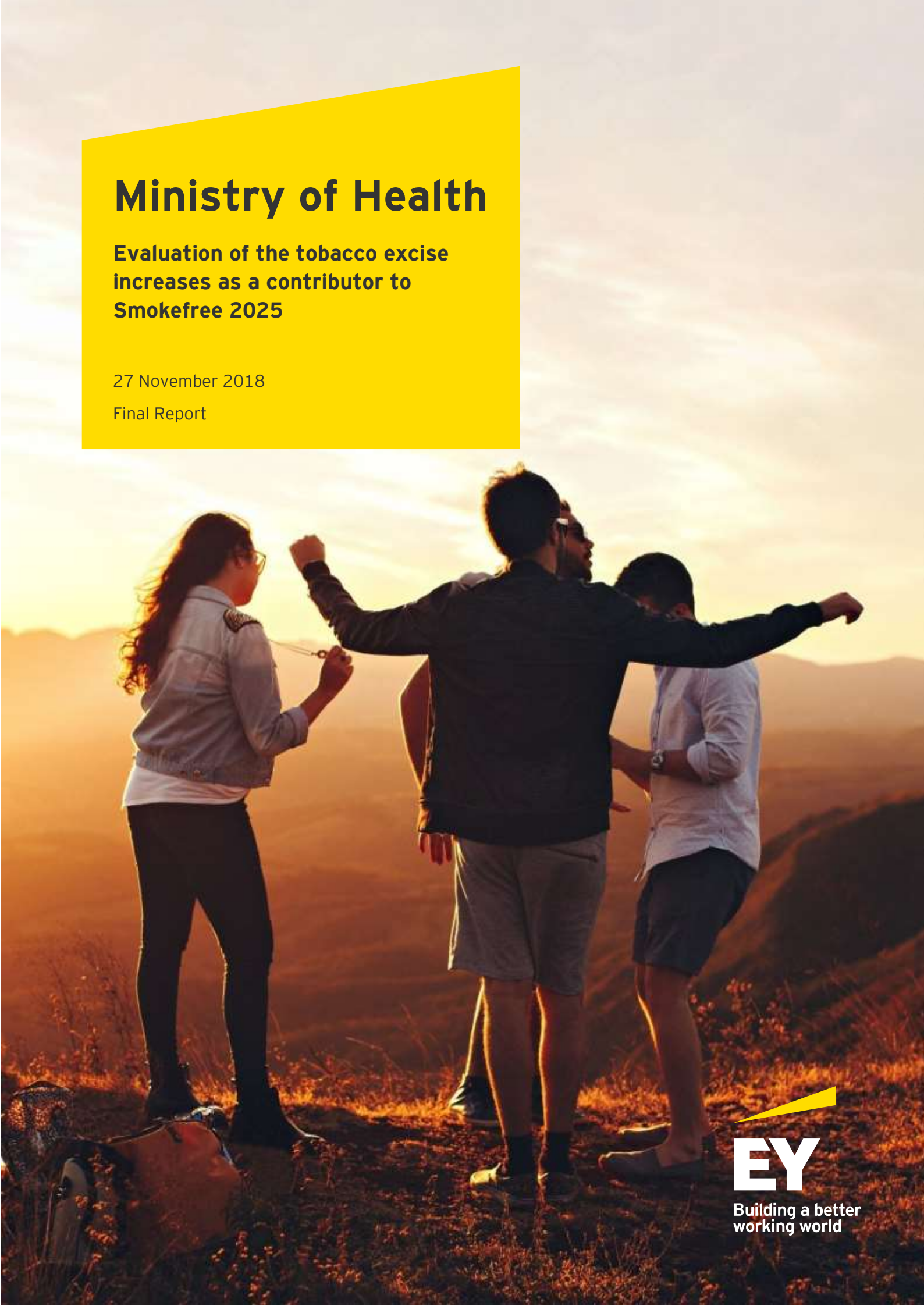
Ministry of Health

Evaluation of the tobacco excise increases as a contributor to Smokefree 2025

27 November 2018

Final Report



EY

Building a better working world

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Ernst & Young Transaction Advisory Services Limited ("EY") was engaged on the instructions of the Ministry of Health ("the Ministry")] to undertake an Evaluation of Tobacco Excise Increases as a Contributor to Smokefree 2025 ("Project"), in accordance with our Consultancy Services Order dated 15 June 2018.

The results of EY's work, including the assumptions and qualifications made in preparing the report, are set out in EY's report dated 6 October 2018 ("Report"). The Report should be read in its entirety including the cover letter, the applicable scope of the work and any limitations. A reference to the Report includes any part of the Report. No further work has been undertaken by EY since the date of the Report to update it.

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27 November 2018

Ministry of Health, Tobacco Control Programme
Attention: Leigh Sturgiss, Sally Stewart and Jane Chambers
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Evaluation of Tobacco Excise Increases as a Contributor to Smokefree 2025

Dear Leigh, Sally and Jane

Enclosed is our final report for the Evaluation of Tobacco Excise Increases as a Contributor to Smokefree 2025.

The report has been prepared in accordance with our Consultancy Services Order dated 15 June 2018.

We look forward to discussing our final evaluation report with you in due course. Please contact either Susie Keegan or myself should you have any questions regarding this report.

Yours sincerely,

Chris Money

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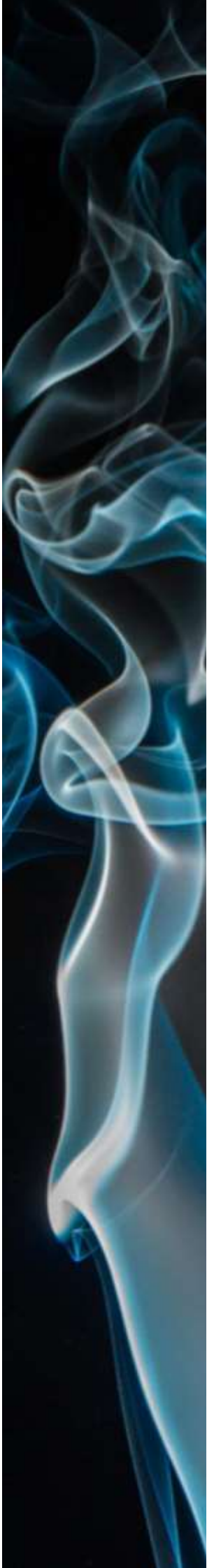

List of terms used in this report	
Acronym	**Description**
ASH	Action on Smoking and Health
BODE3	Burden of Disease Epidemiology, Equity, Economics
CI	Confidence Interval
Consumer Price Index (CPI)	Standard measurement of inflation used in New Zealand. It is based on the price level of a basket of commonly used consumer goods.
Current smoker	An individual who smokes at least monthly, and has smoked more than 100 cigarettes in their whole life
Daily smoker	A current smoker who smokes every day
E-cigarettes	Electrical devices that mimic smoked tobacco products but produce a vapour (rather than smoke) by heating a solution (e-liquid) that the user inhales
Equity	The absence of avoidable or remediable differences among groups of people
Ex-smoker	An individual who has smoked more than 100 cigarettes in their whole life and who has stopped smoking more than one month ago
F2F Interview	Face-to-face interview
Heavy smoker	An individual who smokes at least 21 cigarettes per day
HEETS	Specially designed tobacco products that do not produce smoke
HES	Household Economic Survey
Hypothecation	Hypothecation of a tax is the dedication of the revenue from a specific tax for a particular expenditure purpose
HLS	Health and Lifestyles Survey
HPA	Health Promotion Agency
IARC	International Agency for Research on Cancer
NASEM	National Academies of Sciences, Engineering and Medicine
Nicotine Replacement Therapy (NRT)	Nicotine-containing medications (usually delivered by patch, gum or lozenge) designed to assist smokers with quitting tobacco use

List of terms used in this report	
Acronym	**Description**
NMNP	Non-Māori Non-Pacific
NZHS	New Zealand Health Survey
NZSM	New Zealand Smoking Monitor
Price elasticity	Price elasticity of demand for tobacco shows the responsiveness, or elasticity, of tobacco consumption to change in its price. It gives the percentage change in quantity demanded in response to a one percent change in price. For example, a price elasticity of demand of -0.5 reveals that a 10% increase in the price of tobacco leads to a 5% decrease in consumption of tobacco.
QALY	Quality-Adjusted Life Year.
RCTs	Randomised Controlled Trials
Regressive tax	A tax applied uniformly, taking a larger percentage of income from low-income earners than from high-income earners.
Roll-your-own (RYO)	Loose tobacco that the user packs into a cigarette themselves
SES	Socio-economic Status
SmokeFree Environments Act 1990 (SEA)	The main legislation regulating the composition, sale and use of smoked tobacco products in New Zealand
Smokeless tobacco	A solid tobacco product that is heated to the point of vapourising nicotine and other chemicals, rather than being combusted and producing a smoke. HEETS is a particular brand of smokeless tobacco
Smoking Cessation Services (SCS's)	Services designed to aid smokers in quitting smoking or reducing the amount they smoke
TETI	Tobacco Excise Tax Increase
TFG	Tobacco Free Generation
Vaping	The use of e-cigarettes
WHO FCTC	World Health Organisation Framework Convention on Tobacco Control
YIS	Youth Insights Survey
YTSS	Year Ten Snapshots Survey

Report disclaimer

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Literature review

There is a vast body of literature on the subject of tobacco control, as such the literature review focused specifically on the question of what health and behavioural effects are attributable to excise taxes. This field in itself is very large, and as such a number of high quality systematic reviews have been conducted to synthesise evidence. The literature review leans heavily on the quality assessments and findings of the systematic reviews when dealing with international evidence.

All systematic reviews have been assessed in detail. The evaluation has then further assessed the most significant literature and research.

Secondary data analysis

A comprehensive analysis of Statistics New Zealand data and data from the health sector has been undertaken. The primary source of deriving elasticities has been through the Integrated Data Infrastructure (IDI) capability. We have relied on this because the IDI allows us to track groups consistently over time. This is critical when assessing elasticities because it allows us to assess how smoking decisions for the same types of people evolve (in other words we are able to track cohorts based on their generational and socioeconomic changes). We have further assessed elasticities through the Household Economic Survey (HES), however this does not allow consistent application to elasticities, as it does not track groups over time.

Due to the limitations of available data:

- It is difficult to illustrate the comparative effect of the most recent tax increases on the smoking population, as the latest publicly available data was typically 2016.
- It is difficult to clearly illustrate the effect of the tax increases on the smoking population using the HES as it does not provide a robust enough longitudinal sense of expenditure, as well as the latest year available only being the 2012/13.

The analysis of price elasticity does not attempt to control for the effects of other underlying variables on the price elasticity of tobacco. Attempts were made to collect sufficient data on these potential factors. However, data was either non-existent, inconclusive, or did not cover a sufficient period to be able to quantify the impact they may have had in the absence of the tax excise increases

Qualitative methodology constraint

Group discussions and in-depth interviews evolve creative ideas and generate hypotheses. They are not intended to be a precise and definitive index of what happens, but rather an indicator of perceptions and experience. Findings from the qualitative research component should be interpreted with that constraint in mind.

Quantitative (community survey) methodology constraint

There are three key limitations in relation to the community survey:

- The representativeness of the sample – while a range of methods were employed to make sure the panel is representative of the broader population, it should be acknowledged that respondent participation in internet surveys is self-selecting and requires a certain degree of internet proficiency which may introduce a degree of bias in the survey sample
- Recall and social desirability bias

  The reliance on self-reporting.

- These limitations should be considered when interpreting the findings in this report.

Executive summary

Context

The New Zealand Government (the government) is committed to reducing the burden of death and disease caused by smoking.

In March 2011, the government adopted Smokefree Aotearoa 2025 (Smokefree 2025), an ambitious goal for New Zealand to reduce the prevalence of daily smoking to minimal levels by 2025 (generally understood to be below 5% of the population).

While there has been a significant decrease in smoking prevalence and tobacco consumption in New Zealand over the last decade, smoking remains one of the largest modifiable health risk factors in New Zealand. It causes a significant amount of preventable disease and premature death and contributes markedly to health inequities due to the difference in smoking rates between Māori and Pacific peoples and the rest of the population.

Achieving Smokefree 2025 will be challenging. It has been suggested that without further changes to current tobacco control policies targets will be missed by a wide margin - for Māori and Pacific populations in particular.

Based on current projections, the mid-term targets set for 2018 will not be met.

New Zealand's tobacco control programme is broad and includes a range of interventions designed to achieve three goals:

- Stopping people (particularly children and young people) from starting to smoke
- Supporting those that are smoking to quit
- Protecting people from the effects of second-hand smoke.

Tobacco tax policy is an important component of New Zealand's tobacco control programme. Since January 2010, the government has increased tobacco excise by at least CPI+10% each year. The current series of increases in tobacco excise, though, are scheduled to end in January 2020. After that, and with no further policy change planned, tobacco excise will only be adjusted for CPI.

Purpose

In June 2018, the Ministry of Health engaged Ernst & Young Transaction Advisory Services Limited (EY) to conduct an evaluation of the tobacco excise increases as a contributor to Smokefree 2025 (the "evaluation").

The over-arching purpose of the evaluation was to:

- Understand the impact of the policy in changing people's behaviours and perceptions
- Understand the various impacts of the policy on smokers and their families
- Explicitly consider the impact for Māori (males/females), Pacific peoples, low-income populations, and young people (under the age of 18 years and 18-24 years)
- Understand any unintended consequences of tobacco price increases, such as on crime (e.g. robberies and illicit trade)
- Understand any strategies the tobacco industry have implemented to minimise the impact of the tax increases
- Help inform the future direction of policies which use price as a lever to reduce the harm from tobacco by considering the likely future trajectory across the various impacts

Methodology

EY employed a best practice mixed methods design for the evaluation of the tobacco excise increases. The approach involved:

- A non-systematic review of New Zealand and international literature on the effects of tobacco excise tax increases
- An analysis of available secondary data pertaining to New Zealand tobacco consumption, including behaviours, availability, price and other related issues
- Consultations and exploratory discussions with a range of key stakeholders
- An online survey with members of the public (community survey)
- Focus groups with community members.

A selection of government and publicly available literature and data were used to compile the literature review and undertake the secondary data analysis. This included a search of relevant New Zealand and international academic publications.

Eighteen consultation meetings were held with key stakeholders, including: six government representatives, five community organisations, four public health practitioners, two industry and retail representatives, and one consumer organisation.

Responses from 1,507 responses were received to the online community survey, with representatives from the following four New Zealand ethnic groups:

- European & Other (n=715)
- Māori (n=499)
- Pacific (n=186)
- Asian (n=107)

It should be noted that the total sample includes an intentional over-representation of Māori and Pacific groups to ensure sufficient sample size to obtain representative insights into both groups.

Six focus group discussions, which included a total of 43 participants were conducted with community members. The primary target audience for the community focus groups were current and former smokers, in particular individuals with low incomes. Participants came from a range of cultural backgrounds, including 19 identifying as Māori and 11 as Pacific Islander.

Key findings

Nine years into the policy of increasing tobacco excise by CPI+10% annually, smoking rates have decreased across all demographic groups, including age groups, ethnicities, genders and deprivation quintiles.

A particularly large decline is evident in the proportion of youth who have ever smoked, or who are daily smokers. While this is a significant achievement for the tobacco control programme, significant inequities remain for Māori and Pacific communities, necessitating a targeted approach for these populations.

The key findings presented below are orientated around each of the evaluation questions. References to relevant academic publications and data sources can be found in the body of this report.

Do people quit, attempt to quit, reduce the amount they smoke, or change their smoking behaviour in other ways because of the price of tobacco?

Observed changes in tobacco consumption:

- The proportion of the adult population using tobacco products daily in New Zealand has decreased, from 18.3% in 2006/07 to 13.8% in 2016/17. For 15-17 year olds, the decline has been more pronounced, from 13.7% in 2006/07 to 3.2% in 2016/17.
- The gap in smoking rates for Māori and Pacific compared with other ethnic groups, however remains significant, with daily smoking prevalence rates among Māori 2.7 times higher than in non-Māori.
- The most rapid rates of decrease have been in Asian and European/Other groups, while progress for Māori and Pacific has been slower, meaning that the relative disparity between the two groups has increased as non-Māori have benefitted more from tobacco control interventions than Māori.
- In general, smoking rates for men and women are similar, however Māori women still experience a significant burden, with 36% of this group classed as daily smokers, compared to 29% of Māori men, and 13% of women overall.
- When looking at the average number of cigarettes consumed per day by adult daily smokers, there has been a statistically significant reduction amongst all ethnic groups, with higher rates of reduction observed for Pacific and Asian populations.
- Smoking rates have decreased across all age groups, with a particularly large decline in the proportion of youth who have ever smoked, or who are daily smokers.
- On a per-capita basis, tobacco sales (in volumes) have fallen 44% since 2004, from 1103 to 623 cigarettes worth of tobacco per person per year – with the annual rate of reduction clearly accelerating from 2010.

Relationships between price and tobacco use:

- There is strong evidence both international and from within New Zealand that demonstrates changes in consumer behaviour as a result of the tax increases –reducing uptake, cutting down consumption and increasing quit attempts, with spikes in quit attempts around January each year in New Zealand.
- International evidence suggests that lower-income populations in high-income countries respond more strongly to tobacco taxation than higher income people. However, very few studies examine effects across ethnic groups.
- Excluding the 2011 outlier (owing to a one off RYO tobacco tax excise increase of 25.4% to align prices with cigarettes), this evaluation finds the average price elasticity of demand for the total population is -0.5. This is consistent with The New Zealand Treasury tax modelling assumption and in keeping with findings from authoritative international research of general price elasticity of demand for tobacco products in developed countries of -0.4.
- Within this average price elasticity, using the IDI data, we have assessed the potential variation around this average to be between -0.4 and -0.6. In real terms this means this would not result in a material shift from current quit rates in response to excise changes *across the entire population*.
- The use of an alternative elasticity calculation method was also tested, using the Household Economic Survey. This data source is less robust as it does not compare similar cohorts over time (e.g. an individual born in the 1980's propensity to give up smoking as they get older, compared to an individual born in the 1970s). We have taken data from 2006-2017 and find the average elasticity to be -0.44 which is broadly comparable to the data using the IDI (noting the HES limitations).
- While New Zealand data show variable year-on-year price elasticity of demand for tobacco at a total population level, ranging between -0.37 and -1.24 from 2010 to 2016, there appears to be no evidence of reducing average price elasticity over the period of analysis. Similar observations in respect of the price elasticity of daily smoking prevalence were also made.
- There is currently insufficient data to provide a robust estimate of the price elasticity of demand at a more granular level – for example by ethnicity, deprivation or age. This is discussed in detail in the report.
- Price elasticity of daily prevalence is estimated to be -0.34 over the period of analysis. This is broadly comparable with assumptions employed by the New Zealand Treasury of-0.25 and BODE3 of -0.2. However, given the limitations of available data and volatility of price elasticities of smoking prevalence within the period of analysis, the analysis is inconclusive as to whether price elasticity varies significantly between ethnicities and deprivation levels.
- Focus group members' views on the effectiveness of the excise were mixed, with all groups acknowledging that many smokers would rather pay for the increase than go without. Some groups suggested that the excise increases were effective for keeping ex-smokers from starting again, although this was not absolute and examples were shared of people becoming regular smokers again despite the price increases.
- Views as to whether the higher prices were effective at stopping new smokers from starting were variable among focus group members. The discussions suggested that while it may prevent very young children from starting to smoke, older youth who were earning their own income may just accept that the higher price is simply the price.
- Some focus group members also felt that the pressures facing young people would cause them to seek relief through tobacco products irrespective of the cost.
- Overall, it did seem that the majority of focus group members would smoke more if it were not for the high price. Meanwhile, a minority of participants indicated that the price did not have any impact on their smoking behaviour because they could afford it or they were only social smokers.

- In the 12 months prior to the community survey, 31% of smokers had quit or not smoked again, 40% had reduced, tried to reduce or quit smoking, while the remaining 29% had not tried to reduce or quit smoking.
- The rate of smokers who had never tried to change their behaviour was twice as high among those from a Māori (9%) or Pacific (8%) background as from a European/Other (3%) or Asian (3%) background.
- Many smokers responding to the community survey identified the tobacco excise as having changed their smoking behaviours. For example, in the 12 months prior to the survey, 47% of people who had tried to reduce or quit smoking, and 21% of those who had actually quit, cited the increase in the price of cigarettes and/or tobacco as a reason for their change in behaviour.
- In New Zealand, tobacco excise increases were found to affect different community groups in different ways. For example, Pacific households that smoke were found to be twice as likely as Māori households to have stopped purchasing tobacco because of the price rises over the past two years, while Māori households were more likely to seek out cheaper brands, find other places to purchase tobacco products, or switch to roll your own in response to the price increases.
- The most common reason for people changing their smoking behaviour was to improve their health. Saving money or being prompted to by the price increase were also common reasons for changing smoking behaviour.
- Of the Māori respondents who had changed their smoking behaviour in the 12 months prior to the survey, 44% reported that it was due to the increased price of cigarettes and/or tobacco, while only 23% of those with a Pacific background reported that the price had prompted changes to their behaviour.
- The increased price of tobacco was a greater prompt for those aged 45 years and over either trying to or successfully quitting than for those in younger age groups. Suggesting that non-price factors may be a significant driver for the considerable reduction in smoking prevalence amongst youth.

The dynamics within the excise – what is going on?

- The information above on average elasticities embodies a complex set of interactions that make up the average propensity to quit smoking, given an increase in the tobacco excise. Each individual, however, has a range of factors that are influencers on top of the excise.
- This evaluation focuses on the ability of excise increases to continue to encourage people to quit smoking, but it is critical to consider the following factors that make the quit decision more or less likely:

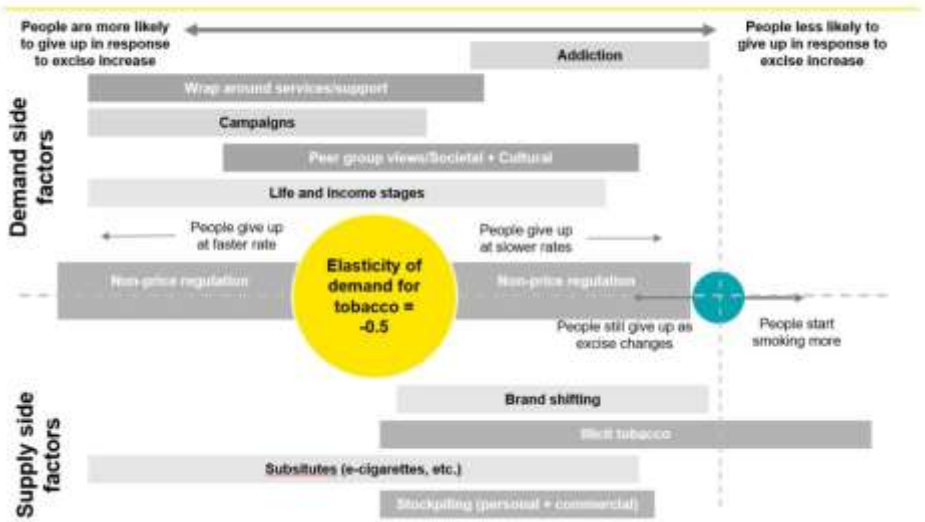
  Supply side factors are things that tobacco companies, retailers and some consumers may do which affect the availability and price of tobacco, and include:

  - **Non price regulation** which may include things such as age restrictions or point of dale restrictions.
  - **Stockpiling** of tobacco that attracted a lower excise rate.
  - **Brand management and shifting** where lower cost, less premium products become more readily available.
  - **Substitution** where the availability of acceptable substitutes becomes more prevalent (e.g. e-cigarettes).
  - **Illicit tobacco** becomes more readily available at lower than established retail prices.

