016, KPMG LLP started making a distinction between domestic illicit plains and non-domestic illicit whites. Prior to that, only non-domestic illicit whites was taken into account and domestic illicit plains didn't exist in the model.

Similar to domestic illicit plains, EDPS is the main data source for identifying and estimating the volume of non-domestic illicit whites. Our methodology is to identify a primary list of non-domestic tobacco manufacturers and their corresponding manufactured brands using EDPS data in Q2 and Q4. FTI Consulting then identifies

whether the distributor of these products is registered legally in Australia, and uses secondary data sources to further refine the primary list and arrive at a final list of non-domestic illicit tobacco manufacturers.

Compared to the method adopted by KPMG LLP in previous years, FTI Consulting’s method covers a wider range of non-domestic manufacturers and brands. This is because our method is mostly manufacturer-based, while the KPMG LLP’s approach was mostly brand-based. Unlike the approach previously adopted by KPMG LLP, FTI Consulting has not used IRI scan data or the Australian Retail Tobacconist data to further eliminate the brands and manufacturers from our primary list.

Our approach leads to a higher volume of non-domestic illicit whites, though the estimation of non-domestic illicit whites is only used for reporting purposes and does not add to the estimated illicit tobacco consumption.

Table 15 presents the estimated non-domestic illicit whites. The output presented in this table indicates that 20.8% (or 179.8 tonnes out of 862.0 tonnes) of contraband consumption is driven by non-domestic illicit whites. It is worth mentioning that due to minor updates in the methodology, the estimated non-domestic illicit whites in 2022 is not comparable with the figures estimated in previous years.

Table 15: Non-domestic illicit whites, 2022

Step	Parameter	Q2 2022	Q4 2022	2022
1	% Volume of non-domestic illicit whites from EDPS (%)	2.5%	2.3%	2.4%
2	Total manufactured cigarettes consumption ('000 kg) ⁴³	NA	NA	7,597.9
3	Domestic illicit plains consumption ('000 kg) ((1) x (2))	NA	NA	179.8

Source: FTI Consulting.

⁴³ See Appendix 2 for the estimation method.

Appendix 4. Other approaches to estimate illicit tobacco consumption

A4.1 ATO tax gap approach

A key alternative approach to that taken in the annual estimation of the illicit tobacco market is the ATO methodology for calculating the tax gap. The ATO estimates the 'net gap' or the size of the illicit tobacco market that is *not seized* through estimating:

1. The size of the illicit tobacco arriving through importation
2. The size of domestic chop-chop cultivation
3. The impact of the licensed warehouse system (although this is no longer included and has recently been zero).

The size of the illicit tobacco arriving through importation estimations (item 1) are based on ABF intelligence for tobacco seizures from 2015-16 excluding targeted detections and high-risk seizures. This is used to inform the volume of undetected illicit tobacco to market which reflects the 'leakage' rate for illicit tobacco reaching Australia.

The ATO uses this implied leakage rate to extrapolate across the total import volumes for illicit tobacco (based on legal clearances) via sea cargo, air cargo and international postal. The leakage rate is adjusted by comparing illicit to legal purchase prices: an increasing price difference indicates illicit tobacco supply is increasing.

A4.2 Comparing the results of the ATO methodology to the consumption model

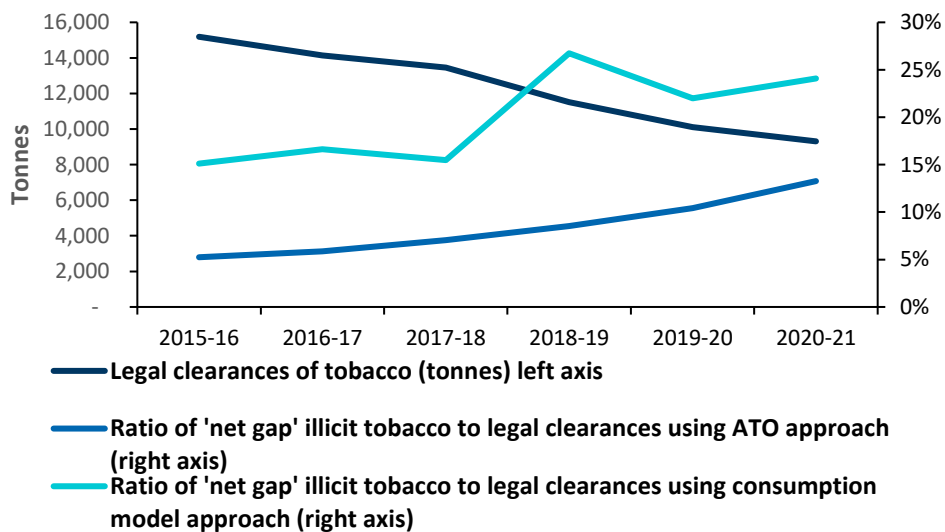
Using the ATO tax gap methodology, it can be observed that the ratio of illicit tobacco consumption to legal clearances of tobacco has increased in percentage terms each year from 5% in 2015-16 to 13% in 2020-21. Comparing this to the

consumption model approach adopted in this (and previous) studies, the consumption model methodology generates a similar change (increase) year-on-year in terms of this ratio as compared to the ATO tax gap approach.

The key difference between the approaches is in the starting estimation of the leakage rate in 2015-16 (refer **Figure 44**). While the absolute size of the market varies significantly between methodologies, there is considerable consistency in the change over time (for instance, comparing the ATO 'Net gap' estimates and the Consumption model 'Net gap' estimates).

At the time of this study, legal clearances for 2021-22 has not been released to enable analysis of the relationship described above for the 2021-22 financial year.

Figure 44: Ratio of legal clearances to 'net gap' under ATO tax gap and consumption model approaches



Source: FTI calculations.

ROBERT SOUTHERN

SENIOR MANAGING DIRECTOR

Robert.Southern@fticonsulting.com

LAUREN RETIEF

DIRECTOR

Lauren.Retief@fticonsulting.com

DR ALI SOTOUDEH

SENIOR CONSULTANT

Ali.Sotoudeh@fticonsulting.com

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