  Demand side factors are things that change an individual's propensity to consume tobacco at the given price and can include:

  - **Non price regulation** such as smoking bans in workplaces.
  - **Life and income stages** which can include family or health factors.
  - **Wrap around support** as part of wider quit campaigns
  - **Information provision** most likely as part of official campaigns.
  - **Societal, cultural or peer views** that make smoking more or less acceptable.

- These dynamics can be shown graphically as follows:



- The primary research included in this report should be read as a critical complement to the quantitative elasticity analysis. In particular the views provided in the primary research significantly inform our insights around the smoking decisions of key sub groups.

Impact on equity:

- Equity impacts are a key consideration for policymakers contemplating tobacco control measures.
- Tobacco excise is generally accepted as being a regressive tax, as smoking prevalence is generally higher among low-income groups. As such, the World Health Organisation recommends tobacco taxation increases as a pro-equity approach when accompanied by adequate smoking cessation support for low-income groups.
- Research has found tobacco excise increases to be progressive – on the basis that lower-income populations respond more strongly to tobacco taxation, the savings/avoided costs from quitting/not taking up smoking would be of most benefit to low-income groups and the health benefits from excise increases accrue mostly to low-income households.
- Despite this, all focus groups believed that the excise was unfairly affecting those from a lower socio-economic background, or racially discriminating against minority groups, more so than against affluent groups.
- Stakeholders felt that the excise had directly or indirectly contributed to a range of unintended consequences including: financial hardship; the use of illicit drugs over tobacco; psychological harm; social exclusion; and safety and security issues.
- In addition to financial hardships, Māori and Pacific community members in particular talked about the stigma of smoking which they felt left them more vulnerable to being judged harshly by others.
- When looking at daily smoking prevalence by deprivation quintile, more deprived populations appear to have much higher rates of smoking in each year of analysis (2006/07 to 2016/17) - suggesting that tobacco control interventions targeted towards deprived groups are required to achieve equitable outcomes.
- When stratified by school decile, there are also large differences in the proportion of students who have ever smoked or are daily smokers, with much higher rates (up to 7 times higher prevalence) in more deprived areas.
- On average, 7% of monthly expenditure was spent on tobacco and/or cigarettes by households that consume tobacco.
- Households that consume tobacco tend to have lower incomes than households that don't, which suggests that although the total household expenditure was found to be roughly the same regardless of who tobacco products are purchased by, lower income households that continue to purchase tobacco may face greater immediate budgetary challenges. In the long-term, evidence suggest this cost is likely to be outweighed by avoided health system costs and productivity gains.
- Reinforcing this assumption, although concerned about the hardships associated with the excise, stakeholders were generally supportive of the excise as long as there were adequate and appropriate support services in place to protect community members from experiencing further hardships, financially, socially or emotionally.

Non-cigarette nicotine use:

- There is international evidence that e-cigarettes are a useful tool for smoking cessation, and, as such, they may have contributed to the decline in smoking prevalence observed over from 2006 to 2016, however this potential contribution cannot be quantified with current data.
- The proportion of the population (both youth and adults) using alternative forms of nicotine (primarily e-cigarettes) has increased dramatically since 2011.
- Latest publicly available data show that more than half of smokers and recent quitters have used an e-cigarette, and the proportion of youth who have tried vaping is 29% (compared with 18% for tobacco).
- Of the current smokers responding to the community survey, 25% reporting that they were using e-cigarettes, while 46% had tried them but were not currently using the products.

- People from European/Other backgrounds who responded to the community survey were more likely to use nicotine replacement products such as e-cigarettes or NRT.
- The most common reason provided by respondents for using e-cigarettes was the understanding that they were less harmful than cigarettes and/or tobacco (57%).
- The lower cost (48%) of e-cigarettes, as well as their ability to help respondents quit (47%) or reduce smoking (41%), were also common reasons cited for usage.
- Among those who had tried to quit or reduce their smoking in the 12 months prior to the community survey, 28% had started using e-cigarettes instead. In comparison, 18% of those who had actually stopped smoking in the 12 months prior to the survey reported that it was because they had switched to e-cigarettes.

Have people changed their perceptions of the affordability of tobacco?

- Of the households that reported purchasing tobacco products in the community survey, the majority (62%) reported that they had noticed a price rise in the years prior to the survey.
- It should be noted, however, that tobacco products are just one of many household purchases that have increased in price over time. To some extent, the price rises to expenses other than tobacco may mean that a price rise to tobacco products is just seen as one of multiple growing financial pressures for households buying tobacco.
- Stakeholders and community members both indicated that the reduction in affordability had dissuaded quitters from starting to smoke again, reducing the amount people smoked and increasing quitting attempts.

Have people changed their household spending in any way to buy tobacco?

Observed changes in household spending on tobacco:

- In response to the rising price of tobacco, in the two years prior to the community survey some respondents reported as having modified their behaviours to enable them to keep smoking, such as purchasing budget brands, going without or spending less on food and groceries, utilities and so on.
- Around half (47%) of smoking households responded to the price rise by purchasing fewer products, while many smoking households tried to mitigate the price increases by using strategies such as purchasing cheaper brands (49%).
- All focus groups discussed a switch in consumer behaviour to the less expensive "budget brands" as the prices went up.
- A higher proportion of lower income households purchased tobacco products than higher income households. They were also more likely to go without or spend less on food and groceries, utilities, and other essential expenses in order to continue to purchasing tobacco products.
- In the 12 months prior to the community survey 10% reported going without something that they needed. Going without was twice as likely to occur in Māori households as European/Other households.
- Many focus group members reported that there had been occasions when they had needed to choose between tobacco products and other essential expenses, such as food, rent, utilities and petrol. Most reported that they had dealt with these situations by limiting purchases of other essential items, for example, purchasing cheaper food, or only filling their car half up with petrol, so that they had enough money to buy the amount of tobacco products they "needed".
- Concern was also expressed across the groups about the impact that people prioritising spending on tobacco products would have on young children, who would miss getting adequate food, clothing and education and so on.

Household spending on non-cigarette nicotine:

- Among current smokers, 25% were currently using e-cigarettes, while 46% had tried them but were not currently using the products. For those who had previously smoked, but since quit tobacco, 12% were currently using e-cigarettes and 23% had tried them but were not currently using the products.
- As noted earlier, among those who had tried to quit or reduce their smoking in the 12 months prior to the survey, 28% had started using e-cigarettes instead. In comparison, 18% of those who had actually stopped smoking in the 12 months prior to the survey reported that it was because they had switched to e-cigarettes.
- The lower cost (48%) of e-cigarettes, as well as their ability to help respondents quit (47%) or reduce smoking (41%), were also common reasons cited for usage.
- Those who had tried vaping also felt that there had been a considerable positive financial impact associated with them switching from tobacco to vaping. For example, one person talked about previously spending $100 a week on cigarettes, and now spending that much over a month on vaping.

Are past impacts likely to hold in the future, with further price increases?

- Over half (55%) of current smokers indicated that they would be likely to quit smoking in the future.
- 61% of Pacific households reported that they were definitely or probably likely to stop smoking in the future, compared to 56% of Māori households and 52% of European households.
- When asked about the impact of the two future price rises, 60% of current smokers reported that they would buy less cigarettes in the future.
- People from a European/Other background tended to be more likely to say that they would buy less tobacco products (64%) than respondents from other main ethnic groups, particularly Pacific (45%).
- Only 15% of current smokers indicated that they probably or definitely would not stop smoking in the future.
- Those who are unlikely to quit smoking are most likely to be in households earning less than $50,000 per annum (61%), to be within the Auckland region (43%), are living alone (36%) and/or don't have children (72%).
- Among the relatively small proportion who indicated that they would definitely or probably not stop smoking in the future, most indicated that they would not be influenced by the future price rises, with 78% indicating that they would buy more or about the same amount of tobacco in the future if the price increased.
- The weight of evidence shows that short to medium term increases to the excise are likely to continue to be effective at encouraging people to change their smoking behaviour. However, the extent to which smokers will continue to quit into the longer term is unclear, especially as those remaining smokers are more likely to be those who have a strong addiction, are less motivated to stop and inherently have more complex confounding factors to address.
- The excise has stimulated changes in behaviour, but the reasons why people smoke are different. The evaluation has identified that further investment in holistic wrap-around services that focus on minimising harm for individuals and families are required to reduce the prevalence of smoking to Smokefree 2025 levels. Price alone will not be enough.

Has the tobacco industry implemented pricing and other market strategies to minimise the impact of the tax increases? What are these strategies and what impact have they had?

- Industry representatives reported that the bulk of their research and development expenditure is aimed at "heat not burn" product development, claiming that they are a safer option than combustible tobacco.
- Stakeholders identified a number of "strategies" used by the tobacco industry to negate the impact of the excise, including: the introduction of budget brands; differential pricing; providing rebates to retailers; and using 'stalling tactics', with several stakeholders calling for a greater focus of controls on the supply side.
- Providing support to these claims, research has shown that tobacco companies in New Zealand respond to tax increases by "under-shifting" - subsidising their cheaper brands to keep heavy smoking affordable – this pattern is seen internationally as well.
- Supply data shows clear annual patterns of tobacco sales, with spikes in November/December and lows in the middle

of the year, indicating stockpiling of tobacco prior to excise increases, thereby likely diluting the price rise impact on consumers.

- Many community members believed that the increase occurred twice a year, suggesting that tobacco company pricing strategies meant that the increase in retail price was spread across the year rather than being included all at once from 1 January when the excise increase is applied by the government.

What is industry's likely future response?

- There is no evidence to suggest that, in the absence of further tobacco control interventions, the tobacco industry will materially shift from recent behaviours observed and reported in New Zealand.

Are the tax increases resulting in an increase in illicit trade? If so, what is the size of this problem and what is the likely future trajectory?

- There was an awareness across the focus groups that cheaper cigarettes could be accessed through the "black market", although many thought that this might have been due to tobacco illegally obtained in New Zealand, rather than smuggled products.
- Experience and use of the "black market" was not widespread among the focus group participants and was predominantly among Māori participants. Those who had used the "black market' reported that the price was generally at least $5 cheaper per pack, although there was also reports of packets being sold for $10.
- Despite these observations, there is no specific evidence from published studies or available data from Police that the illicit tobacco market in New Zealand has grown significantly in the last decade.
- There is also little independent, peer-reviewed international research that demonstrates a causative relationship between higher cigarette prices and increase in illicit tobacco market activity.
- The experience of Customs NZ of increasing commercial-sized interceptions of smuggled tobacco is an indicator that illicit trade is possibly increasing, but there is insufficient data at this time to determine the size of the market or its relationship to tobacco excise increases.
- When compared internationally, New Zealand is a low-risk jurisdiction for significant illegal tobacco activity. Research from New Zealand has found that, rather than encouraging illicit tobacco, excise taxes have forced industry to concentrate on producing cheaper cigarettes, which directly compete with illicit tobacco.
- The absence of reliable estimates of illicit tobacco importation and use represents a significant gap in New Zealand's tobacco control information and, when combined with a lack of internal evidence, precludes the ability to determine the likely trajectory. We consider that the improvement of this information over time will allow materially more robust analysis around this issue.

Are the tax increases resulting in an increase in robberies? If so, what is the size of this problem and what is the likely future trajectory?

- A critical distinction when considering robberies is the likelihood of a robbery occurring and what is stolen in that robbery.
- There is no reliable source of longitudinal data that reports tobacco-related crime in New Zealand. The New Zealand Police have only recently begun collecting data on the targeted product in robberies/burglaries, and this information is not yet publicly available.
- This is a major gap in data on a highly topical issue for policymakers, which limits the ability of this evaluation to comment on whether tobacco taxes are linked to increasing robberies in New Zealand. Or whether robberies are static, but tobacco is increasingly being one of the goods stolen when a robbery does occur.
- The absence of relevant available historical data precludes the ability to determine the likely trajectory.
- Irrespective of evidence of causal relationships, robberies are understandably a major concern for retailers and there is a common perception that the relationship exists.

What are the expected costs and benefits of future price increases, across the various different impacts?

- The focus on the costs and benefits of the tobacco excise for the purposes of this study focuses on an annotation of the costs and benefits from both a qualitiative and quantitative perspective. A fully quantitiative approach, that produces a benefit cost ratio is only empirically robust should a study fully quantify all the push and pull factors that are a part of the overall smoking/non-smoking decision – i.e. not just the impact of the excise. Without this full annotation, the attribution, costing and weightings applied to the excise, as opposed to the other ranges on interventions would not be robust.
- We discuss the benefits and costs of the excise below, but the critical point is that there is already a multi-year BODE3 study into the quantification of smoking benefits and costs. The critical point we would make is the elasticity that underpins the BODE3 analysis is broadly in line with the results of our research. As such, the conclusions from the BODE 3 work are unlikely to materially change were the elasticity resulting from the EY work to be applied.
- The weight of evidence shows that increasing the price of tobacco continues to be the single most effective tool for reducing tobacco use.
- Continued reduction in tobacco consumption and daily smoking prevalence are expected to follow future price increases for both the total population and target demographics, resulting in lower health system costs, improved health outcomes, improved productivity and reduced financial burden for those successful in their quit attempts.
- Without the introduction of further complementary initiatives that take a holistic approach, support harm reduction strategies and counter tobacco industry actions that minimise the impact of the tax increases, further price increases are likely to contribute to financial burden, health inequities, social exclusion and associated psychological harm for vulnerable individuals, households and communities.
- The BODE3 model is a general model of the entire New Zealand population (based on the 2011 Census with accompanying age,

gender, ethnic and deprivation groups) with expected births, mortality, disease burden and health system costs modelled.

- This model was applied to a number of tobacco control "endgame" strategies in a 2017 paper, including CPI+10% tobacco excise increases continuing until 2025. This scenario resulted in achievement of the 5% Smokefree goal in 2053 for Māori and 2032 for non-Māori. This approach was also associated with the gain of 53,200 Quality-Adjusted Life Years (QALYs) and health system savings of $1.08 billion, compared with no tobacco excise increases from 2011.
- However, the model is somewhat optimistic in that predictions of patterns from 2011 to 2018 have overestimated the decline in daily smoking for Māori (~25% predicted in 2017 vs 33% in reality), but has closely mirrored reality for non-Māori (12% modelled vs 11.8% in NZHS data).
- The group has also compared multiple tobacco excise increase strategies and existing smoking cessation services to no excise increases. They found that continued 10% increases was predicted to reduce daily smoking prevalence to 8.7% in 2025, compared to 9.9% without any increases from 2011 onwards. No scenario with excise increases and smoking cessation support alone was predicted to lead to achievement of the Smokefree 2025 goal.

Additional evaluation insights

- Stakeholders and community members noted shifts in community attitudes towards smoking in recent times with most indicating that smoking had become less socially acceptable, while some noted that non-smokers appeared to have become more empowered to express their disapproval of smoking.
- Stakeholders, however, acknowledged that people smoked for different reasons, that tobacco products were highly addictive, and that people required different levels and types of support.
- Many smokers reported that they continued to smoke as a way to help manage stress and/or deal with personal issues, despite it no longer being considered cool. Young Māori took a different view of smoking, indicating that it was still considered cool in their community.
- Stakeholders familiar with different approaches identified programmes that took a holistic, harm reduction approach as being the most successful with vulnerable individuals, families and communities.
- Smoking cessation programmes considered to be the least effective are those that: focused on the harms of smoking, as opposed to wellbeing; limited their focus to being about quitting, rather than understanding the needs smoking met; and were perceived as culturally inappropriate and inaccessible.
- Awareness of smoking cessation programmes was generally low among focus group participants, with many feeling that they were largely ineffective, and should be more personally tailored. Concerns were also raised about the approach of some health professionals who promoted stop smoking messages, but didn't check to see if their "patient" was interested in quitting.
- Similarly, there was a generally low level of awareness among focus group participants as to what Smokefree 2025 was about, with most acknowledging that they hadn't heard of it before. Most focus group participants questioned whether Smokefree 2025 was a realistic goal given that smoking is a personal choice, and, highly addictive. Some also questioned whether smoking was the right focus for the government given the wider community issues, and specifically called out alcohol as having the ability to cause significant harm.
- Most focus group participants were familiar with the tobacco excise increases, but did not understand how they worked. There was also widespread suspicion among focus groups as to the motivation of the excise.

- Many stakeholders also raised concerns about the perceived imbalance between the revenue raised by the tobacco excise increases and the subsequent resourcing of tobacco control initiatives, including tobacco cessation and harm minimisation services, with the majority recognising an urgent need for a greater investment.
- In particular, stakeholders working directly with Māori and Pacific communities indicated that too few resources were being allocated to address the social problems that generally accompany poverty and disadvantage.

Concluding comments and recommendations

The weight of evidence shows that increasing the price of tobacco continues to be the single most effective tool for reducing tobacco use.

Nine years into the policy of increasing tobacco excise by CPI+10% annually, smoking rates in New Zealand have decreased across all demographics, including all age groups, ethnicities, genders and deprivation quintiles.

In particular, there has been a large decline in the proportion of youth who have ever smoked, or who are daily smokers.

While this is a significant achievement for the tobacco control programme, significant inequities remain for Māori and Pacific communities, necessitating a tailored approach for these vulnerable populations.

Potentially diluting the impact of the tobacco excise increases, research has shown that tobacco companies in New Zealand respond to tax increases by "under-shifting" – or subsidising their cheaper brands to keep heavy smoking affordable.

Further to this, supply data show clear annual patterns of tobacco sales, with spikes in November/December, and lows in the middle of the year – indicating stockpiling of tobacco prior to excise increases, thereby further diluting the impacts price rises.

Across the various community and key stakeholder groups, people consistently expressed concern that the excise is harming the most vulnerable members of the community. Many community members reported that there had been occasions when they had needed to choose between tobacco products and other essential expenses, such as food (or healthy food), rent, utilities and petrol.

There was a divergence in views across the various community and key stakeholder groups as to the point at which the positive impacts of the excise were outweighed by the negative impacts, which include financial burden, psychological harm and social exclusion for more vulnerable community members and their families.

Concern was expressed that a "tipping point" had been reached, and the excise had little impact on people with the least resources to reduce or stop their smoking. They also acknowledged that the excise was not intended to operate on its own, and that it was critical for tailored support services to be implemented to complement the intended influence of the tobacco excise increases.

There appears to be no compelling evidence of reducing average price elasticity for the total population over the period of analysis (2010 to 2016). However, it is difficult to illustrate the comparative effect of the most recent tax increases (2017 and 2018) on the smoking population, as the latest publicly available data was typically 2016 and in some cases, data available did not pre-date 2010.

Evidence shows that multiple tobacco control interventions aimed at reducing supply, demand and exposure work synergistically. The weight of evidence is that the excise tax increases are an essential part of a package of interventions needed to reduce tobacco consumption and daily smoking prevalence.

Achieving Smokefree 2025 will be challenging and without increased attention on further complementary tobacco control interventions, funded through a greater degree of hypothecation, the government are likely to fall short of this target by a wide margin - for Māori and Pacific populations in particular.

Based on the evaluation findings, six key recommendations have been made:

1 **It is recommended that the government continue with the scheduled increases in tobacco excise beyond 2020, as price maintains its position as an effective tool for reducing tobacco use.**	In order to achieve Smokefree 2025, it is recommended that further complementary interventions (as detailed below) be implemented to: ▸ Monitor the impact and effectiveness of the tobacco excise policy on a "real time" basis. ▸ Counter potential tobacco industry actions that seek to minimise the impact of the tax increases. ▸ Provide tailored wraparound support and messaging to vulnerable populations.
2 **Given the negative impacts of the tobacco excise increases acknowledged during the evaluation, it is recommended that the government closely monitor the impacts of the final two scheduled increases to inform future policy development, with a focus on vulnerable populations as well as actions taken by the tobacco industry.**	In order to address a number of key gaps in available data it is recommended that the Ministry work with appropriate agencies to: ▸ Collect area-level real price data (rather than national RRPs) – in order to: – Better understand and combat tobacco industry practices to differentially shift the price increases associated with tobacco excise onto "premium" brands – Understand the relationship between area-level deprivation and tobacco pricing. ▸ Centralise the collection of tobacco retailing activities, potentially through a tobacco licensing scheme – this would allow analysis of tobacco availability and geospatial distribution - especially with regards to proximity to priority populations such as outlets near schools, hospitals and marae. This is potentially similar to the approach the Ministry are currently using with industry cooperation on information around sugar. ▸ Utilise existing community surveys to collect more comprehensive, "real time" information from the community about the impact of the excise, including the impact on behaviours, perceptions and quitting attempts. ▸ Monitor New Zealand Police data that reports tobacco-related crime in New Zealand to understand whether tobacco taxes are driving increased robberies and assaults at the retail level. ▸ Initiate an illicit tobacco importation and use monitoring programme, including surveying smokers on their willingness to engage in the illicit tobacco market - this could be done through existing surveys such as the New Zealand Smoking Monitor.

3 **It is recommended that the Ministry work with appropriate agencies to implement comprehensive tobacco control programmes in tandem with, and beyond the scheduled increases (post 2020), targeted at reducing the appeal of tobacco products.**	In order to counter activities designed to dilute the impact of the excise increases it is recommended that the Ministry work with appropriate agencies to: ▸ Implement minimum pricing strategies for tobacco products. ▸ Reduce allowable nicotine levels in tobacco. ▸ Remove additives and innovations from tobacco products that may enhance their appeal or addictiveness.
4 **It is recommended that the Ministry acts quickly to regulate the emerging 'nicotine alternatives' industry.**	In order to protect New Zealanders from misinformation regarding health effects and poor quality in this growing industry, it is recommended that the Ministry acts to ensure minimum standards, in particular the quality, safety, availability, pricing and messaging associated with different products such as e-cigarettes.
5 **It is recommended that the Ministry employ a range of holistic and harm reduction strategies in order to address individuals, families and populations that require a greater level of support to stop smoking, while exploring tobacco control initiatives that focus on supply.**	In order to best support vulnerable New Zealanders in their endeavours to reduce or stop smoking, as well as to better manage other aspects of their lives that may be exacerbating their smoking behaviours, including the social determinants of smoking (e.g. poverty), it is recommended that the Ministry use a greater degree of hypothecation to: ▸ Take a more holistic approach, working with people to understand their lived experience, the reasons why they smoke, their hopes and aspirations and what they need in order to live the lives they wish to lead. – These approaches can be more sustainable as they may help people to develop alternative coping mechanisms when confronted with challenging situations. ▸ Implementation of harm reduction approaches, with people supported to transition: – To different behaviours such as smoking less regularly, smoking away from other members of the family, not smoking in enclosed spaces, and so on. – From smoking tobacco to safer alternatives such as e-cigarettes. Caution should be used in how these alternatives are presented though, emphasising that they are a safer option than combustible tobacco, but not yet been proven to be safe in the long term. ▸ Focus tobacco control initiatives on supply as opposed to demand, for example: – Reduce the number of retailers selling tobacco – Restrict the sale of tobacco near schools, churches and other community organisations – Explore increases to the legal age of supply.

6

It is recommended that the Ministry broaden its reach by increasing the relevance of messaging to better target vulnerable communities, such as those consulted during this evaluation.

In order to build on the communication campaign success already achieved by the Ministry, it is recommended that consideration continue to be given to:

- Ensuring diversity (specifically age) and relevance of messaging to vulnerable groups around harm.
- The different social media channel options that may be particularly relevant to vulnerable youth.
- Working with the Ministry of Education to enhance existing programmes and encourage schools to adopt proactive education-based approaches to discourage students from consuming tobacco related products while also encouraging them to engage in healthier activities and develop alternative coping / stress-reduction strategies.
- Strengthening school cessation support, particularly in low decile schools and other vulnerable populations.

1 Introduction

Background

The government is committed to reducing the burden of death and disease caused by smoking. In March 2011, the New Zealand government adopted Smokefree Aotearoa 2025 (Smokefree 2025), an ambitious goal for New Zealand to reduce its levels of daily smoking prevalence to below 5%[1] of the population.

The goal was adopted as a response to a parliamentary inquiry by the Māori affairs select committee. The three overarching strategies for achieving the goal are:

- Protecting children from exposure to tobacco marketing and promotion
- Reducing the supply of, and demand for tobacco
- Providing the best possible support for quitting.

The 2018 goals for progress towards Smokefree 2025 are:

- Daily smoking prevalence falling below 10%
- Māori and Pacific daily smoking rates having halved from 2011 levels.

While there has been a significant decrease in smoking prevalence and tobacco consumption in New Zealand over the last decade, smoking remains one of the largest modifiable health risk factors in New Zealand, causing a significant amount of preventable disease and premature death. It contributes markedly to health inequities due to the difference in smoking rates between Māori and Pacific peoples and the rest of the population.

Daily smoking prevalence across the population as a whole stood at 13.8% in 2016/17 – although it is considerably higher among Māori and Pacific communities.

Achieving Smokefree 2025 will be challenging and it is being suggested that without changes to current tobacco control polices targets will be missed by a wide margin - for Māori in particular. Based on current projections, the mid-term targets set for 2018 will not be met[2].

[1] https://www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/smokefree-aotearoa-2025

[2] Ministry of Health. 2018. Health and Independence Report 2017: Ministry of Health.

Tobacco control

New Zealand's tobacco control programme is broad, evidence based and comparable with international best practice. It includes a range of interventions designed to achieve three goals:

- Stopping people (particularly children and young people) from starting to smoke
- Supporting those that are smoking to quit
- Protecting people from the second-hand effects of others smoking.

Tobacco tax policy is an important component of New Zealand's tobacco control programme. Since January 2010, the government has increased tobacco excise by at least CPI+10% each year. The government has also excluded tobacco from CPI adjustments to welfare payments, so that increases in tobacco excise, and subsequent increases in the price of tobacco, do not flow through to CPI adjustments to these welfare payments.

The two main rationales for tobacco excise are to:

- Address the external costs of smoking
- Discourage smoking for public health reasons.

The recent series of increases in tobacco excise by at least CPI+10% per annum are scheduled to end in January 2020. After that and with no further policy change, tobacco excise will only be adjusted only for CPI.

Evaluation context

In June 2018, the Ministry of Health (New Zealand) engaged Ernst & Young Transaction Advisory Services Limited (EY) to conduct an evaluation of the tobacco excise increases as a contributor to Smokefree 2025 (the "evaluation").

The over-arching purpose of this evaluation was to:

- Understand the impact of the policy in changing people's behaviours and perceptions.
- Understand the various impacts of the policy on smokers and their families.
- Understand any unintended consequences of tobacco price increases, such as on crime (e.g. robberies and illicit trade).
- Understand any strategies the tobacco industry have implemented to minimise the impact of the tax increases.
- Explicitly consider the impact for Māori (males/females), Pacific peoples, low-income populations, and young people (under the age of 18 years and 18-24 years).
- Help inform the future direction of policies which use price as a lever to reduce the harm from tobacco.

Specifically, the evaluation sought to address the following objectives:

 **The impact of the tobacco excise in changing people's behaviours and perceptions**	▸ Explore changes in smoking behaviours e.g. quitting, reducing consumption, substitution, changed household spend ▸ Consider which groups are impacted and by how much ▸ Explore whether perceptions of affordability of tobacco have changed ▸ Consider whether past changes in behaviour will continue with future increases
 **Impact of tobacco excise as a regressive tax**	▸ Consider the impact of the tax excise increases on equity given that the prevalence of smoking is generally higher among low income groups
 **Other unintended social consequences**	▸ Consider any unintended societal consequences of increasing the tobacco excise, such as increased robberies and illicit trade ▸ Explore the likely future trajectory of these consequences with further increases in tobacco excise
 **Tobacco industry response**	▸ Identify past and possible future strategies employed by the tobacco industry in response to increases in the tobacco excise ▸ Determine the impact of these strategies
 **Cost and benefits of further excise increases**	▸ Outline the expected benefits and costs of future tobacco excise increases across the various impacts

2 Evaluation methodology

Evaluation design

EY employed a mixed methods design to evaluate the tobacco excise, and to maximise the reliability and validity of the evaluation findings. The approach included:

- A non-systematic review of relevant New Zealand and international literature on the effects of tobacco excise tax increases
- An analysis of relevant available secondary data from New Zealand related to tobacco consumption, including behaviours, availability, price and other related issues
- Consultations and exploratory discussions with a range of key stakeholders
- An online survey with members of the public
- Focus groups with community members.

Insights from the literature review and secondary (existing) data analysis were complemented by and tested against primary data collected from key stakeholders and community members.

The primary data collection phase allowed EY to explore the findings from the secondary data analysis in greater depth, to understand the "why" underpinning these findings. It allowed for assumptions to be tested, and gaps or themes which emerged during the secondary data analysis to be examined. Combined, these insights will provide the Ministry with insights, understanding and context to support future evidence-based policy development.

Literature and data review methodology

2.1.1 Objectives

The objectives of the literature and secondary data review were to:

1. Review relevant New Zealand and international literature on the effects of tobacco excise tax increases
2. Review and analyse relevant available data from New Zealand related to smoking, including behaviours, availability, price and other related issues
3. Further inform EY's research and analysis approach for the evaluation.

2.1.2 Literature review methodology

There is a vast body of literature on the subject of tobacco control, as such the literature review focused specifically on the question of what health and behavioural effects are attributable to excise taxes. This field in itself is very large, and as such a number of high quality systematic reviews have been conducted to synthesise evidence. Systematic reviews employ a particular methodology to ensure they pick up all relevant published evidence, and evaluate the quality of research. The literature review leans heavily on the quality assessments and findings of the systematic reviews when dealing with international evidence. In particular the IARC systematic review is employed given its status as a publication of the world peak body on cancer research, the involvement of multiple world experts on tobacco control and the rigorous search and quality assessment methods used.

A specific search of evidence from New Zealand was conducted. Modelling and real-world observational studies relating to the New Zealand context and population were initially identified, and searches of the reference lists of these used to find further relevant studies.

2.1.3 Data sources

A number of publicly available and government data sources (many of which are presented in the Tobacco Control Data Repository[3]) have been accessed to compile this review (presented in **Table 1**), as well as a search of relevant academic publications (referenced in footnotes – see **Sections 3 and 4**).

Table 1: Data Sources

Data source	Method	Coverage	Organisation
New Zealand Health Survey (NZHS)[4]	Interviewer-assisted survey	A representative sample of the whole New Zealand population	Ministry of Health
ASH Year 10 Snapshot Survey (YTSS)[5]	Anonymous surveys administered at schools	A representative sample of 14-15 year olds at high schools in New Zealand	ASH – Action for Smokefree 2025
Health and Lifestyles Survey (HLS)[6]	Interviews in homes	A representative sample of the whole New Zealand population	Health Promotion Agency
Youth Insights Survey (YIS)	Anonymous surveys administered at schools	A representative sample of 14-15 year olds at high schools in New Zealand	Health Promotion Agency
New Zealand Census[7]	Survey completed at home (paper or online)	Most people living in New Zealand on census nights	Statistics New Zealand
Quitline data[8]	Service volumes reported by contracted organisation	People accessing the Quitline service	The Quit Group (2005-2015), Homecare Medical (2015-2017)
New Zealand Tobacco Interceptions	Counts of individual cigarettes, or weighed volumes of loose tobacco	Tobacco products intercepted, seized and taken into custody by border control authorities	Customs New Zealand
New Zealand Pharmaceutical Collection	Pharmacies lodge reimbursement claims with PHARMAC	All reimbursement claims made by pharmacies in New Zealand	Ministry of Health
New Zealand Smoking Monitor (NZSM)	Computer-assisted telephone interviews	Representative sample of current and recent ex-smokers	Health Promotion Agency
Annual Tobacco Returns	Tobacco companies file returns with the Ministry of Health each year in accordance with the SEA	Sales volumes and manufacturer pricing of all tobacco products sold in New Zealand	Ministry of Health
Regulatory Impact Statement[9]	Provides an analysis of options to reduce smoking prevalence by: further increasing tobacco excise	New Zealand population	The Treasury

[3] http://tcdata.org.nz/
[4] https://minhealthnz.shinyapps.io/nz-health-survey-2016-17-annual-data-explorer/
[5] https://www.ash.org.nz/ash_year_10
[6] https://www.hpa.org.nz/research-library/research-publications
[7] https://www.stats.govt.nz/topics/census
[8] https://quit.org.nz/
[9] https://treasury.govt.nz/sites/default/files/2016-05/ris-tsy-tbe-may16.pdf

Secondary data analysis methodology

2.1.4 Objectives

The objectives of the literature and secondary data review were to:

1. Review and analyse available data from New Zealand related to smoking, including behaviours, price and other related issues
2. Further inform EY's research and analysis approach for the evaluation.

2.1.5 Analysis of the effect of tobacco excise increases on households

The results of the household economic survey (HES) were used to test cigarette and loose tobacco household expenditure directly following tobacco excise tax increases for the total population and for different groups e.g. age groups, Māori and Pacific, different locations in New Zealand.

The integrated data infrastructure (IDI), a Statistics New Zealand resource, was used to access the HES. Each survey provided a full financial year of data, with the years available being 2006/07, 2009/10 and 2012/13.

An initial cigarette and tobacco expenditure dataset was extracted by taking all households with any cigarette and / or loose tobacco expenditure from any HES (n = 3,906 smoking households). As the survey unit of HES is a household it was not possible to attribute cigarette and tobacco expenditure to particular individuals, so it was equally distributed across all members of the household aged 15 and above. Negative average expenditures were censored. For descriptive analysis, in line with IDI rules, results from small groups (size <20) were censored, and counts randomly rounded to base 3.

Household income, total expenditure, territorial authority (TA), composition and demographics (sex; age; ethnicity) were joined to the initial cigarette and tobacco expenditure dataset, and as all but one tobacco tax increase occurred on the 1st of January each year, an indicator for before or after 1st of January tax increase was created.

Expenditure distributions were explored for skewness, and as they were found to be long-tailed, data geometric transformation was applied. Each that this means that statistical analysis and inference of expenditure relates to median expenditure.

Welch two sample T-tests were conducted and compared median expenditure before and after each tax increase. Shapiro-Wilk tests were used to assess normality assumptions. For cases where normality was not met, an F-test for comparison of variances was conducted to check if outputs could be compared.

Analysis of variance (ANOVA) interaction models were explored for the interaction of whether a household was surveyed before or after a 1st of January tax increase and the following covariates (sex; age; ethnicity; household composition) against cigarette and tobacco expenditure.

2.1.6 Price elasticity

Price elasticity of demand has been measured to show the responsiveness, or elasticity, of tobacco consumption to change in its price. It gives the percentage change in quantity demanded in response to a one percent change in price. For example, a price elasticity of demand of -0.5 reveals that a 10% increase in the price of tobacco leads to a 5% decrease in consumption of tobacco.

The price elasticity of demand for tobacco products sold in New Zealand has been derived from the annual average number of cigarettes sold per adult in New Zealand[10] and the average retail price per cigarette and RYO-equivalent, as collected by AC Nielsen as at June of each year and reported to the Health Promotion Agency.

Price elasticity of daily smoking prevalence has been measured to show the responsiveness, or elasticity, of daily smoking prevalence to change in tobacco price. It gives the percentage change in

[10] Derived from the total manufactured and RYO-equivalent cigarette volumes in annual tobacco returns divided by the total population aged over 14 years old

daily smoking prevalence in response to a one percent change in price. For example, a price elasticity of daily smoking prevalence of -0.25 reveals that a 10% increase in the price of tobacco leads to a 2.5% decrease in daily smoking prevalence.

Price elasticity of daily smoking prevalence was derived from the daily smoking prevalence rates, as reported in NZHS, multiplied by the average retail price per cigarette and RYO-equivalent, as collected by AC Nielsen as at June of each year and reported to the Health Promotion Agency. An alternative approach using Household Economic Survey data was also trailed.

Stakeholder engagement (qualitative methodology)

2.1.7 Objectives

Eighteen consultation meetings were held with key stakeholders to explore their perceptions of the tobacco excise, its impacts and its effectiveness as a contributor to Smokefree 2025.

Following the completion of the online survey, six targeted focus group discussions were conducted with community members to explore their attitudes, perceptions and behaviours in relation to the tobacco excise.

2.1.8 Stakeholder consultations

2.1.8.1 Target audience

The target audience for this component of the evaluation were representatives of organisations that are either directly or indirectly involved with, or impacted by, the tobacco excise.

These stakeholders were drawn from the following broad groups:

- Government representatives, including representatives from key Ministries
- Community organisations, including those with a focus on supporting community members to stop smoking and specialist health organisations supporting Māori and Pacific Island communities
- Public health practitioners with a specialist focus on tobacco control strategy
- Industry and retail representatives, which included representatives of the tobacco industry and a retailer association, and
- Consumer organisations.

2.1.8.2 Sample structure

A total of 18 one-on-one and small group consultations were completed with representatives of these stakeholder groups. The sample structure by stakeholder type by research method is shown below.

Table 2: Stakeholder sample structure (n=18)

Stakeholder group by mode of engagement	F2F interview	Telephone interview	Total
Government stakeholders	5*	1	6
Community organisations	2	3	5
Public health practitioners	4	-	4
Industry and retail organisations	1	1	2
Consumer organisation	1	-	1
Total	**13**	**5**	**18**

* Two separate interviews were held with a government stakeholder

A list of the stakeholder organisations represented in this evaluation is located in **Appendix A**.

Four stakeholders initially invited to participate in this evaluation did not take up this opportunity.

- Two did not respond to requests to secure an interview
- One declined due to lack of capacity
- One declined due to lack of organisational focus in this area.

2.1.8.3 Recruitment and fieldwork

Recruitment: Stakeholders were approached via email and/or phone call, where they were informed of the purpose of the evaluation and invited to participate in an interview at their place of business. They were also offered the opportunity to participate in the interview by telephone or video conference if preferred. Stakeholder consultations were coordinated by EY's in-house recruitment team.

Fieldwork: Interviews were conducted between 20th July and 23rd August 2018, with consultations primarily conducted face-to-face at the participant's place of work. Other interviews were also conducted by telephone and video conference. Stakeholder consultations tended to involve between 1 to 2 participants from each organisation and EY, and lasted approximately one hour.

Discussion guides: Separate discussion guides for corporate stakeholders (i.e. government, industry and retail), community groups, academics and practitioners were developed in collaboration with the Ministry. These guides were based on the evaluation objectives, with a focus on stakeholders' perceptions of the effectiveness and impacts of the tobacco excise. Copies of these discussion guides are located in **Appendix B**.

Reimbursements: were not offered to stakeholders for their time, as they participated in interviews in the course of their paid employment.

2.1.9 Community member focus groups

2.1.9.1 Target audience

The primary target audience for the community focus groups were current and former smokers, with a purposeful focus on recruiting individuals from specific target demographics i.e. Māori and Pacific peoples, low-income populations, and young people.

- Three of these groups had a whole of community focus
- Two groups targeted Māori community members, and
- One group targeted Pacific community members.
- A small number of non-smokers were also included in the Māori and Pacific groups.

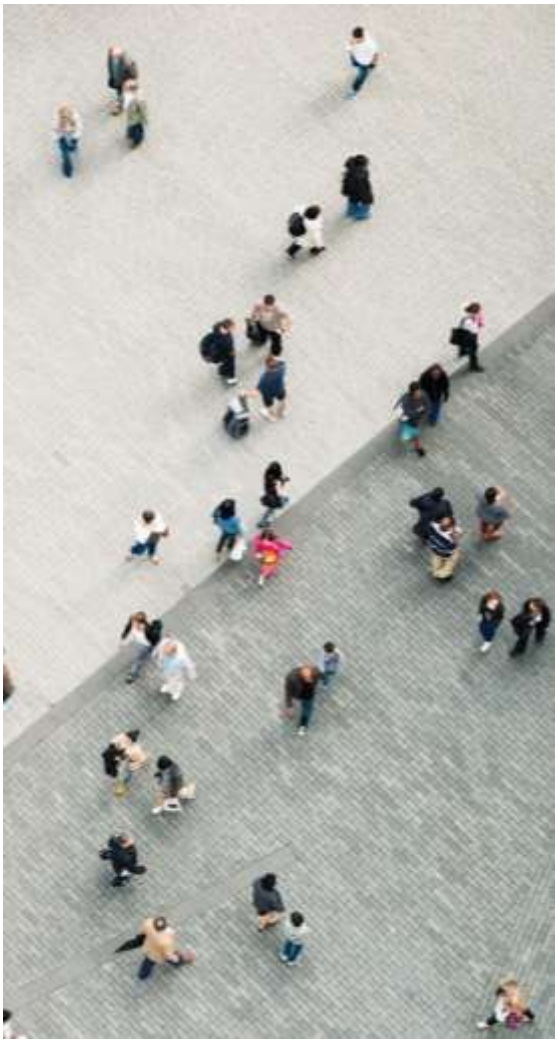
To be eligible for participation, all participants had to be aged 18 years or over and live in Auckland. . It was decided to conduct all focus groups in Auckland due to the diversity of the population and the high proportion of smokers identified as residing in Auckland. Further, differences between geographical locations were not considered substantive in terms of the way in which they could potentially affect the insights gained for the purposes of the current evaluation.

Quotas were applied to ensure a mix of participants by:

- Gender and age range
- Cultural background: with each of the general community groups containing a minimum of 1 person from Māori and 1 person from a Pacific cultural backgrounds per group
- Income: with the general community groups, a purposeful focus on recruiting individuals with lower incomes.

Soft quotas were also applied to ensure a mix of participants by household composition, parental status and level of education.

People who were employed by the tobacco industry or a specialist tobacco retailer were ineligible to take part in the research due to their expected higher level of knowledge of issues related to tobacco products. For the general community focus groups, people employed by Quitline, smoking cessation services, or alcohol and other drug support services were also excluded due to their anticipated greater levels of awareness of tobacco control policies and programs.



2.1.9.2 Sample structure

A total of 43 participants took part in the 6 focus group discussions. Of these participants, 11 were male and 32 female. The higher number of female participants reflects the inclusion of two female only groups, one intentional, the other unintentional. People from a range of cultural backgrounds, including 19 identifying as Māori, and 11 as Pacific Islander, participated in the focus groups.

Table 3: Focus group sample structure (n=6 groups)

Community group	General population	Māori community	Pacific community	Total
Mixed group, 18-24 years	1 x current smokers	-	-	1
Mixed group, 18-40 years	1 x ex-smokers	1 mix of smokers, ex-smokers and non-smokers	1 mix of smokers, ex-smokers and non-smokers	3
Mixed group, 25-50 years	1 x current smokers	-	-	1
Female group, 18-24 years	-	1 x mix of smokers, ex-smokers and non-smokers	-	1
Total	**3**	**2**	**1**	**6**

2.1.9.3 Recruitment and fieldwork

Recruitment: Participants in the community focus groups were recruited using a blended approach involving a specialist recruitment organisation and two community groups engaged during the stakeholder interviews.

- **General population groups:** A specialist qualitative recruitment company coordinated the recruitment of community members for the three general population groups.
- **Māori and Pacific groups:** Two community organisations which work directly with people seeking smoking cessation support recruited participants for the two Māori and one Pacific community group.

  These organisations were Hāpai Te Hauora and Turuki Health Care. Both organisations participated in the stakeholder consultations during the earlier phase of primary data collection.

Recruitment materials, including an information sheet for prospective participants, were developed to support these organisations with recruitment. The information sheet emphasised that participation in the research was voluntary, and that all information collected would be kept confidential.

Fieldwork: Group discussions were held on 3 and 4 September 2018 in inner and outer Auckland. Each session lasted approximately 90 minutes and involved 6-8 research participants.

- Staff from Hāpai Te Hauora, who coordinated recruitment for one Māori and one Pacific focus group, co-facilitated these groups with the EY researcher.

Discussion guide: A discussion guide was developed in collaboration with the Ministry. The guide was based on the evaluation objectives, and explored participants' views on the tobacco excise, including its impacts on smoking behaviour. Participants were encouraged to share their thoughts, without fear of judgment, being assured that their identities would remain confidential and their statements would not be directly attributed to them. A copy of the discussion guide is located in **Appendix B**.

Reimbursements: Each participant was provided with a reimbursement of $80 to thank them for taking part.

Online survey (quantitative methodology)

2.1.10 Objectives

The purpose of the online survey was to collect quantitative indicators of the general community's attitudes and perceptions of the tobacco excise, including insight into the effectiveness and impacts/outcomes of the excise. A copy of the online survey is available at **Appendix C**.

2.1.11 Target audience

The intent of the survey was to ascertain representative insights about recent changes to smoking behaviours at a household and individual level. As such, community members from a range of household incomes bands, ethnic backgrounds, age groups, genders, and regional locations were invited to participate in an online survey that was open between 10 and 25 August 2018.

To be eligible to participate in the survey, community members had to be aged 16 years or older, and be living in New Zealand. Smokers, non-smokers and former smokers were all eligible to complete the survey.

2.1.12 Sample structure

The sample was selected randomly, with quotas employed on the completed surveys to ensure adequate coverage for a nationally representative survey and survey of target groups. The final sample structure for the community survey is presented in **Table 4** which includes both the weighted proportions (to New Zealand Statistics population figures) and unweighted counts, along with maximum margins of error. For additional information on weighting process, please refer to the **Analysis and Reporting Section** on page 41.

A total of 1,507 respondents completed the online survey, with representatives from the following four New Zealand ethnic groups:

- European & Other (n=715)
- Māori (n=499)
- Pacific(n=186)
- Asian (n=107)

It should be noted that the total sample includes an intentional over-representation of Māori and Pacific groups to ensure sufficient sample size to obtain representative insights into both of these groups.

2.1.13 Recruitment and fieldwork

Sample source: Survey respondents were sourced via a major online panel.

Fieldwork: The survey was open for completion for two weeks (10 - 25 August 2018).

Online Survey: The online survey was developed in consultation with the Ministry of Health and based on the primary objectives of the evaluation to understand the impact of the excise on household expenditure, as well as to gain insights into the attitudes and perceptions of a range of community members. Some questions were aligned to the Health and Lifestyles survey (HLS) as a point of comparison and alignment with existing research.

Reimbursements: While reimbursements were not offered to survey respondents by the project team, panel members do receive a small incentive for survey participation from the panel provider at their standard rates.

Table 4: Sample structure – community survey					
		No of survey respondents #	**Weighted %**	**NZ Stats Population projection June 2018 (%)**	**Max margin of error^ +/- (points)**
Total		**1,507**	**1,507**	**3.9 million**	**2.5**
Gender	Male	555	49%	49%	4.2
	Female	947	51%	51%	3.2
	Other	5	0%	n/a	-
Age (years)	16-24	287	18%	17%	5.8
	25-34	351	21%	18%	5.2
	35-44	248	16%	15%	6.2
	45-54	251	16%	16%	6.2
	55-64	201	14%	15%	6.9
	65+	169	15%	18%	7.6
Ethnicities[11]	European or Other	897	72%	72%	3.3
	Māori	566	18%	13%	4.1
	Pacific	223	8%	7%	6.6
	Asian	123	15%	15%	8.9
Main ethnicity[12]	European or Other	715	67%	67%	3.7
	Māori	499	12%	12%	4.4
	Pacific	186	6%	6%	7.2
	Asian	107	14%	14%	9.5
Region[13]	Auckland	516	35%	35%	4.3
	Canterbury - West Coast	173	14%	14%	7.5
	Wellington - Hutt - Wairarapa	172	11%	11%	7.5
	Waikato - Rotorua	156	9%	9%	7.9
	Taranaki - Manawatu - Whanganui	107	7%	7%	9.5
	Otago - Southland	70	7%	7%	11.8
	Bay of Plenty	118	6%	6%	9.1
	Gisborne - Hawke's Bay	85	4%	4%	10.7
	Northland	80	4%	4%	11.0
	Nelson - Marlborough - Tasman	28	3%	3%	-
Household Income (per year)[14]	Less than $40,000	557	34%	n/a	4.2
	$40,000 to $70,000	336	22%	n/a	5.4
	$70,000 to $100,000	203	15%	n/a	6.9
	More than $100,0000	189	14%	n/a	7.1
	Not sure / do not wish to specify	222	15%	n/a	6.6
	Trimmed average yearly income (all sources) ($)	1285	$59,164	$47,108	2.7

The sample structure outlined above is further broken down by ethnicity and is available in **Appendix D**.

[11] Respondents identifying with more than one ethnicity are counted under each applicable ethnicity.
[12] Respondents identifying with more than one ethnicity were asked to select the ethnicity they identify with the most. NZ Stats Population projections have been rebased such that main ethnicity is proportional to total ethnicities.
[13] Regions have been based on the postcode and / or town specified by the respondent. n=2 respondents did not specify their location.
[14] Income has been based on midpoints and calculated as a trimmed average which is the average computed after deleting the lowest 5% and highest 5%. Not sure responses have been removed from the calculations. The comparison from NZ Stats is based on average for total income all sources from "Household income and housing-cost statistics: Year ended June 2017 – corrected".
^ At 95% confidence level.

Limitations of the evaluation

2.1.14 Secondary data analysis

2.1.14.1 Review of secondary data

It is difficult to illustrate the comparative effect of the most recent tax increases on the smoking population, as the latest publicly available data was typically 2016 and in many cases data did not pre-date 2010.

When examining trends, it is important to assess the overall change in indicators over the entire period of study, rather than single-year differences. Very few comparisons over one to three years are statistically significant, while 5-6 years differences tend to be highly significant. A number of trends presented appear to taper around 2016 e.g. reduction in youth smoking rates, where this occurs it is too early to draw firm conclusions - more observation time is required to determine whether trends have changed.

2.1.14.2 Analysis of the effect of tobacco excise increases on households

It is difficult to clearly illustrate the effect of the tax increases on the smoking population using the HES as it does not provide a robust enough longitudinal sense of expenditure, as well as the latest year available only being the 2012/13.

It is our understanding that the HES years used in this analysis rely on surveyed households voluntarily collecting all receipts over a fortnight – and with products such as cigarettes and loose tobacco it is very likely that this is under-representative of true expenditure – with prior estimated expenditure potentially as little as around 38% of the full expenditure[15].

The fact that expenditure could not be attributed directly to each member of the household made it difficult to truly represent the smoking population and their demographics and so average expenditure was necessary to explore the effects. This meant that the survey weighting could not be applied simply to build up a representation of expenditure across New Zealand.

Further to this, the results are up to interpretation in most cases, as there is no clear way to distinguish between whether a decrease in expenditure is from a heavy smoking household completely stopping purchasing tobacco products, or from a number of smoking households decreasing their expenditure. As the relationship between expenditure and tax increase could not be clearly illustrated, further analyses on pre- or post-tax income were not attempted.

Also missing is detail about retail prices. While the excise tax increase date is known, this applies to tobacco released from bond storage. The supply data (see **Figure 23**, Page 70) indicates stockpiling of tobacco prior to excise increases, thereby likely diluting the price rise impacts. It also appears that tobacco companies are differentially pricing their products to also dilute the direct price impact on consumers.

2.1.14.3 Price elasticity

Due to the limitations of available data, the analysis of price elasticity does not attempt to control for the effects of other underlying variables on the price elasticity of tobacco. For example, whether there are social or economic factors other than price affecting tobacco consumption, whether there has been a change in public attitude towards smoking or the extent to which other initiatives within the tobacco control programme have had a significant impact on trends in tobacco consumption.

Collection of sufficient data on these potential factors was attempted. However, the data were either non-existent, inconclusive, or did not cover a sufficient period to be able to quantify the impact they may have had in the absence of the tax excise increases. As a result, there may be "noise" in the estimates of price elasticity by being unable to control for non-price factors that may affect tobacco consumption.

The synergistic nature of various tobacco control interventions to reduce the harm caused by tobacco consumption have been acknowledged regularly throughout the evaluation and as such, the price average elasticities determined in this evaluation may be overstated (i.e. stated as being more elastic) as the effects of the price change alone cannot be isolated.

[15] Thomson G., O'Dea D., Wilson N., Reid P., Howden-Chapman P. 2000. The financial effects of tobacco tax increases on Māori and low-income households.

2.1.15 Qualitative data

Group discussions and in-depth interviews evolve creative ideas and generate hypotheses. They are not intended to be a precise and definitive index of what happen (as in quantitative research), but rather an indicator of perceptions and experience. The following provide insights into some of the limitations of the qualitative data collected for the purposes of the current evaluation.

The purpose of conducting qualitative consultations is to allow for an in-depth exploration of issues, themes and experiences. It is not intended to provide statistical representativeness, although within the current evaluation it is noted that information collected from some individuals went beyond their own personal experiences to capture the insights they had gained from colleagues, family members and a range of relevant organisations. This provided for a richness of the data that in many instances suggested that the sample sizes achieved were sufficient to reach saturation (no additional new information) in relation to some issues and themes, but not all.

The notes below provides a specific overview of the key limitations associated with the audiences for this evaluation. Findings from the qualitative research components should be interpreted with these constraints in mind.

Group settings

It should be noted that many of the consultations, and all focus groups, were conducted in group settings. While every effort was made to ensure participants were comfortable and able to share their views, it is plausible that some individuals may not have felt comfortable sharing views that were contrary to the group. While stakeholders were offered the option to provide additional information to the researchers as a strategy to mitigate this limitation, those who participated in the focus groups were not. A small number of stakeholders took up this offer.

Key stakeholders

A combination of individual, paired and group consultations were held with key stakeholders. As outlined above, group settings may not have fully facilitated the open sharing of information. Further, as a range of different organisations were consulted, the issues and themes discussed were often unique to the perspectives of the organisation.

Interview type

While some interviews were conducted face-to-face, many were conducted by phone to accommodate the availability and preferences of participants. It should be noted that it can be potentially more difficult to establish rapport over the phone, which can limit the depth of insights provided. Further, saturation of issues and themes was evident in some instances but not others. The data collected through the qualitative consultations has been triangulated with the focus group and survey data where possible to minimise the impact of this limitation.

Community consultation

Community member consultations were undertaken as focus groups. While every effort was made to ensure participants were comfortable and able to share their views, it is plausible that some individuals in the focus groups may not have felt comfortable sharing views in front of people they did not know. Within this context saturation of issues and themes was not always evident. The views and perspectives of groups have provided valuable insights to this evaluation. The data collected through the community consultations has been triangulated with the stakeholder consultations and survey data where possible to minimise the impact of this limitation.

2.1.16 Community survey (quantitative data)

The online survey was used to collect data from 1,507 community members. The intent of the survey was to ascertain representative insights about recent changes to smoking behaviours at a household and individual level. Three key limitations to the survey have been identified and are outlined below. These limitations should be taken into consideration when interpreting the findings outlined in this report.

2.1.16.1 Sample representativeness

Sample for the community survey was sourced from an internet panel provider that uses a range of methods for generating and authenticating panel membership, and to ensure that the panel is representative of the broader population. Despite this, participation in internet surveys is "self-selecting", requires access to the internet as well as a minimum level of internet proficiency. Combined, these factors may introduce a degree of bias, including non-response bias, into the survey sample. Given the representativeness of respondents across key demographic characteristics, however, this is not believed to negatively impact on the results of the survey.

2.1.16.2 Recall and social desirability bias

One of the primary aims of the survey was to measure household expenditure and income with a view to better understanding how the increase in the cost of tobacco is affecting households. In order to minimise the extent to which respondents answered questions in a way that under reported behaviours that may be viewed as "bad", or over reported "good" behaviours, the nature of the research objectives were not revealed to respondents at any point during the survey. Further, the questionnaire was structured such that:

- Questions specific to smoking were asked after expenditure information
- Respondents were asked to recall expenditure for their entire household for the past month, which may mean that the respondent may not to be aware of some purchases, or have forgotten about others.

To mitigate the impact of "social desirability" and "measurement" bias, results for tobacco purchasing households are contrasted with those households that do not purchase tobacco.

Despite the objectives of the research not being made clear to respondents, it is possible that at least some respondents guessed the nature of the objectives due to the relatively high profile of Smokefree 2025. The impact of these respondents is expected to be minimal, due to the large number of responses to each of the key questions.

2.1.16.3 Reliance on self-reporting

Whilst efforts were made in the design and testing of the survey to minimise any burden on respondents, and facilitate accurate responses, many of the questions relied on a respondent's best estimate, recall, and honesty. Within the context of this evaluation, it is therefore anticipated that respondents are likely to have under or over estimated things such as household income and expenditure, as well as smoking behaviour. This has been mitigated to some extent by:

- **Reviewing outlier responses:** Respondents who gave a numeric response outside of typical ranges were closely scrutinised for consistency within and between their other responses
- **Pre-coded responses:** Respondents were asked to complete financial information by selecting a pre-coded response. Mid-points from these responses have been used when calculating averages for these questions
- **Using trimmed averages (truncated mean):** The lowest and highest 5% of responses have been removed from calculations pertaining to the averages of financial data in an effort to mitigate the impact of outlier responses.

2.1.16.4 Terminology

There are particular phrases, symbols and icons that are used throughout this report that are defined and described below.

Term	Based on Responses to Question[16]	Definition
Buys tobacco	Q2	A household where a response other than Nil ($0) or "Not sure" for household expenditure on cigarettes and tobacco products in the past month is recorded
Does not buy tobacco	Q1 and Q2	A household where cigarettes and tobacco purchase is "Not applicable" or have indicated spent Nil ($0) expenditure for cigarettes and tobacco products in the past month
Main Ethnicity	S4A and S4B	Respondents specifying more than one ethnicity were asked to identify which ethnic group they identified with most from those they had chosen. Ethnicities have been broadly grouped according to Statistics New Zealand ethnic group profiles[17]: ▸ **European:** includes New Zealand European, British, Irish and others of continental European origin ▸ **Māori:** includes Māori or New Zealand Māori ▸ **Pacific:** includes Samoan, Cook Island Māori, Tongan, Niuean, Fijian or other Pacific Islander origin ▸ **Asian:** Includes Chinese, Indian, Filipino, Korean, Sri Lankan or other Asian origin ▸ **Other:** Includes origins including Middle Eastern, Latin American and African.
Current smoker	Q10	Those who currently smoke tobacco
Previous smoker	Q10	Those who have previously smoked tobacco or have had a few puffs of a cigarette but no more
Non-smoker	Q10	Those who do not currently smoke tobacco
Never smoker	Q10	Those who have never smoked tobacco

[16] A copy of the online survey is available at Appendix C

[17] http://archive.stats.govt.nz/Census/2013-census/profile-and-summary-reports/ethnic-profiles.aspx

Analysis and reporting

2.1.17 Quantitative analysis

2.1.17.1 Community survey

Preparation and significant testing

Following a through checking of the data for consistency and correctness, the survey responses were validated by testing each participant's responses for logical consistency. Code frames were established to back-code "other (*specify*)" questions into pre-existing codes to assist with analysis.

Significance testing was conducted at the 95% confidence level between subgroups where appropriate. This means that if there is a statistically significant difference between the results between subgroup, we can be 95% confident that the difference has not occurred by chance; rather that it reflects a genuine difference in the population.

Weighting

Survey results have been weighted to be reflective of the demographics of the New Zealand population aged 16 years and over. In cases where demographic subgroups within region, gender and main ethnicity are over or underrepresented in the data, a weight has been assigned to that response in order to make the results more reflective of the actual population. Population has been determined using National Ethnic Population Projections: 2018 median values published by New Zealand Stats.

Data percentages displayed throughout the report are rounded to the nearest whole number. As such, where there is an expectation for a given chart or table showing percentages should add up to 100%, this may not happen due to the summation of rounded percentages.

Small base sizes

Results that are based on small sample sizes (between n=10 and 29 responses) have been flagged with an "!" to indicate that results should be interpreted with caution. Results with a very small base size (n<10) are flagged with 'n/a' and excluded from this report.

Margins of error

The maximum margins of error have been based on an evaluation finding of 50% at the 95% confidence interval. Maximum margin of errors have not been calculated for sample sizes less than n=30. Any insights from a sub-group with a sample size of less than n=30 should be considered as indicative only and should be treated with caution.

Symbols

Charts and tables have been used to assist in the interpretation of data.

To help with the interpretation of charts, the following have been included where comparisons are made between groups:

▲ indicates that a result is significantly higher (at the 95% confidence level) compared with the total without that subgroup .

▼ indicates that a result is significantly lower (at the 95% confidence level) compared with the total without that subgroup .

2.1.17.2 Secondary data analysis

Secondary data analysis aimed to provide insights into the historical and likely future impact of the tax excise, and involved the review, analysis and triangulation of available data. The results of this analysis have been integrated into the findings as appropriate.

Sections 4 and **5** provide an overview of the findings and insights. The final section, **Section 9** provides discussion of the overall evaluation findings, concluding comments and recommendations for consideration.

2.1.18 Qualitative analysis

2.1.18.1 Literature review

The literature review aimed to provide insights into the historical and likely future impact of the tax excise, and involved the review, analysis and triangulation of New Zealand and international literature. The results of this analysis have been integrated into the findings as appropriate.

Section 3 provides an overview of the findings and insights. The final section, **Section 9** provides discussion of the overall evaluation findings, concluding comments and recommendations for consideration.

2.1.18.2 Stakeholder consultations

Stakeholder consultations were digitally recorded (with consent), with the recordings used for analysis purposes. The key issues and themes were identified through a review of the qualitative data and a series of analysis sessions involving the research team.

Specialist qualitative analysis software was used for the management of qualitative data, with interview transcripts coded according to themes. Once the data set was coded a more in-depth analysis of data under each theme was undertaken.

Verbatim quotes have been provided throughout the report to illustrate the main findings. To protect participants' anonymity, quotes have not been attributed to individuals, but rather are denoted by the stakeholder type (i.e. Government, Community, etc.).

Words shown in square brackets indicate words added [like this] to make the meaning of the quote clearer. Ellipses (such as …) have been used to denote where words have been omitted to make the quote easier to read.

2.1.18.3 Community focus groups

Group discussions were digitally recorded (with consent), with the recordings used for analysis purposes. The key issues and themes were identified through a review of the qualitative data and a series of analysis sessions involving the research team.

Verbatim quotes have been provided throughout the report to illustrate the main findings. To protect participants' anonymity, quotes have not been attributed to any individuals.

As noted above, words are shown in square brackets to indicate words added [like this] to make the meaning of the quote clearer. Ellipses (such as…) have been used to denote when words have been omitted to make the quote easier to read.

3 Literature review

Effects of tobacco taxes in New Zealand

3.1.1 Real-world evidence

Smoking behaviours

Researchers from the Health Promotion Agency have published a number of papers using data from the New Zealand Smoking Monitor, a repeated computer-assisted telephone interview survey of current smokers and recent quitters aged over 18 years.

Walton et al. from the HPA[18] (published in 2013) examined the effects of the 3rd tobacco excise tax increase (TETI) (2012) and found a small overall increase in changes in smoking behaviours (quit, quit attempt or cutting down) as a response to the tax increase. A follow-up paper published in 2016[19] examines the effects of the 5th (2014) and 6th (2015) TETIs, and found that there was no significant difference in smoking behaviours associated with these increases (comparing response for three months before and three months after each TETI). However, levels of quit attempts and reduction in consumption were generally high, so it may be that, in the context of an overall programme of price increases designed to affect behaviour, the effect of individual price increases is more difficult to detect. Tucker et al. conducted interviews with 103 Māori/Pacific (grouped in analysis) and 134 European/Other smokers before and after the 2012 TETI, and after the 2014 TETI.[20] They found that all ethnic groups reduced their cigarettes per day and had improvements in measures of nicotine dependence, and that Māori and Pacific smokers had particularly large changes i.e. appeared to be more sensitive to price changes than European/Other smokers.

[18] Walton D, Li J, Newcombe R, Tu D, Berentson-Shaw J. Smokers' behavioural responses before and after the 2012 tobacco excise increase. Kotuitui: New Zealand Journal of Social Sciences Online. 2013 Nov 1;8(1-2):27-39.
[19] Li J, Newcombe R, Guiney H, Walton D. Impact on Smoking Behavior of the New Zealand Annual Increase in Tobacco Tax: Data for the Fifth and Sixth Year of Increases. Nicotine & Tobacco Research. 2016 Oct 6;19(12):1491-8.
[20] Tucker MR, Kivell BM, Laugesen M, Grace RC. Changes to smoking habits and addiction following tobacco excise tax increases: a comparison of Māori, Pacific and New Zealand European smokers. Australian and New Zealand Journal of Public Health. 2017 Feb;41(1):92-8.

A qualitative exploration[21] of the attitudes of low-income smokers in 2014 demonstrated that excise taxes are perceived to be unfair and punitive. However it also showed that behaviours such as cutting down and quit attempts are prevalent in this group, and that tobacco use was increasingly being viewed as a burden to be managed rather than an enjoyable activity.

3.1.1.1 Cost and consumption

Researchers at the University of Otago studied cigarette consumption in New Zealand between 1975 and 2005.[22] This research estimated a long-run elasticity of demand of -0.45 (-0.4 in short-run[23]) and elasticity of prevalence of -0.2 for the general population. These results are broadly consistent with international evidence (discussed later in report).

Marsh and colleagues[24] examined the price of three British American Tobacco cigarette brands (premium, mainstream and budget) and one RYO brand at a sample of retailers before and after the 5th (2014) TETI. They found that the median price increase was greatest for premium cigarettes and RYO tobacco (11%), compared with 8% for mainstream and only 3% increase for budget. The authors suggest that tobacco companies responded to the TETI by "undershifting" the budget brand i.e. absorbing the costs of the TETI in premium brands and keeping budget brands price low in order to keep low-income smokers purchasing cheaper cigarettes. These findings reflect international patterns of tobacco companies undershifting tax increases, particularly for "budget" brands.[25]

3.1.2 BODE3 Modelling studies

Blakely and colleagues from the Burden of Disease Epidemiology, Equity and Economics (BODE3) collaboration published an in-depth model of the effects of TETIs in New Zealand from 2011 to 2031. The BODE3 model is a general model of the entire New Zealand population (on the 2011 census with accompanying age, gender, ethnic and deprivation groups) with expected births, mortality, disease burden and health system costs modelled. This group has previously defined price elasticities for TETIs for multiple age groups and for Māori and non-Māori, as detailed in **Table 5**.[26] The elasticities are based on work by the International Agency for Research on Cancer (IARC) and research from the UK and Finland showing different rates in younger age groups.[27] In the BODE3 work, elasticities for Māori were derived by increasing elasticities for non-Māori by 20%, as no specific data exists. However, general economic theories of greater elasticities in lower socioeconomic groups were assumed to apply. Since there have been no specific studies of differences in tobacco price elasticity between Māori and non-Māori New Zealanders, general assumptions are necessary to translate international price elasticities to the New Zealand context. This was justified by evidence that Māori are more likely to report intentions to quit smoking, and parallel evidence that Māori have higher price elasticity for food compared with non-Māori.

The general methodology of life-table simulation modelling has been used elsewhere with similar elasticity assumptions (general demand elasticity of -0.4 and prevalence elasticity of -0.2), including California[28] and Finland.[29]

[21] Hoek J, Smith K. A qualitative analysis of low income smokers' responses to tobacco excise tax increases. International Journal of Drug Policy. 2016 Nov 30;37:82-9.
[22] O'Dea D, Thomson G, Edwards R, Gifford H. Report on tobacco taxation in New Zealand. Report commissioned by The Smokefree Coalition and ASH New Zealand. 2007.
[23] Long-run and short-run elasticites are assumed to differ because when price changes are sustained, people realise continued consumption at the same level will be financially unsustainable and reduce their consumption.
[24] Marsh L, Cameron C, Quigg R, Hoek J, Doscher C, McGee R, Sullivan T. The impact of an increase in excise tax on the retail price of tobacco in New Zealand. Tobacco Control. 2015 Jul 2
[25] Hiscock R, Branston JR, McNeill A, Hitchman SC, Partos TR, Gilmore AB. Tobacco industry strategies undermine government tax policy: evidence from commercial data. Tobacco control. 2018 Mar 24
[26] Blakely T, Cobiac LJ, Cleghorn CL, Pearson AL, van der Deen FS, Kvizhinadze G, Nghiem N, McLeod M, Wilson N. Health, health inequality, and cost impacts of annual increases in tobacco tax: Multistate life table modeling in New Zealand. PLoS medicine. 2015 Jul 28;12(7):e1001856.
[27] Cobiac LJ, Ikeda T, Nghiem N, Blakely T, Wilson N. Modelling the implications of regular increases in tobacco taxation in the tobacco endgame. Tobacco Control. 2014 Aug 21
[28] Kaplan RM, Ake CF, Emery SL, Navarro AM. Simulated effect of tobacco tax variation on population health in California. American Journal of Public Health. 2001 Feb;91(2):239.
[29] Levy DT, Blackman K, Currie LM, Levy J, Clancy L. SimSmokeFinn: how far can tobacco control policies move Finland toward tobacco-free 2040 goals?. Scandinavian journal of public health. 2012 Aug;40(6):544-52.

Table 5: BODE3 Price-Prevalence Elasticities[30]				
	15-20 years	**21-24 years**	**25-34 years**	**35+ years**
Māori	-0.456	-0.348	-0.228	-0.12
Non-Māori	-0.38	-0.29	-0.19	-0.1

[30] Price elasticity refers to the change in demand for a product in response to a change in price. The negative numbers presented in this table refer to a percentage change e.g. for 35+ non-Māori (elasticity of -0.1), when the price increases by 10%, prevalence of smoking decreases by 1%. For 15-20 year old Māori, when the price increases by 10%, prevalence decreases by 4.56%

This model was applied to a number of tobacco control "endgame" strategies in a 2017 paper, including 10% TETIs continuing until 2025. Using the above elasticities, this scenario resulted in achievement of the 5% Smokefree goal in 2053 for Māori and 2032 for non-Māori. This approach was also associated with the gain of 53,200 Quality-Adjusted Life Years (QALYs)[31] and health system savings of $1.08 billion, compared with no increases from 2011.[32]

The model is somewhat optimistic in that predictions of patterns from 2011 to 2018 have slightly overestimated the decline in daily smoking for Māori (~25% predicted in 2017 vs 33% in reality), but has closely mirrored reality for non-Māori (12% modelled vs 11.8% in NZHS data).[33]

The group has also compared multiple TETI strategies + existing smoking cessation services to no tax increases. They found that continued 10% TETIs was predicted to reduce daily smoking prevalence to 8.7% in 2025, compared to 9.9% without any increases from 2011 onwards. No scenario with TETI and smoking cessation support alone was predicted to lead to achievement of the Smokefree 2025 goal.

Table 6: BODE3 Modelled effects of TETIs by year 2025[xx]

	Non-Māori men (%)	Non-Māori women (%)	Māori men (%)	Māori women (%)	Total (%)	Year when 5% goal achieved
No tax increase	9.3	6.9	20	21	9.9	2046
Annual 5% increase	8.8	6.6	19	20	9.4	2043
Annual 10% increase	8.2	6.1	18	18	8.7	2039
Annual 15% increase	7.7	5.7	17	17	8.2	2036
Annual 20% increase	7.2	5.4	15	16	7.6	2034

The BODE3 group also used their multistate life table modelling approach to estimate the expected health gains from ten 10% TETIs (2011-2020) on the 2011 New Zealand population[34]. This study reported health system cost savings and QALY gains of $14.5 million and 268 respectively attributable to TETIs, over only the ten-year period of tax increases (with much greater gains past the initial ten years). The majority of these benefits ($10.6 million and 180 QALYs) are associated with the working-age (20-65) population. These benefits also occurred at higher levels in Māori than non-Māori, likely due to the younger population distribution, higher price sensitivity, higher smoking prevalence and higher rates of smoking-related disease. The study did not consider lost productivity costs associated with smoking or the ability for reinvestment of tax take in the health sector, which would likely show the intervention to be even more cost-effective.

[31] QALY is a measure of health gain, used to allow comparison between different interventions. One QALY is equivalent to a year lived in full health. To compare, the National Bowel Screening Programme is estimated to save 101,790 QALYs (at a cost of $293 million), while Herceptin teatment adds between 32 and 852 QALYs depending on how it is used.

[32] BODE3 Online Interactive League Table. Available at https://nzcms-ct-data-explorer.shinyapps.io/trimleaguetable2/

[33] van der Deen FS, Wilson N, Cleghorn CL, Kvizhinadze G, Cobiac LJ, Nghiem N, Blakely T. Impact of five tobacco endgame strategies on future smoking prevalence, population health and health system costs: two modelling studies to inform the tobacco endgame. Tobacco Control. 2018 May 1;27(3):278-86.

[34] Cleghorn CL, Blakely T, Kvizhinadze G, van der Deen FS, Nghiem N, Cobiac LJ, Wilson N. Impact of increasing tobacco taxes on working-age adults: short-term health gain, health equity and cost savings. Tobacco Control. 2017 Nov 16

3.1.3 The New Zealand Treasury tax forecasting

The Treasury's tax model has in-built price elasticities when forecasting the potential revenue from excise tax increases. The Treasury tax modelling recognises there is a non-linear relationship between the level of excise increase and the revenue generated and in doing so assumes the following elasticities:[35]

- The price elasticity of demand for tobacco products is constant at -0.5 (thus, a 10% increase in the price of tobacco leads to a 5% decrease in consumption of tobacco)
- The tobacco price elasticity of daily smoking prevalence is -0.25 (thus, a 10% increase in the price of tobacco leads to a 2.5% decrease in smoking prevalence, measured in terms of the number of people who have smoked more than 100 cigarettes in their lifetime and currently smoke at least once a day).

Forecast performance over successive excise increases, relative to tax receipts, will provide valuable information on which to test international evidence and its application to New Zealand. However, this currently does not exist.

Tobacco excise is generally accepted as being a regressive tax[36], as smoking prevalence is generally higher among low-income groups. A 2005 report [37] that utilized the Atkinson measure of inequality found excises on tobacco, alcohol and petrol to be regressive. More specifically, they found inequality would be reduced by a small amount by the removal of alcohol and tobacco excises.

However, The Treasury is of the view that increases in tobacco excise may make it less regressive. This is because low-income smokers are likely to be more price-sensitive than high-income smokers. They are therefore likely to reduce their consumption of tobacco by a greater amount in response to an increase in tobacco excise[38]. This would result in a greater proportion of the incidence of excise falling onto high-income groups, making the tax less regressive. Modelling results from studies in the USA and Turkey provide some evidence of this effect[39].

Further research from the University of Illinois at Chicago's health Policy Center[40] also supports this view. They find tobacco excise to be regressive, but increases in excise to in fact be progressive. The research also notes that the health benefits from excise increases accrue mostly to low-income households, so from a health perspective the excise is likely to be progressive.

Smokers who quit in response to an increase in tobacco excise gain large financial benefits as a result of the savings they make from no longer purchasing tobacco products. Potential smokers who are deterred from smoking as a result of an increase in tobacco excise would avoid costs of the same magnitude. The additional savings/avoided costs from quitting/not taking up smoking would be of most benefit to low-income groups. Smokers who do not reduce their consumption following an increase in tobacco excise may respond by borrowing more, saving less, switching to cheaper tobacco brands or substituting consumption away from other goods. The additional costs of continuing to smoke would weigh heaviest on low-income groups.

[35] Regulatory Impact Statement: Increases in Tobacco Excise, The Treasury, May 2016
[36] A tax applied uniformly, taking a larger percentage of income from low-income earners than from high-income earners.
[37] Excise taxation in New Zealand, Creedy & Sleeman, 2005. (Melbourne, Australia)
[38] Tobacco & Poverty: Tobacco Use Makes the Poor Poorer: Tobacco Tax Increases can change that, A Tobacconomics Policy Brief, Chaloupka & Blecher, 2018. (Chicago, IL),
[39] Response by Adults to Increases in Cigarette Prices by Sociodemographic Characteristics, Farrelly et al, 2001; Who pays the most cigarette tax in Turkey, Önder & Yürekli, 2014.
[40] Tobacco Taxation: Win-Win for Public Health & Resource Mobilization, Chaloupka, 2017. (Chicago, IL, Unites States).

3.1.4 Price elasticities for other consumables in New Zealand

There is a limited body of research exploring the price elasticity of tobacco in New Zealand, particularly for the focus demographics of this evaluation: Māori, Pacific, young people and low-income households. However, there have been a number of government commissioned studies in the last decade that have investigated the price elasticity of products from a New Zealand perspective.

While a scan of the literature for energy and alcohol revealed similar price elasticities for the total population to those found in international tobacco control research, there have been no specific published studies for ethnicity and age group. For the total population, observed price elasticities were:

- -0.30 for energy[41]
- -0.50 for alcohol[42]

Given the introduction of the Living Standards Framework the potential standard calculation of elasticities for key products, including fuel, energy and tobacco.

Effects of tobacco taxes internationally

3.1.5 IARC review

The International Agency for Research on Cancer (IARC) published an extensive review on the effects of tobacco excise taxes in 2011.[43] This review found that a general elasticity of demand of -0.4 applied for developed countries.. Approximately half of the reduction in tobacco consumption resulting from TETIs was accounted for by a decrease in smoking prevalence i.e. quitting, while the other half was accounted for by smoking behaviour modification i.e. cutting down cigarettes per day. Thus elasticity of *prevalence* is assumed to be half of elasticity of *demand* – consistent with the empirical findings in New Zealand.

Higher taxes reduce the duration of smoking, raise interest in quitting and quit attempts and increase the number of ex-smokers. Studies across multiple other high-income countries consistently find that smoking prevalence and intensity are inversely associated with cigarette prices. **Table 7** presents the overall conclusions of the IARC Review, with the following levels of certainty for associations:

- Sufficient evidence – A robust association has been observed in methodologically rigorous studies, and is highly likely to be causal
- Strong evidence – An association has been observed, but evidence of causality is limited by methodological factors. Explanations other than causality are unlikely.
- Limited evidence – There is some evidence of an association, but alternative explanations are plausible.

[41] Real Time Pricing and Market Power: A New Zealand Case Study, Poletti, 2017
[42] Meta-analysis of alcohol price and income elasticities – with correlations for publication bias, Nelson, 2013
[43] IARC Handbooks of Cancer Prevention, Tobacco Control, Vol.14:Effectiveness of Tax and Price Policies for Tobacco Control (2011: Lyon, France)

Table 7: Conclusions from IARC Review

Concluding Statements	Sufficient Evidence	Strong Evidence	Limited Evidence
Increases in tobacco excise taxes that increase prices result in a decline in overall tobacco use.	■		
Increases in tobacco excise taxes that increase prices reduce the prevalence of adult tobacco use	■		
Increases in tobacco excise taxes that increase prices induce current tobacco users to quit	■		
Increases in tobacco excise taxes that increase prices lower the consumption of tobacco products among continuing users	■		
Increases in tobacco excise taxes that increase prices reduce the prevalence of tobacco use among young people	■		
Increases in tobacco excise taxes that increase prices reduce the initiation and uptake of tobacco use among young people, with a greater impact on the transition to regular use	■		
Tobacco use among young people responds more to changes in tobacco product taxes and prices than does tobacco use among adults	■		
The demand for tobacco products in lower-income countries is more responsive to price than is the demand for tobacco products in higher-income countries			■
In high-income countries, tobacco use among lower-income populations is more responsive to tax and price increases than is tobacco use among higher-income populations		■	
In low- and middle-income countries, tobacco use among lower-income populations is more responsive to tax and price increases than is tobacco use among higher-income populations			■
Changes in the relative prices of tobacco products lead to some substitution to the products for which the relative prices have fallen		■	
Tobacco tax increases tobacco tax revenues	■		
Tobacco tax increases that increase prices improve population health	■		
Tobacco tax increases do not increase unemployment		■	
Tax avoidance and tax evasion reduce but do not eliminate, the public health and revenue impact of tobacco tax increases	■		
A coordinated set of interventions that includes international collaborations, strengthened tax administration, increased enforcement, and swift, severe penalties reduces illicit trade in tobacco products		■	
Higher and more uniform specific tobacco excise taxes result in higher tobacco product prices and increases the effectiveness of taxation policies in reducing tobacco use	■		
Tobacco industry price discounting strategies, price-reducing marketing activities, and lobbying efforts mitigate the impact of tobacco excise tax increases	■		

As is apparent in this table, there is very strong international evidence that tobacco excise taxes are an effective mechanism for reducing the prevalence of tobacco use, through inducing current smokers to quit and discouraging new smokers from starting. They are particularly effective for reducing initiation and transition to smoking in young people, and there is strong evidence that low-income populations are more likely to quit or reduce their tobacco use than high-income populations in high-income countries such as New Zealand.

3.1.6 Elasticity estimates

While the IARC review assessed the most recent literature, numerous studies have assessed elasticity of tobacco demand. A systematic review in 2003[44] looked at 86 different studies between 1933 and 2001. They derived an overall price elasticity of demand of -0.4 in the short-run, and a slightly higher long-run estimate of -0.44. This means that single changes to price were associated with a 4% decrease in consumption, but when price changes were persistent, there was a slightly larger decrease in consumption. Elasticities also varied by gender (-0.5 for men and -0.34 for women) as well as age group (-0.32 for adults, -0.76 for young adults and -1.43 for teenagers), however the precision of these results are limited due to relatively few studies looking at sub-groups. The meta-analysis did not report elasticities by ethnic groups or socioeconomic status, however it did find that income elasticity (i.e. the change in consumption when income changes) was 0.28 in the short-run and 0.39 in the long-run, suggesting that income plays a significant role in determining demand. This finding supports the general concept that lower-income people are more likely to respond to price increases and thus benefit more than higher-income people, if they are indeed able to quit smoking (hindered by addiction and other factors). The study does not comment on the country context of its input papers, but it is evident that most are based on data from the United States, thus the findings are likely to be applicable to New Zealand – an assumption supported by empirical elasticity estimation resulting in an identical short-run result.

Demand elasticity estimates in sub-groups are difficult as most consumption data is based on national-level sales reporting, which does not capture information on the people buying tobacco products – these estimates often rely on inferring demand elasticity from prevalence figures from surveys and other population monitoring sources.

3.1.7 Equity impacts

Equity impacts are a key consideration for policymakers contemplating tobacco control measures. Across the world, lower income countries tend to have higher prevalence of smoking, and lower-income groups (particularly in high-income countries) tend to have higher rates of smoking. The World Health Organisation cautions policymakers that tobacco control interventions are not inherently pro-equity, and must be explicitly designed to be so. This report does recommend tobacco taxation as a pro-equity approach, and advocates for this to be accompanied by adequate smoking cessation support for low-income groups.[45] The IARC review discussed previously found strong but not sufficient evidence that lower-income populations in high-income countries responded more strongly to tobacco taxation. Further research since that review is discussed here.

A research group from the University of Edinburgh conducted two systematic reviews on equity impacts of tobacco control measures (including taxes), one among adults and one among youth. Most studies included assess equity through the lens of socioeconomic status (SES – determined by income, education level and other indicators), with very few international studies examining effects across ethnic groups.

[44] Gallet CA, List JA. Cigarette demand: a meta-analysis of elasticities. Health economics. 2003 Oct;12(10):821-35.

[45] Loring B. Tobacco and Inequities: Guidance for Addressing Inequities in Tobacco-Related Harm. World Health Organization, Regional office for Europe; 2014.

The systematic review for adults[46] found 27 studies on pricing or taxation interventions between 1998 and 2012, across varying jurisdictions and contexts Of these, 14 demonstrated a positive equity impact (i.e. greater quitting rates in low-income groups), 6 were neutral, 3 mixed or unclear and 4 negative. The review concluded that, amongst tobacco control interventions, those addressing pricing / taxation were the most likely to be pro-equity among adults. The review of studies addressing effects on youth came to a similar conclusion, with 4 studies demonstrating positive equity effects, 1 neutral and 2 negative.[47]

An earlier systematic review by a number of the same authors[48] found 77 primary studies and 7 reviews studying equity effects of tobacco control interventions. Again, this study found that interventions that increase the price of tobacco were the only category that proved consistently pro-equity. They also found that mainstream non-targeted interventions (e.g. smoking cessation programmes) tended to be more effective for higher-SES smokers and thus had the effect of widening equity gaps.

Recently, a Lancet Taskforce[49] examined existing evidence for equity impacts of price policies to promote health behaviours, including reducing tobacco use. This review concluded that price policies are never unequivocally regressive, depending on implementation factors e.g. accompanying taxes with adequate support for cessation. For tobacco, they found a particularly large relative tax burden on low-income smokers, but also a relatively large accrual of health benefits, and concluded that the combination of these health benefits and pro-poor use of tax revenues outweighed the increased tax burden from the perspective of low-income smokers. This highlights the difference between progressivity in respect of health outcomes versus economic effects on smokers.

The 2007 ASH-commissioned report by the University of Otago also identified the equity risks and potential breach of Treaty of Waitangi obligations of implementing excise increases in New Zealand. This report stated that due to the clear efficacy of tobacco excise increases, these needed to be one of the main components of a tobacco control programme. However in order to ameliorate the equity impacts, a significant proportion of tax revenue (at least $100 million annually, with progressive increases as revenue increased) needed to be targeted to smoking cessation support and other non-price tobacco control approaches, particularly aimed at supporting low-income, Māori and Pacific populations.

Research in New Zealand has suggested that Quitline has a pro-equity effect in that disproportionately more Māori and disadvantaged

[46] Brown T, Platt S, Amos A. Equity impact of population-level interventions and policies to reduce smoking in adults: a systematic review. Drug and alcohol dependence. 2014 May 1;138:7-16.
[47] Brown T, Platt S, Amos A. Equity impact of interventions and policies to reduce smoking in youth: systematic review. Tobacco control. 2014 May 17:tobaccocontrol-2013.
[48] Hill S, Amos A, Clifford D, Platt S. Impact of tobacco control interventions on socioeconomic inequalities in smoking: review of the evidence. Tobacco control. 2013 Sep 17:tobaccocontrol-2013.
[49] Sassi F, Belloni A, Mirelman AJ, Suhrcke M, Thomas A, Salti N, Vellakkal S, Visaruthvong C, Popkin BM, Nugent R. The Lancet Taskforce on NCDs and economics 4 Equity impacts of price policies to promote healthy behaviours. The Lancet. 2018 April 4

smokers accessed it (in 2010).[50] A recent modelling study from the BODE3 group also showed that per capita health gains for Māori attributable to Quitline and its mass media promotion were greater than for non-Māori. However, other research has shown in some contexts (i.e. South Auckland) that Māori and Pacific access to nicotine replacement therapy has historically been significantly lower than that of other smokers.[51]

An Australian paper on equity impacts of tax increases[52] proposes four key approaches to mitigation:

- Close monitoring of potential harms
- Spending excise revenue on targeted, evidence-based smoking cessation interventions, as well as addressing social determinants of smoking
- Meaningful consultation with affected communities and co-designing mitigation measures
- Monitoring of tobacco industry response to address lobbying-based misinformation

3.1.8 Other evidence

An overview of systematic reviews of government tobacco control policies was published in 2015.[53] From analysis of 59 systematic reviews, this study found that the top two tobacco control policies in terms of health gains were protecting people from smoke (i.e. smokefree workplaces, homes and public spaces) and tobacco taxation.

A systematic review published in the Lancet Public Health in 2017 examined the relationship between tobacco taxes and perinatal and child health. This paper found that tobacco taxes were significantly associated with reductions in preterm birth and hospitalisations with asthma, upper respiratory tract infections and lower respiratory tract infections. One study on effects on preterm birth (conducted in the United States) found significant decreases for white mothers with low educational levels, and among black mother regardless of education.[54]

[50] Wilson N, Weerasekera D, Borland R, Edwards R, Bullen C, Li J. Use of a national quitline and variation in use by smoker characteristics: ITC Project New Zealand. Nicotine & Tobacco Research. 2010 Oct;12(suppl_1):S78-84.
[51] Thornley S, Jackson G, McRobbie H, Sinclair S, Smith J. Few smokers in South Auckland access subsidised nicotine replacement therapy. NZ Med J. 2010 Jan 29;123(1308):16-27.
[52] Hirono KT, Smith KE. Australia's $40 per pack cigarette tax plans: the need to consider equity. Tobacco control. 2018 Mar 1;27(2):229-33.
[53] Hoffman SJ, Tan C. Overview of systematic reviews on the health-related effects of government tobacco control policies. BMC Public Health. 2015 Dec;15(1):744.
[54] Faber T, Kumar A, Mackenbach JP, Millett C, Basu S, Sheikh A, Been JV. Effect of tobacco control policies on perinatal and child health: a systematic review and meta-analysis. The Lancet Public Health. 2017 Sep 30;2(9):e420-37.

Effects of e-cigarettes

The emergence of e-cigarettes as a publicly available consumer product has caused much controversy among people involved in tobacco control and public policy-making. There is heated debate regarding the role of e-cigarettes in smoking cessation for people addicted to nicotine, eliminating nicotine dependence and harm reduction. A major concern for tobacco control advocates is that all major tobacco companies have now begun to produce e-cigarettes and may be using them to perpetuate nicotine addiction/cigarette use and reach potential cigarette users through introducing nicotine addiction. Another concern is that tobacco companies will capture profits through untaxed e-cigarette sales, enabling them to subsidise tobacco products as excise taxes become more common and more stringent globally. Proponents of e-cigarettes point to their potential for harm reduction and offering smokers an attractive and effective pathway to quitting tobacco use.

It is important to provide a brief overview of the literature regarding e-cigarettes as their emergence has occurred over the same time period as New Zealand's TETIs, and might thus confound the relationship between TETIs and smoking cessation.

The Ministry of Health is generally supportive of the use of e-cigarettes to aid a reduction in tobacco use. A position statement published in 2017 asserts that e-cigarettes should only be used by smokers, and that Smoking Cessation Services should encourage their use when other methods of quitting have been unsuccessful. The Health and Independence Report 2017[55] (published July 2018 by the New Zealand Director-General of Health) states that "the Ministry of Health considers that e-cigarettes have the potential to contribute to the Smokefree 2025 goal and could disrupt the significant inequities that are present".

3.1.9 E-cigarette harm

Evidence that e-cigarettes are less harmful than tobacco use is fairly well-established, however e-cigarette use is still associated with significant harms. Public Health England has published a series of reviews examining the health and smoking cessation effects of e-cigarettes. The 2014 review[56] concluded that e-cigarettes are around 95% safer than smoking, and this assertion was supported in the latest (2015) report.[57] Thirteen eminent UK health organisations (including Public Health England, the Faculty of Public Health and the British Lung Foundation) published a consensus statement in July 2016 asserting that, compared to tobacco use, "all the evidence suggests that the health risks posed by e-cigarettes are relatively small by comparison, but we must continue to study the long-term effects".[58]

The National Academies of Sciences, Engineering and Medicine (NASEM) released a report in 2018 confirming that e-cigarettes use is significantly less harmful than tobacco use[59]. This report states that: Laboratory tests of e-cigarette ingredients, in vitro toxicological tests, and short-term human studies suggest that e-cigarettes are likely to be far less harmful than combustible tobacco cigarettes. However, the absolute risks of the products cannot be unambiguously determined at this time.

Due to the recent nature of e-cigarette availability, there are no studies on the long-term effects of their use, and this evidence will not be available for some time. New Zealand experts generally agree with the evidence that e-cigarettes are much less harmful that cigarettes, but caution that they should not be framed as safe, only as a much safer option than combustible tobacco[60].

[55] Ministry of Health. 2018. Health and Independence Report 2017: Ministry of Health.
[56] Britton, J. and I. Bogdanovica, Electronic cigarettes: A report commissioned by Public Health England. London: Public Health England, 2014.
[57] McNeil A, Brose LS, Calder R, Hitchman SC, Hajek P, McRobbie H. E-cigarettes: an evidence update. A report commissioned by Public Health England. Public Health England. 2015;111.
[58] Public Health England (PHE). E-cigarettes: a developing public health consensus. London: PHE; 2016.
[59] National Academies of Sciences, Engineering, and Medicine. Public health consequences of e-cigarettes. National Academies Press; 2018 Jun 18.
[60] McRobbie H, Bullen C. Personal Communication.

3.1.10 Smoking cessation

Most empirical data shows that dual-use (using both cigarettes and e-cigarettes regularly) is the most common pattern of e-cigarette use by smokers.[61]

The Public Health England-commissioned report is supportive of the use of e-cigarettes for smoking cessation, citing evidence from a small Cochrane Review[62] that meta-analysed two randomised controlled trials (RCTs) and reported results from 21 cohort studies. This study found that when smokers used nicotine-containing e-cigarettes as a cessation aid, they had a 2.2 times greater chance of achieving abstinence for six months compared to a placebo e-cigarette, however the quality of this evidence was graded as "low" i.e. further research is likely to change this conclusion. The cohort studies were generally supportive of the conclusion that e-cigarettes were a helpful smoking cessation aid. One of the authors of the Cochrane Review has stated that e-cigarettes are likely to be as or more effective than NRT (patches and gum/lozenges), and that more recent models are probably more effective than those studied in the Review, given technological advancement since the studies were conducted.[63]

The NASEM report included the Cochrane review as well as a number of other systematic reviews, most dealing with the same group of three RCTs. Overall, these reviews came to the similar conclusion that there was a possible association between e-cigarette use and successful quitting, however confidence in this result was generally low or the association was not statistically significant. The strongest conclusion made is that further high-quality interventional studies are required to definitively answer the question.

A Cochrane Review[64] was conducted in 2016 on harm reduction approaches for tobacco users i.e. using NRT, other nicotine-containing products or pharmaceuticals to reduce but not entirely cease tobacco use. This systematic review showed that there was some evidence of low quality for NRT to reduce the number of cigarettes smoked, and potentially to facilitate quitting in the long-term. There was no conclusive evidence that other interventions (e-cigarettes, snus or pharmaceuticals) were useful for this purpose, thus further research on this approach is required.

3.1.11 Youth uptake

The question of whether e-cigarette use is linked to smoking uptake in youth is yet to be answered. Health agencies in different countries have arrived at different conclusions, and findings regarding e-cigarette use and smoking in youth should be interpreted in the context of regulatory frameworks of the countries in which studies were conducted.

The NASEM report found substantial evidence that e-cigarette use increased cigarette smoking in youth, and increased the intensity and frequency with which youth smoked. This was based on a meta-analysis of nine studies examining 16,621 participants, each of which found a statistically significant association between e-cigarette use and "ever-use" (i.e. having at least one cigarette in their lifetime) in youth. The odds of "ever-use" in youth who used e-cigarettes were 3.5-3.8 times higher than in youth who had never used an e-cigarette. The review also examined "past 30-day cigarette smoking" as opposed to "ever-use" (an indicator of more recent cigarette smoking, thus more likely to represent regular use), and found an even higher odds ratio of 4.28 i.e. odds of smoking a cigarette in the past month were 4.28 times higher for e-cigarette-using youth than those who had never used an e-cigarette.

The Public Health England report did not perform any systematic review or meta-analysis of academic studies when examining the question of youth uptake. The review concluded that overall, "despite some experimentation with [e-cigarettes] among never smokers, [e-cigarettes] are attracting few people who have never smoked into regular use." This is based on ecological evidence that the proportion of youth in Great Britain classed as regular smokers has not changed between 2013 and 2015, while the proportion having tried e-cigarettes had increased three-fold over that

[61] Glantz SA, Bareham DW. E-cigarettes: use, effects on smoking, risks, and policy implications. Annual Review of Public Health. 2018 Apr 1;39:215-35.
[62] Hartmann-Boyce J, McRobbie H, Bullen C, Begh R, Stead LF, Hajek P. Electronic cigarettes for smoking cessation. The Cochrane Library. 2016 Sep 14.
[63] Bullen C. Personal Communication.
[64] Lindson-Hawley N, Hartmann-Boyce J, Fanshawe TR, Begh R, Farley A, Lancaster T. Interventions to reduce harm from continued tobacco use. Cochrane Database of Systematic Reviews. 2016(10).

period. The NASEM report acknowledges that ecological and individual-level studies appear to be at odds (with rates of ever-use of tobacco continuing to decrease), and leaves this as an unanswered question.

The New Zealand Ministry of Health's position is aligned with that of Public Health England, and key New Zealand experts believe that the position of NASEM is somewhat overstated and the studies used were prone to bias due to their methodological design.[65] Overall, there is no definitive evidence that e-cigarette use is a cause of smoking, and it is possible that studies finding this association are showing that youth who were at high risk of smoking uptake anyway are likely to use e-cigarettes as well. There is no survey data to show that rates of smoking in youth are increasing in general, or in groups that have used e-cigarettes.

3.1.12 Interaction with TETIs

Overall, the most recent and high-quality international evidence suggests that:

- E-cigarette use may lead to increased rates of smoking cessation in adults
- E-cigarette use is associated with tobacco use in youth, but there is no evidence for a causal relationship in E-cigarettes paving a way to tobacco use.

The extent of these effects on the overall population, and the generalisability to New Zealand is unclear at this stage, however it is likely that e-cigarettes somewhat confound the relationship between TETIs and smoking cessation. Despite this uncertainty, there are a number of assumptions regarding e-cigarettes and TETIs that might be reasonably made:

- E-cigarettes may amplify the number of adults quitting smoking due to TETIs (through more effective cessation attempts)
- E-cigarettes may displace the use of traditional smoking cessation services such as NRT and Quitline, and lower numbers may be seen in data related to these.

[65] McRobbie H, Personal Communication

Non-tax tobacco control strategies

3.1.13 International tobacco control

New Zealand is a signatory to the World Health Organisation Framework Convention on Tobacco Control (WHO FCTC) – an international treaty aimed at providing a global coordinated approach to tobacco control, with 180 member states having ratified. The WHO FCTC is legally binding and obligates New Zealand to take specific measures to reduce both supply and demand of tobacco products.

The Protocol to Eliminate Illicit Trade in Tobacco Products[66] is a protocol of the WHO FCTC and will come into force on 27 September 2018. This protocol contains several obligations on New Zealand in the areas of supply chain control, customs and police efficacy, capacity building, international cooperation, funding and inter-sectoral action to prevent illegal production, transport, distribution and purchasing of tobacco products.

New Zealand's laws will have to change to meet these obligations in four key areas:

- Establishing a tracking and tracing system for tobacco products
- Introducing 'due diligence' requirements for some steps in the supply chain for tobacco products and tobacco manufacturing equipment
- Establishing supply chain controls for tobacco product manufacturing equipment
- Creating new offences to support new laws[67].

3.1.14 Current strategies

New Zealand's tobacco control programme is broad, evidence based and designed on international best practice. It includes a range of interventions designed to achieve three goals:

- Stopping people (particularly children and young people) from starting to smoke
- Getting those that are smoking to quit
- Protecting people from the effects of second-hand smoke.

With the exception of the current tobacco excise policy and ambitious Smokeree 2025 targets, New Zealand's tobacco control programme is fairly characteristic of a high-income country. **Appendix E** provides a graphical summary of key tobacco control legislation and interventions introduced in New Zealand since 1983 and maps this against historical data for smoking prevalence over the same period.

Mass media campaigns

A number of mass media campaigns aimed at reducing tobacco use have been run in New Zealand. These have primarily been produced by the Health Promotion Agency (previously the Health Sponsorship Council) and the Quit Group, although overall spend on these campaigns has gradually decreased over time.[68] Multiple systematic reviews have found evidence for efficacy and cost-effectiveness for reducing smoking prevalence and initiation, particularly for low-income smokers and youth.

Smoking cessation services

Support to stop smoking is provided through two main methods in New Zealand – Quitline and local Stop Smoking Service providers. Quitline is a free national telephone service that supports smokers to quit. This service includes a Quit Pack, which can be used to access subsidised NRT from pharmacies. Local services provide face-to-face consultations and support and use NRT and other strategies to

[66] http://www.who.int/fctc/protocol/illicit_trade/protocol-publication/en/
[67] Ministry of Health. 2015. New Zealand and the Protocol to Eliminate Illicit Trade in Tobacco Products – Consultation document. Wellington: Ministry of Health.

[68] Edwards R, Hoek J, van der Deen F. Smokefree 2025-use of mass media in New Zealand lacks alignment with evidence and needs. Australian and New Zealand Journal of Public Health. 2014 Aug;38(4):395-6.

help smokers quit. A number of providers have recently begun offering incentive-based programmes for pregnant women to stop smoking, based on the risk to the foetus, mother and whānau of smoking.

A recent evaluation of Quitline and mass media campaigns in New Zealand[69] showed these to be effective in supporting quit attempts and led to annual health system savings of $84 million. This work also demonstrated the service was equitable, producing greater QALY gains for Māori (2.2 per 1000 population) than non-Māori (0.73 per 1000). Over 20 years these programmes were projected to generate $1.1 billion in health system savings and 54,000 QALYs.

Smokefree environments

In 1990, New Zealand passed the Smokefree Environments Act, a leading piece of legislation that introduced a number of restrictions on the sale and use of tobacco, including restricting smoking in workplaces, regulating marketing, restricting smoking in public places and introducing restrictions on tobacco sales to people under 16 (raised to 18 in 1998). In 2004, all licensed premises and other workplaces became smokefree indoors. While not currently addressed by legislation, there have also been significant efforts to eliminate smoking in cars, particularly with child passengers. These measures are intended to prevent exposure to second-hand smoke and de-normalise the use of tobacco, and are based on extensive evidence of efficacy and the WHO FCTC.

3.1.15 Endgame strategies

Tobacco-free generation

The tobacco-free generation (TFG) is a proposed policy approach that would see the minimum legal age of tobacco purchase rise by one year annually. This would have the effect of establishing a generational cut-off on tobacco purchase – people aged 17 at the time of the policy being enacted would never be able to legally purchase tobacco. This is appealing politically as it does not restrict any current ability to purchase tobacco, only preventing this for future generations. There is currently no available evidence for the efficacy of this strategy as it has not yet been implemented in any other jurisdiction.

Sinking lid policy

This strategy would involve a mandated gradual reduction in the total volume of tobacco/cigarettes imported into and produced in New Zealand by tobacco companies, with an eventual reduction to zero. This strategy would be clearly signalled in advance, and would by definition lead to the achievement of smokefree status, notwithstanding illicit production and importation.

Tobacco outlet reduction

This strategy would institute a licensing system for tobacco retailers, with likelihood of successfully receiving a license relative to population density and outlet density. Licenses could also be frequently renewed, with a sinking lid on the number given out in each review period. This strategy could also weigh in favour of certain types of tobacco retailers, i.e. limiting sales to pharmacies, supermarkets or specified tobacco stores.

3.1.16 BODE3 modelling of interventions

In addition to modelling the prospective effects of TETIs, the BODE3 group have examined the above interventions and combinations of interventions. The only strategy that was projected to achieve the Smokefree Aotearoa 2025 goal (<5% total prevalence) was a sinking lid policy with the zero-point scheduled for 2025. A combined end-game strategy of continued 10% TETIs, tobacco outlet reduction and the tobacco-free generation policy was projected to reduce smoking prevalence to 5% by 2025 for the non-Māori population, but would take until 2032 to achieve this goal for Māori. The base-case of business as usual (based on recent trends in smoking prevalence) would not see the goal reached until 2038 for non-Māori and 2061 for Māori – missing by a wide margin.

[69] Nghiem N, Cleghorn CL, Leung W, Nair N, van der Deen FS, Blakely T, Wilson N. A national quitline service and its promotion in the mass media: modelling the health gain, health equity and cost-utility. Tobacco Control. 2018 Jul 1;27(4):434-41.

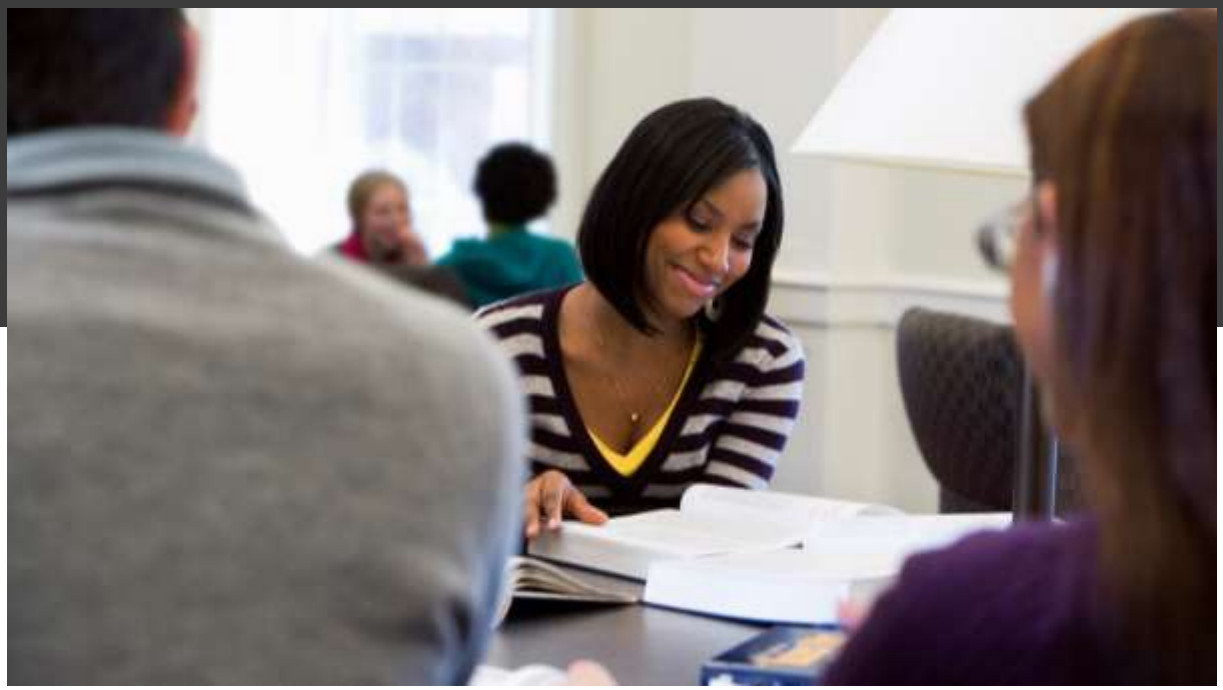
ASPIRE action plan

ASPIRE2025 is a multi-centre academic partnership with the aim of supporting the Smokefree Aotearoa 2025 goal. In August 2017 they launched a report detailing an action plan aimed at achieving the goal, funded by The Quit Group (a charitable trust focusing on helping New Zealander's quit smoking). Many leading New Zealand and international academics contributed to the report, which was primarily written by staff at the School of Public Health at the University of Otago in Wellington. Most action points are based in existing evidence, while some are new proposals that would be trialed in New Zealand and evaluated to generate evidence for efficacy. **Table 8** details the action plan and the stated rationales for each measure in the ASPIRE report. [70]

[70] Thornley L, Edwards R, Waa A & Thomson G. Aspire2025 Action Plan. 2017. Wellington, New Zealand. Available from https://aspire2025.files.wordpress.com/2017/08/asap-main-report-for-web2.pdf

Table 8: ASPIRE2025 Action Plan	
Action	**Rationale**
1 - Affordability	
1.1 – Increase tobacco excise tax by 20% (above inflation) annually in 2019, 2020 and 2021	The report argues that TETIs should increase, based on the real-world and modelled evidence of their effectiveness. Strong support from New Zealand stakeholders and precedent from Australia are cited as reasons for TETIs greater than 10%
1.2 – Establish a minimum retail price that must be charged for tobacco products, with effects from December 2020	As previously discussed, there is evidence that tobacco companies differentially shift the cost of TETIs to keep budget brands affordable for low-income smokers. This suggests that minimum pricing might be an effective strategy for inducing smokers to quit. Limited evidence for this is currently available, although this measure is currently in place in many US states and other jurisdictions.
2 - Access	
2.1 – Require existing tobacco retailers to transition out of selling tobacco products by December 2021. Tobacco products will only be sold by a small number of specified tobacco retail outlets from 2022	Evidence suggests that reducing access to tobacco products in retailers will help to address social and ethnic inequities in smoking and health outcomes. This measure is likely to counteract concerns about increases in tobacco-related burglaries and robberies as fewer small retailers would stock tobacco products. New Zealand tobacco control stakeholders were strongly supportive of this measure.
2.2 – Disallow sales of tobacco products in all alcohol on-licenced premises by December 2018	There is a close association between alcohol consumption and tobacco use, particularly for young adult, Māori and Pacific smokers. Alcohol consumption is also associated with smoking relapse in recent quitters. This measure would address impulse purchasing of tobacco (influenced by alcohol) and limit exposure of young people to tobacco products.
2.3 – Introduce a 'tobacco-free generation' policy to restrict access to tobacco products for future generations, with an annual increase in purchase age, starting in December 2020	While the prevalence of youth smoking has reduced significantly, uptake in this group continues, particularly for Māori and Pacific. Progressively raising the age of purchase would prevent future uptake of smoking by current youth, while not prohibiting tobacco for people currently able to access it. The report argues that current age minimum laws create a "rite of passage" effect and signal that tobacco use is safer over the age of 18.
3 - Appeal	
3.1 – Remove all additives and innovations from tobacco products that may enhance their appeal or addictiveness by December 2020	Many tobacco products contain additives which can decrease the unappealing nature of cigarettes, thereby increasing consumption. Additives that reduce the harshness of tobacco smoke (e.g. menthol) facilitate addiction by increasing delivery of nicotine through allowing deeper inhalation.
3.2 – Introduce a mandated nicotine-reduction policy to restrict the sale of tobacco to very-low-nicotine-content tobacco products, with effect from December 2022	It is possible to remove most nicotine (the main addictive substance) from cigarettes. Very-low-nicotine-content cigarettes contain about 1/50th the amount found in normal cigarettes. These could be used to help current smokers cut down, and to reduce the likelihood of people becoming addicted if experimenting with cigarettes.
Complementary Measures	
Enhanced smoking cessation support and marketing	This measure will offset adverse economic effects of tax increases for people on low incomes, and help to maintain public support for TETIs
Implement an additional 15% TETI on RYO tobacco	This will prevent RYO tobacco from becoming a cheaper alternative to manufactured cigarettes and prevent price-shifting behaviour by tobacco companies
End duty-free concessions for tobacco products	Duty-free concessions are essentially a tax incentive for purchasing tobacco, and undermines the objectives of Smokefree Aotearoa 2025
Engagement process with retailers operated by government	Ensure voice of retailers is heard and that they are kept informed, particularly around action 2.1 (licensing scheme)

4 Secondary data review



Introduction

Table 9 details the successive increases in excise duty on cigarettes and tobacco in New Zealand since 2009. Since 2011, increases have been 10% plus an adjustment for the change in the Consumer Price Index in the year up to the preceding September. There was also a preceding one-off 14% increase in tax on RYO before the 10% increase was applied, leading to a total increase of 25.4%. This was done to bring RYO pricing in line with cigarettes.

When examining trends, it is important to assess the overall change in indicators over the entire period of observation, rather than single-year differences. Very few comparisons over one to three years are statistically significant, while 5-6 years differences tend to be highly significant. A number of trends presented appear to taper around 2016 e.g. reduction in youth smoking rates, where this occurs it is too early to draw firm conclusions - more observation time is required to determine whether trends have changed.

Table 9: Excise duty increases for cigarettes and tobacco[71]

Date	Excise duty (cents per cigarette)	% increase
1st Jan 2009	30.955	5.07
1st Jan 2010	31.443	1.58
29th Apr 2010	34.587	10
1st Jan 2011	38.614	11.64
1st Jan 2012	44.21	14.49
1st Jan 2013	49.011	10.86
1st Jan 2014	54.539	11.28
1st Jan 2015	60.59	11.09
1st Jan 2016	66.851	10.33
1st Jan 2017	73.813	10.41
1st Jan 2018	82.658	11.98

[71] https://www.stats.govt.nz/methods/excise-duty-increase-for-cigarettes-and-tobacco

Smoking behaviours

Three major surveys provide official data on smoking behaviours – the Census, the NZHS and the HLS. Each survey has methodological strengths and weaknesses e.g. the Census has the highest coverage, but relies on individuals filling out surveys unassisted and imputes missing data, while the NZHS and HLS are done with an interviewer. Only two data points from the Census are available over the period of interest – 2018 results will likely be available in 2019.

There are multiple definitions of smoking behaviours. All three surveys report data on daily smokers, however the Census uses the term "Regular smoker" (which has almost the same definition as daily smoker except it specifically excludes cigars and cigarillos), and the HLS does not include the requirement to have smoked at least 100 cigarettes over a lifetime. Current smoking is reported by the NZHS and HLS, with the same difference in definition regarding lifetime consumption of cigarettes.

4.1.1 Current smoking

Figure 1 presents current smoking prevalence estimates from the NZHS and HLS from 2006 – 2017. Both surveys show a comparable reduction (and rate of reduction) in the prevalence of current smoking in the adult population. The NZHS and HLS report similar estimates - the latest NZHS estimate (16/17) was 15.7%, while the 2016 HLS estimate was 15.5%. The reductions between 2006-2016 and 2011-2016 observed in the NZHS are both statistically significant ($p<0.01$).

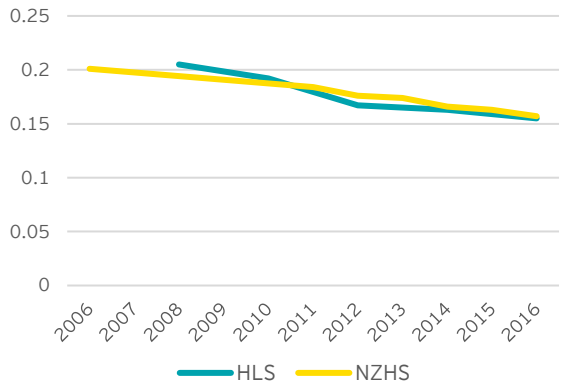


Figure 1: Comparison of current smoking in HLS and NZHS

4.1.2 Daily smoking

Daily smoking is a different measure of smoking behaviour, in that it counts only people who have at least one cigarette every day as opposed to people who smoke at least monthly. This definition gives lower prevalence estimates than current smoking, as it represents a higher intensity of smoking. Data in this section comes from the NZHS, as this has more regular data than the HLS, and the census provides only two data points during the period of interest.

Previous work[72] has been done to compare the NZHS, HLS and the Census, which showed these surveys were broadly comparable when looking at total prevalence. However, there are some variations by ethnicity, with the Census showing lower prevalence of smoking in Māori and Pacific populations than the NZHS - the authors posit that this may be due to the Census missing Māori and Pacific people in 2013. The NZHS is likely to be the most useful source (due to its increased frequency when compared with the Census and HLS, and larger sample size compared to the HLS), however it may not be reliable in very small groups such as 15-17 and 18-24 age groups – Census data has been presented here to confirm these estimates.

[72] Ball J, Stanley J, Wilson N, Blakely T, Edwards R. Smoking prevalence in New Zealand from 1996-2015: a critical review of national data sources to inform progress toward the smokefree 2025 goal. NZ Med J. 2016 Aug 5;129(1439):11-22.

Total population

The prevalence of daily smoking has been gradually reducing over the past decade, from 18.3% in 2006/07 to 13.8% in the latest NZHS results. This is a highly statistically significant reduction (p=<0.01) of 25% (see **Figure 2**). Reductions of similar magnitude were seen in men (23%) and women (26%). The 15% total reduction between 11/12 and 16/17 (i.e. the period after TETIs began) is also highly statistically significant, showing that the reduction in smoking is not only associated with the large and relatively sudden 2010 TETI, rather it has been sustained over the course of successive 10% increases in excise.

The Census reports total numbers of daily smokers in the 1996, 2006 and 2013 surveys – these are 609,297, 597,792 and 463,191 respectively, showing that both the proportion of the population and the absolute number of smokers are decreasing.

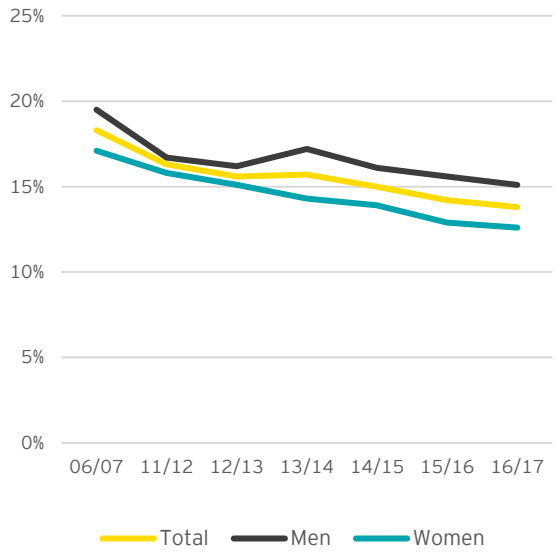


Figure 2: Proportion of population classed as daily smokers, total and by gender (Source: NZHS)

Ethnicity

Daily smoking in all ethnic groups has decreased, however rates in Māori are 2.79 times higher than in non-Māori when adjusted for age and gender distribution. The most rapid rates of decrease have been in Asian and European/Other groups, while progress for Māori and Pacific has been slower. This has had the effect of widening the relative gap in rates of smoking between Māori and non-Māori over the past decade i.e. the relative disparity between the two groups has increased as non-Māori have benefitted more from tobacco control interventions than Māori (an unadjusted relative rate between Māori and European/Other of 2.2 in 06/07 compared with 2.7 in 16/17).

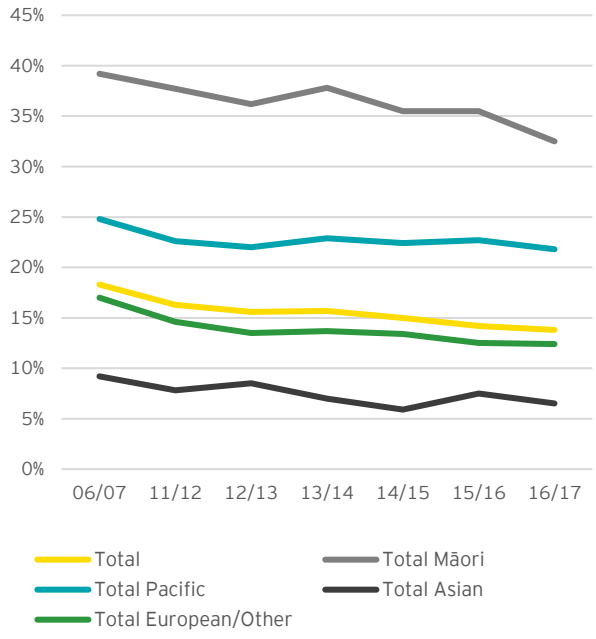


Figure 3: Proportion of population classed as daily smokers by ethnicity (Source: NZHS)

Māori are a particularly high-priority group for tobacco control efforts, given the higher rates of daily smoking in this group. Māori women have the highest daily smoking prevalence of any ethnic/gender group at 36% in 2016/17 (see **Figure 4**). Compared with non-Māori women, Māori women have a 3.7 times increased risk of daily smoking. The overall daily smoking rate in Māori has decreased by 11% between 06/07 and 16/17 – a smaller reduction than the general population.

When looking at average number of cigarettes consumed per day by adult daily smokers, there has been a statistically significant reduction amongst all ethnic groups, with higher rates of reduction observed for Pacific and Asian populations.

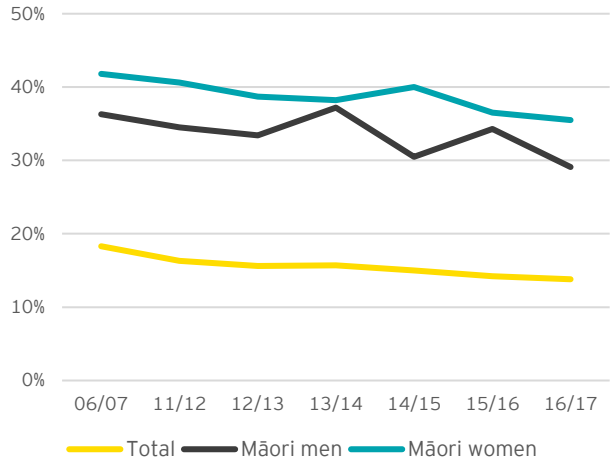


Figure 4: Proportion of Māori population classed as daily smokers by gender (Source: NZHS)

Table 10: Number of cigarettes smoked per day among adult daily smokers, by Ethnicity. All % changes statistically significant (P<0.05)

	06/07	16/17	% change
Māori	11.6	10.6	9%
Pacific	9.7	7.5	23%
Asian	7.6	6.1	20%
European / Other	11.8	10.7	9%

Age

Research shows that young people who do not start smoking in their adolescence are likely to never become regular smokers[73]. Thus, teenagers and young adults are of particular interest when looking at smoking rates. There has been a significant ($p<0.01$) and sustained drop in the numbers of young people who are daily smokers, from 14% of 15-17 year olds and 25% of 28-24 year olds in 2006/07 down to 3% and 16% respectively in 2016/17. The Census uses different age groups for regular smoking – 10.4% of 15-19 year olds and 21.4% of 20-24 year olds. Older age groups have been excluded from **Figure 5** for clarity – the pattern is one of a general decline in prevalence with increases in age group, likely due to survivorship effects (people who do not smoke are more likely to reach older ages).

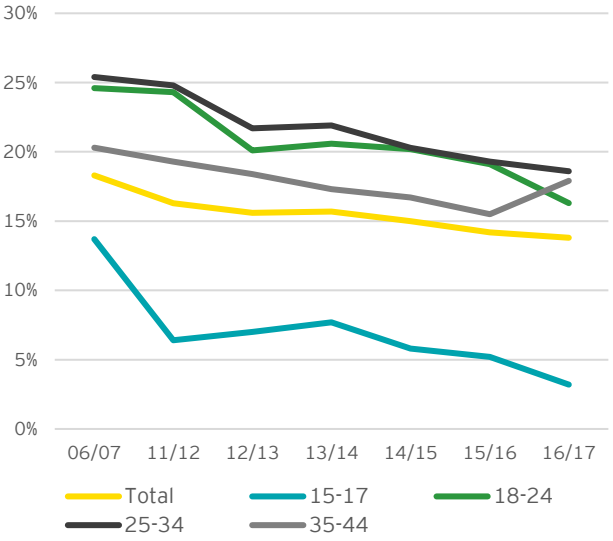


Figure 5: Proportion of population classed as daily smokers by age (Source: NZHS)

[73] Sargent JD, Gabrielli J, Budney A, Soneji S, Wills TA. Adolescent smoking experimentation as a predictor of daily cigarette smoking. Drug and Alcohol Dependence. 2017 Jun 1;175:55-9.

Deprivation

Deprivation is a powerful, independent determinant of smoking behaviour.[74] The NZHS uses the New Zealand Index of Deprivation 2013 (NZDep13), a composite measure of neighbourhood-level deprivation that includes factors such as household income, benefit receipt, access to car transportation, education and qualifications etc. Respondents in the survey are categorised into quintiles 1-5 based on their NZDep13 score, with Quintile 1 representing the 20% of the population with the lowest levels of deprivation (i.e. high socioeconomic position) and 5 representing the most deprived 20% of people.

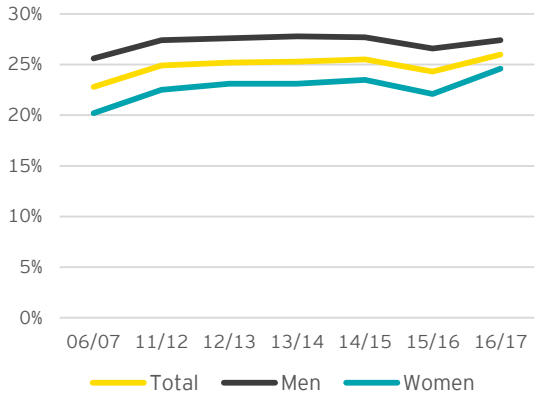


Figure 7 presents the daily smoking prevalence by deprivation quintile over time. These figures are unadjusted, so do not account for differences in ethnicity and age distribution between quintiles. Due to the unadjusted nature of this data, differences across years cannot be definitively linked to deprivation, as change in the demographic composition of each quintile may be a confounding factor. Nonetheless, it is an important finding that more deprived populations appear to have much higher rates of smoking in each year of data, and suggests that interventions better targeted to deprived groups are required to achieve equitable outcomes. The adjusted rate difference in smoking prevalence between the most deprived and least deprived groups is 3.85 in 2016/17, and this finding is statistically significant.

[74] Tu D, Newcombe R, Edwards R, Walton D. Socio-demographic characteristics of New Zealand adult smokers, ex-smokers and non-smokers: results from the 2013 Census. NZ Med J. 2016 Dec 16;129:43-56.

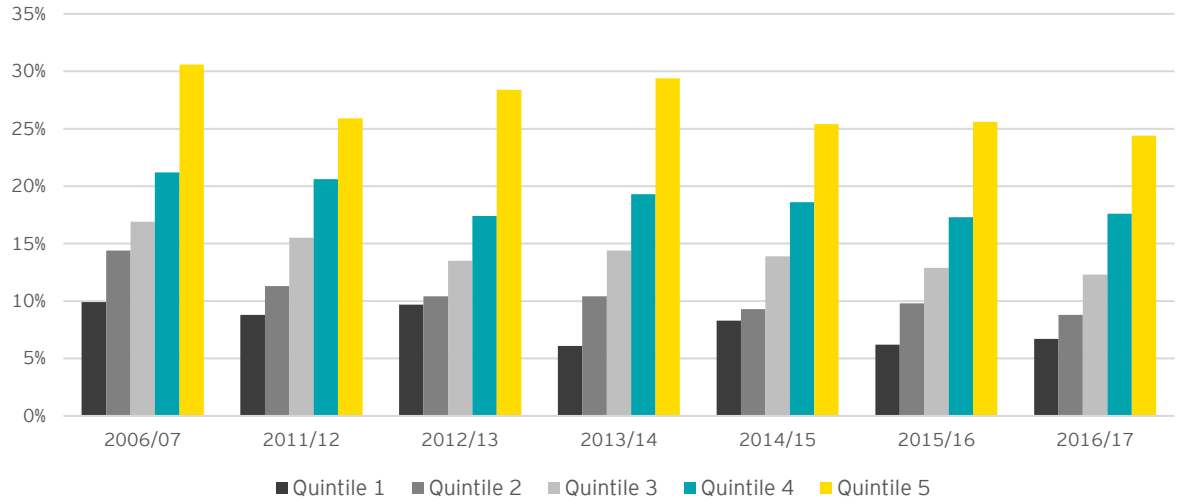


Figure 6: Changes in prevalence of daily smoking by deprivation quintile

There are also changes that have occurred in the type of tobacco used over the past decade. The NZHS asks respondents that smoke whether they mainly use manufactured cigarettes or RYO. The proportion of smokers who mostly use RYO has decreased slightly from 41.7% in 06/07 to 37.8% in 16/17. Māori in particular have switched from RYO to manufactured cigarettes – 53.8% to 43% over the same period, with no significant changes in other groups. There was a slight dip after the excise increase in 2010 as well, an expected finding given rates of excise on RYO and manufactured cigarettes were equivalised at this point (and have continued to be since). However when looking at regular estimates, this then went back to pre-excise proportions, with most of the subsequent change occurring between 15/16 and 16/17. The reason for this is unclear.

4.1.3 Ex-smoking

Ex-smoking as a proportion of population has a complicated relationship to rates of daily smoking. As measures to control tobacco and induce smokers to quit are implemented, we would anticipate an increase in ex-smokers as people in the current smoker population switch. However, these same measures often reduce the rates of people starting smoking, so we would also expect the population who might become ex-smokers to decrease as well, with some time delay effect.

The proportion of the population classed as an ex-smoker has increased by 14% over the past decade. The proportion of men has not significantly changed, while the proportion of women has significantly increased by 22% (see **Figure 7**).

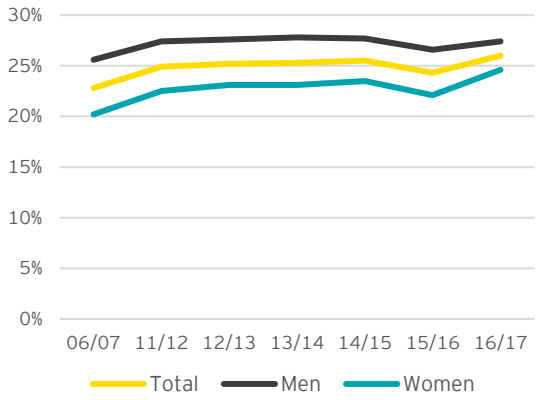


Figure 7: Proportion of population classed as ex-smoker, total and by gender (Source: NZHS)

Age

Table 11 shows the proportion of the population classed as ex-smokers by age group over time. There has been a general increase, although there are different patterns across age groups. For people under 25, the proportion has remained steady – this is presumably due to lower rates of smoking initiation meaning that few youth have smoked over 100 cigarettes in their lifetime, creating a small group effect. The proportion of older groups has increased more over the past decade – significant differences in total proportion and the 35-44 and 55-64 age groups are highlighted.

Table 11: Proportion of population classed as ex-smoker, by age group (Source: NZHS)

	06/07	11/12	12/13	13/14	14/15	15/16	16/17
Total	**23%**	**25%**	**25%**	**25%**	**26%**	**24%**	**26%**
15-17	1%	2%	1%	3%	1%	1%	0%
18-24	7%	7%	9%	5%	5%	5%	7%
25-34	16%	18%	19%	20%	18%	17%	18%
35-44	21%	23%	24%	25%	24%	24%	25%
45-54	27%	28%	27%	27%	30%	28%	31%
55-64	32%	34%	35%	35%	35%	32%	37%
65-74	38%	44%	42%	40%	40%	41%	41%
75+	41%	42%	39%	45%	47%	44%	41%

Ethnicity

There have been significant increases in the proportion of Māori (30% increase) and European/Other (18% increases) populations classed as ex-smokers. There has been no significant change in Pacific and Asian populations. The proportion of Māori classed as ex-smokers has increased from 20% in 2006/07 to 26% in 2016/17 (see **Figure 8**).

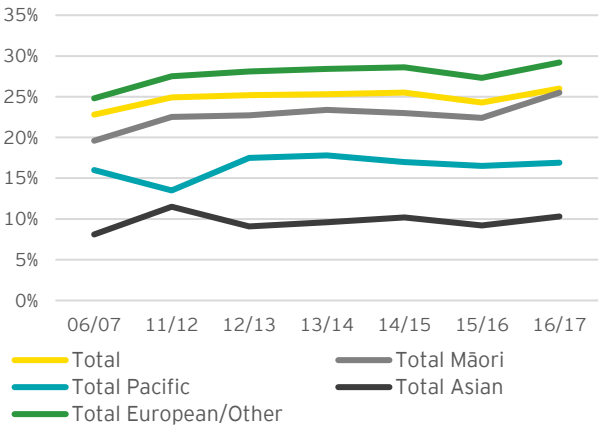


Figure 8: Proportion of population classed as ex-smoker by ethnicity (Source: NZHS)

Youth

There are two main data sources on smoking in youth – the Year 10 Snapshot Survey (YTSS) run by ASH – Action for Smokefree 2025, and the Youth Insights Survey (YIS) run by the HPA. The YTSS is an annual survey of Year 10 high school students (14 and 15 year olds) in New Zealand on smoking prevalence and smoking-related behaviours and attitudes, while the YIS is a broader survey of Year 10 students on a range of health-related activities. The latest year of YTSS data available is 2017, showing continuing reductions in ever-smoking and daily smoking prevalence.

4.1.4 Ever smoked

The proportion of Year 10 students who have ever smoked a cigarette has dramatically reduced over the past two decades. In 1999, 68% of 14-15 year olds had tried a cigarette, compared with only 18% in 2017 (see **Figure 9**). Female year 10 students had a consistently higher proportion up until about 2010, where the gender difference ceased. The YIS reports slightly different numbers for ever smoking – 28% in 2012, 25% in 2014 and 22% in 2016 – but these are largely congruent with the YTSS estimates.

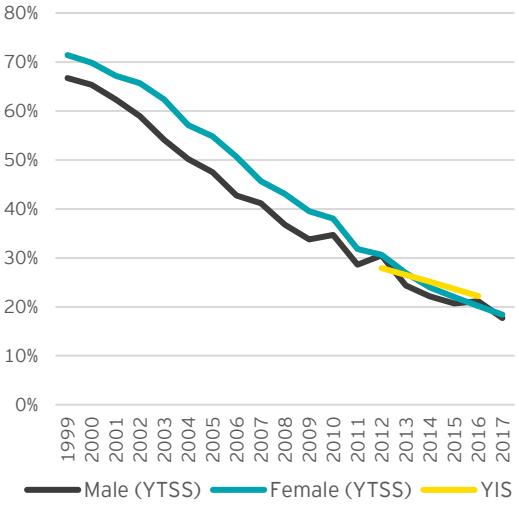


Figure 9: Proportion of Year 10 students who have ever smoked a cigarette

There are large differences in ever-smoking in Year 10s by ethnicity, with significantly fewer Asian and European students having ever smoked a cigarette compared with average, and significantly more Māori and Pacific students than average. Māori in particular have much higher rates, with 2.6 times the rate of European students (see **Figure 10**). Only 64% of Māori Year 10s had never smoked, compared to 82% of total.

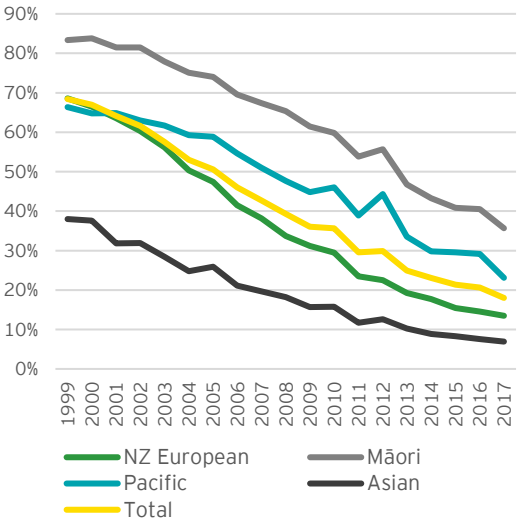


Figure 10: Proportion of Year 10 students who have ever smoked a cigarette, by ethnicity (Source: YTSS)

When stratified by school decile, there are also large differences in the proportion of students who have ever smoked. Only 11% of students at high decile (8 to 10) schools had ever tried a cigarette, compared with 31% in low (1 to 4) decile schools (see **Figure 11**).

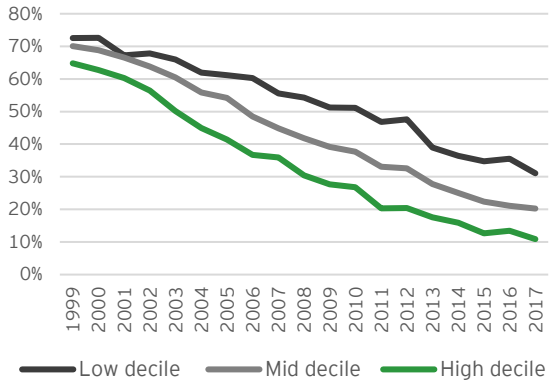


Figure 11: Proportion of Year 10 students who have ever smoked a cigarette, by school decile grouping (Source: YTSS)

4.1.5 Daily smoking

There has been a dramatic decline in the rate of current smoking in Year 10s over the past two decades. Of Year 10s, 8.2% smoked daily in 2006, compared with 2.1% in 2017, a decrease of 75%. This has been much greater than the reduction achieved in the adult population over the same timeframe (25%).

There is little difference in the prevalence of daily smoking between male and female students. There are however large differences based on ethnicity – Māori students are currently over-represented in daily smoking prevalence, and have a 5.4 times higher risk of being daily smokers than European students – a similar picture to that seen historically (see **Figure 12**). While absolute proportions have reduced in all groups, the gap in daily smoking rates has widened between 1999 and 2017 – rates have declined in European students much faster than those in Māori students. The gap showed signs of closing between 2013 and 2015, but was at its widest ever in 2016. This is also the case in Pacific students, who are at a 3.5 times higher risk of daily smoking compared with Europeans. Asian students are highly unlikely to be daily smokers, with only 0.6% reporting this in 2017.

School decile is also a powerful predictor of likelihood of daily smoking. Students at low (1-3) decile schools have a 7 times higher risk of being daily smokers than students at high (8-10) decile schools (see **Figure 13**).

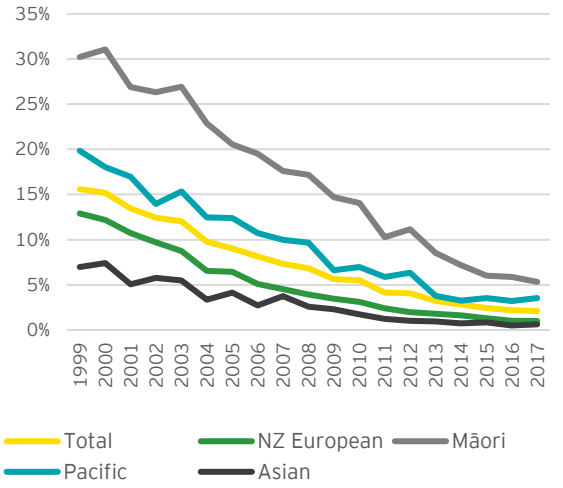


Figure 12: Prevalence of daily smoking in Year 10 students, total and by ethnicity (Source: YTSS)

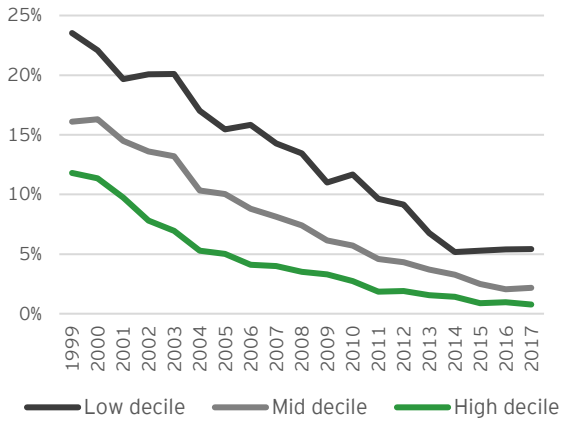


Figure 13: prevalence of daily smoking in Year 10 students, by school decile (Source: YTSS)

Quitting

4.1.6 Quitting services

Smoking Cessation Services (SCS) are publicly available programmes run by contracted community organisations.

Figure 14 shows that overall enrolments with SCS have decreased from 2013 to 2016. This is expected as the total pool of current smokers decreases.

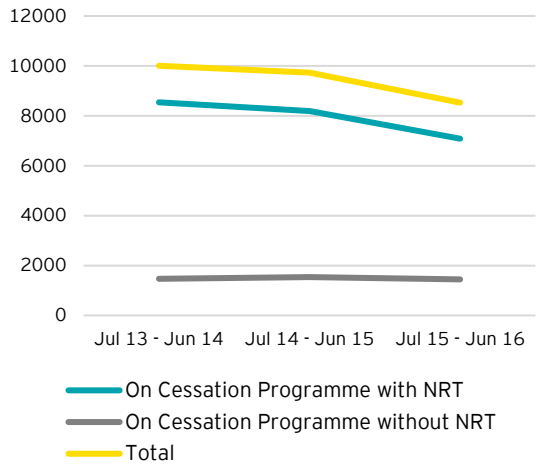


Figure 14: Total number of clients enrolling with SCS. Final quarter of 15/16 year unavailable, data point extrapolated from first three quarters. Source: Health Promotion Agency

Quitline is a free telephone service currently run by telehealth company Homecare Medical Ltd since late 2015 (previously run by the Quit Group).

Figure 15 describes the volume of quit attempts run through this service from Jan 2006 – Sep 2017. There is a clear pattern with spikes in quit attempts around January each year since the TETIs began, apart from 2016. There was also a large spike immediately following the first TETI in April 2010, suggesting that spikes in quit attempts are not simply a phenomenon associated with January or New Year resolutions. The absence of a spike in 2016 is likely attributable to changeover of the Quitline contract. While causality cannot be proven from this data, it is likely that TETIs are a major driver of quit attempts through Quitline.

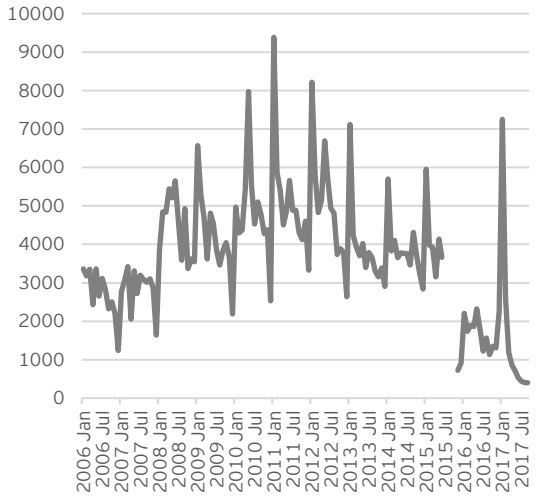


Figure 15: Number of quit attempts conducted with Quitline assistance (gap in data due to changeover of Quitline contract). Source: Health Promotion Agency

4.1.7 Pharmacological interventions

A number of pharmacological interventions are used by health professionals to assist with quit attempts:

- Nicotine Replacement Therapy (NRT) – nicotine-containing products designed to mitigate symptoms of nicotine withdrawal during a quit attempt. NRT is commonly prescribed during quitting programmes administered through SCS or Quitline, and comes in three forms:
- Patches – affixed to the skin and deliver a consistent and continuous level (3 strengths available) of nicotine. Used as a baseline to prevent cravings and reduce intensity
- Gum and lozenges – deliver nicotine through the oral mucosa (mouth lining) in a more rapid, high-dose fashion. Used to satisfy cravings when they occur
- Champix (varenicline) – a medication that reduces the pleasure associated with nicotine, it's only approved use in New Zealand is as a smoking cessation aid
- Zyban (bupropion) – a medication that reduces nicotine withdrawal symptoms and urge to smoke, only approved as a smoking cessation aid in New Zealand
- Nortriptyline – a common antidepressant medication that can be used as a smoking cessation aid. As Nortriptyline is commonly prescribed for non-cessation reasons, data related to this medication is not presented in this report.
- NRT can be made available to smokers by any health professional who has undergone appropriate training, while other medications are only able to be prescribed by doctors.

Figure 16 depicts the total number of monthly dispensings of NRT in New Zealand from 2013 to 2017. This data includes prescriptions dispensed at pharmacies, but not NRT given through services such as Quitline and the Corrections health service.

There is a clear trend of decreasing use of nicotine patches over this period, however total dispensings of gum and lozenges appear to be stable. A gradual reduction in total volumes would be expected with a gradually decreasing population of current smokers, as seen in Quitline volumes data (even before the change of contract). The flat rate of gum/lozenge dispensing is somewhat anomalous, it may be explained by increased awareness of these products among clinicians over time, or ongoing requirements of ex-smokers for these products to manage cravings and prevent smoking relapses. Another possible explanation is a shift from other sources of NRT like Quitline to pharmacy-based supplies. Unlike the Quitline data, there is not a clear pattern of increased NRT dispensing associated with TETIs in January.

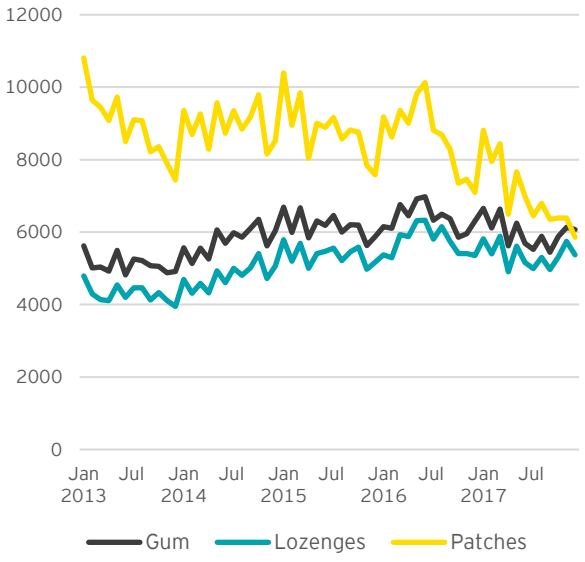


Figure 16: Monthly NRT dispensings in New Zealand, by formulation. Source: Ministry of Health

When looking at patches by dosage, volumes of dispensing for 7mg remains steady over the period, while 14mg has gradually reduced, and 21mg has had an overall reduction with significant variation (see **Figure 17**). This may represent a reduction in severity of nicotine addiction in smokers accessing NRT.

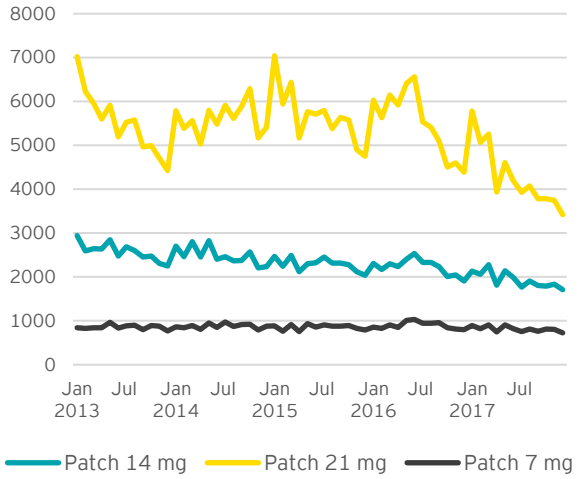


Figure 17: Monthly nicotine patch dispensing in New Zealand, by dosage. Source: Ministry of Health

With regards to non-NRT smoking cessation medicines, there is a clear trend of reducing volumes of varenicline dispensing, with the total number halving between 2013 and 2017 (see **Figure 18**). Bupropion dispensing volumes have remained steady over this time. These patterns may reflect changing prescriber preferences as well as a reduction in the population requiring these medicines. There is no clear association with TETIs in January.

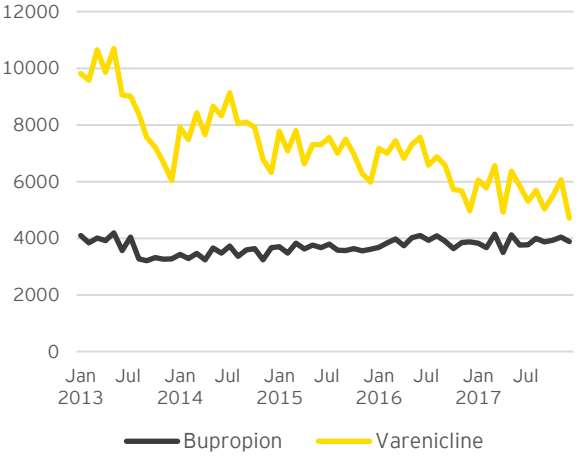


Figure 18: Monthly Bupropion and Varenicline dispensings in New Zealand. Source: Ministry of Health

Figure 19 shows the number of people prescribed NRT through SCS over time, and shows a stable number receiving patches, while prescriptions of gum and lozenges decreased. This is an expected pattern as more people become ex-smokers. Dosage data does not suggest that patch prescribing has shifted to lower-dose patches when prescribed through SCSs.

Overall, dispensing of pharmacological interventions for smoking has reduced over time, in line with expectations, given a shrinking pool of smokers who would require assistance of medicines to quit.

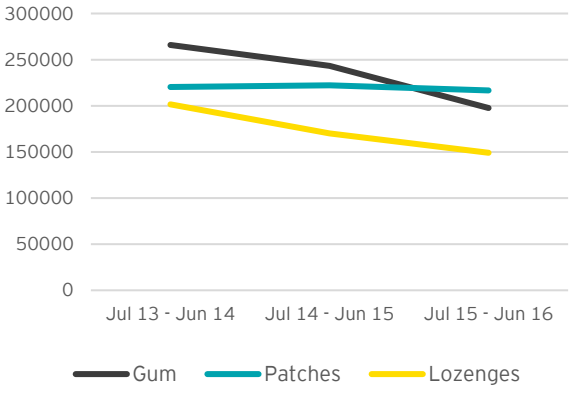


Figure 19: Number of people prescribed NRT by SCS, by NRT type. Source: Health Promotion Agency

Tobacco availability

4.1.8 Cost

Partly owing to its schedule of TETIs, New Zealand has the third highest cost ($15.36USD) of a 20-pack of cigarettes (highest selling in that country) in the world, following Australia ($15.80USD) and the Cook Islands ($15.43USD)[75]. 74.9% of the total cost of a 20-pack of cigarettes purchased in New Zealand is comprised of tax (61.9% tobacco excise tax and 13.0% goods and services tax). Despite the high absolute cost of tobacco products, New Zealand ranks only 33rd in the world for tax proportionate to total price, as there are many jurisdictions with a higher proportion of tax applied.

Figure 20 shows increasing average cost of individual cigarette and equivalent volume of RYO tobacco over time.

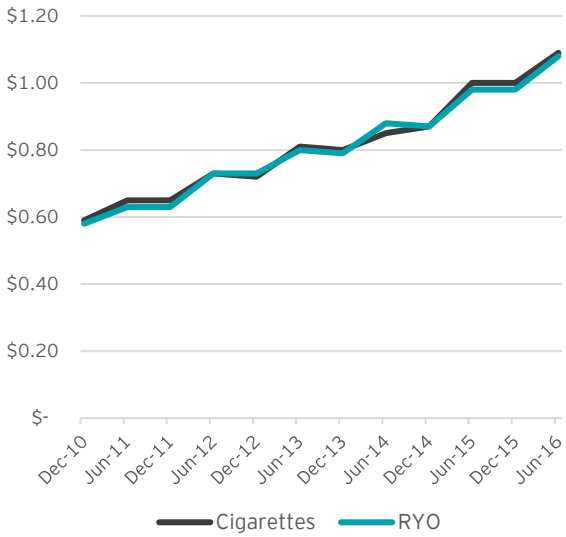


Figure 20: Average cost of individual cigarette and equivalent volume of RYO tobacco over time. Source: Health Promotion Agency

4.1.9 Sales

In keeping with declining prevalence of smoking, the total volume of tobacco sold has been gradually decreasing over time (see **Figure 21**), from 3.5 billion cigarette-equivalents (manufactured plus equivalent volume of RYO) in 2004 to 2.4 billion in 2017, a decline of 32%.[76]

The decline in sales for roll-your-own (RYO) tobacco (44%) has been much more pronounced than that of manufactured cigarettes, which have seen a 25% decline in sales since 2004. This is likely to have been influenced by the tobacco excise increase of 25.4 per cent implemented on loose tobacco in April 2010 (to equalise the tax with manufactured cigarettes by weight) and compounded by the fact RYO consumption is more common among lower-income smokers[77] who have a higher sensitivity to price changes.

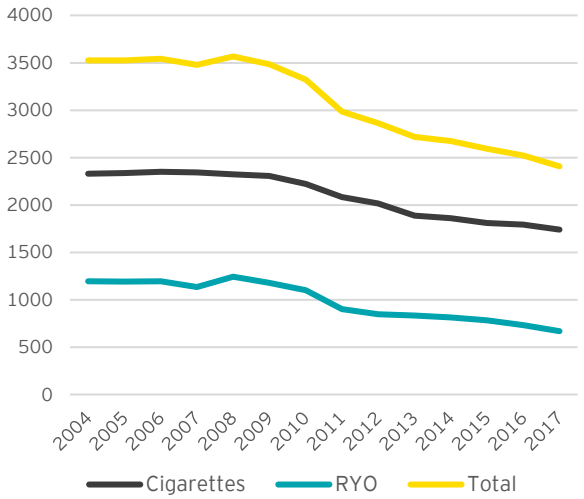


Figure 21: Sales of tobacco in New Zealand (millions of cigarettes). Source: Ministry of Health

[75] WHO Report on the global tobacco epidemic 2017. Available at http://www.who.int/tobacco/global_report/2017/en/

[76] As per Annual Tobacco returns supplied to the Ministry of Health in 2017 by tobacco manufacturers and importers under the Smokefree Environments Act

[77] A: Young D, Wilson N, Borland R, Edwards R, Weerasekera D. Prevalence, correlates of, and reasons for using roll-your-own tobacco in a high RYO use country: findings from the ITC New Zealand survey. Nicotine & Tobacco Research. 2010 Sep 16;12(11):1089-98

Figure 22 shows the average number of cigarettes and cigarette-equivalents of RYO sold per adult in New Zealand. This is derived from the total manufactured and RYO-equivalent cigarette volumes in annual tobacco returns, divided by the total population. This has decreased from 1103 in 2004 to 623 in 2017, a 44% reduction. In the six years preceding the TETIs, per capita sales reduced by an average of 1.5% per annum (including an increase in 2008), while in the seven years following 2010, per capita sales have reduced by an average of 6.0% per annum.

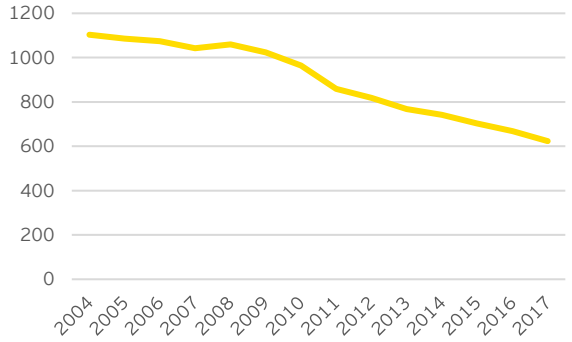


Figure 22: Cigarettes and cigarette-equivalent RYO volumes sold in New Zealand per capita. Source: Ministry of Health

Figure 23 shows data on tobacco sales at a sample of supermarkets and service stations (i.e. a subset of tobacco retailers) at 4-weekly intervals. There is a clear annual pattern of spikes in sales in November/December prior to excise tax increases, and lows in the middle of the year. There is also an overall decreasing trend, with an average of 80 million cigarettes and cigarette-equivalents of RYO sold through these outlets in the 12 months up to Aug 2011, compared with 75 million in Aug 2012 and 70 million in Aug 2016.

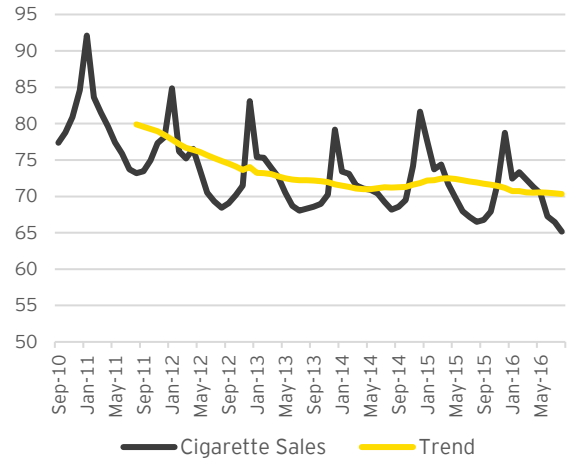


Figure 23: 4-weekly sales of individual cigarettes and equivalent RYO (millions). Trend is average of preceding 12 months. Source: Health Promotion Agency

Figure 24 shows the estimated total spend on tobacco and the total tobacco tax revenue. The estimated total spend is derived from volume data provided to the Ministry of Health by tobacco companies (as required under the SEA), and excludes pipe tobacco, cigars and cigarillos (which represent 0.5% of total tobacco sold). This sales volume data is multiplied by the average retail price per cigarette as collected by AC Nielsen as at June of each year and reported to the Health Promotion Agency. Tax revenue data is derived from official Treasury records, and does include revenue from pipe tobacco, cigars and cigarillo sales.

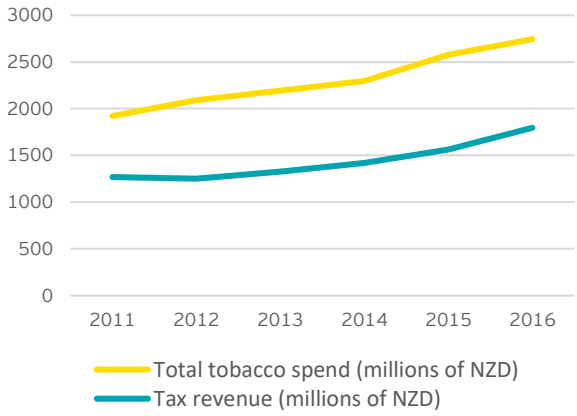


Figure 24: Estimated total spend on tobacco and actual total tobacco tax revenue in NZ per year. Source: Health Promotion Agency and Ministry of Health

The overall volume of tobacco sold has constantly declined each year since the introduction of TETIs. This appears to have proportionately affected RYO more than manufactured cigarettes, possibly due to the fact RYO consumption is more common among lower-income smokers who have a higher sensitivity to price changes and compounded by the tobacco excise increase of 25.4 per cent implemented on loose tobacco in April 2010 (to equalise the tax with manufactured cigarettes by weight).

Sales in supermarkets and service stations appear to have been relatively stable from 2013 to 2016, while total sales continued to drop. The reason for this is unclear – it may be that lower-income smokers are more likely to purchase from other outlets i.e. dairies. The clear annual pattern of tobacco sales at supermarkets and service stations demonstrates that stockpiling before tax increases is a common behaviour among smokers.

Total spend on tobacco in New Zealand has increased between 2011 and 2016 – an expected finding given the rate of increase in prices has exceeded the rate of decline in sales volume over this period. Tax revenue as a proportion of sales ranges between 60-66%.

4.1.10 Illicit trade and crime

Customs Interceptions

The New Zealand Customs Service (Customs NZ) is responsible for enforcing the restrictions in the SEA referring to importation of tobacco products. **Figure 25** details interceptions made by Customs NZ of cigarettes/cigars (counted in number of individual cigarettes/cigars) and loose tobacco (counted in kilograms). After an interception occurs, it is detained by Customs NZ, and then may either be released back to the importer once additional requirements have been met, or formally seized. Data collection on abandoned products (i.e. deposited into amnesty bins at transitional facilities like airports) began in 2014. This includes both cigarettes and loose tobacco as these are both weighed in bulk, recorded and then disposed of. Interceptions data shown below does not demonstrate a clear trend in volumes of tobacco.

Additional experience from Customs NZ is that the rate of large-scale seizures of tobacco has increased in the past 2-4 years, particularly through mail systems. However, these cigarettes are of very low-quality and appear to have been intended only for certain immigrant groups, rather than the general New Zealand population. This may be a result of the increasing emphasis put on intercepting illicit tobacco, as the potential Crown revenue lost increases with increasing excise tax. Customs NZ is of the view that increasing rates of investigations related to tobacco is an indicator of potential increasing interest in tobacco smuggling by organised criminal groups.

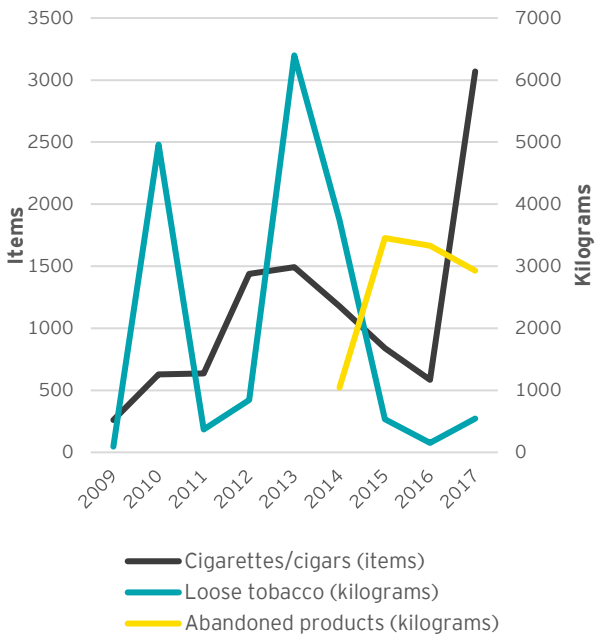


Figure 25: Interceptions of tobacco products. Source: Customs NZ

Illicit tobacco

Illicit tobacco is made up of two major categories:

- Contraband - legally-manufactured tobacco products that have been brought into New Zealand illegally
- Unbranded – loose leaf or RYO tobacco without labelling or health warnings, and unlikely to have had excise tax or duties paid on it

There have been a number of attempts to estimate the magnitude of illicit tobacco consumption in New Zealand. There is a significant degree of variation between these estimates, and multiple methodologies employed. Evidence shows that studies commissioned by tobacco companies or using data generated through industry-funded activities are unreliable and lack scientific rigour.[78] Multiple problems with data collection, analysis and presentation have been repeatedly identified, and industry-funded research consistently overestimates illicit tobacco trade compared with independent reports. [79] It is in the interests of tobacco companies for estimates of illicit tobacco consumption to be high; this implies criminal activity and profits are occurring as a result of difficulty accessing legal tobacco, which may influence policy decisions around excise and other tobacco control measures. There is also evidence that tobacco companies knowingly participate in illicit tobacco trade[80]. None of these estimates have looked at tobacco stolen from importers, manufacturers or retailers.

Two reports were published in 2010, one by ASH and another by EY – the EY report was commissioned and funded by British American Tobacco. The EY report[81] combined Customs NZ data, tobacco seed importations, aerial surveys of known illicit tobacco growing areas and previous estimates of counterfeit and excess duty free smuggling into New Zealand. This report estimated that these combined sources represented 3.3% of total tobacco consumption, with much higher proportions of loose tobacco being illicit (7.5% of total) compared with cigarettes (1% of total). The 2010 ASH report[82] employed similar methodology and produced an estimate for illicit tobacco ranging from 0.7 to 2% of total consumption. The EY estimate was higher due to a higher estimate of the amount of illegal domestic tobacco growing.[83]

ASH updated their estimate in 2013[84] using the same methodology (mainly based on Customs NZ interceptions and seizures data), and produced a figure of between 1.8 and 3.9%. This equated to between 33 and 70 tonnes of tobacco in total, using a conversion of 0.5g loose tobacco per cigarette – it is unclear why this conversion was used, as the Ministry of Health uses a conversion of 0.7g per cigarette. If 0.7g is used, this would equate to between 38 and 76 tonnes. This report concluded that this is only a minor increase on the previous 2010 estimate and as such the TETIs that had occurred from 2010-2013 had not contributed to expansion of the illicit tobacco market. The report attributed the small increase to an increase in the volume of small-scale illicit tobacco shipments entering New Zealand (by individual passengers or in mail), possibly as a result of improved export controls internationally.

[78] Gallagher AWA, Evans-Reeves KA, Hatchard JL, et al Tobacco industry data on illicit tobacco trade: a systematic review of existing assessments Tobacco Control Published Online First: 22 August 2018. doi: 10.1136/tobaccocontrol-2018-054295
[79] Rowell A, Evans-Reeves K, Gilmore AB. Tobacco industry manipulation of data on and press coverage of the illicit tobacco trade in the UK. Tobacco control. 2014 May 1;23(e1):e35-43.
[80] Ministry of Health. 2015. New Zealand and the Protocol to Eliminate Illicit Trade in Tobacco Products – Consultation document. Wellington: Ministry of Health.
[81] Ernst & Young. Out of the Shadows – An independent report of New Zealand's illicit tobacco market. 2010.
[82] Paynter J, U E, Joossens L. Illicit Tobacco Trade: Monitoring and Mitigating Risk in New Zealand. Auckland: ASH New Zealand; 2010.
[83] Note that domestic tobacco growing up to 15kg per year for one's own use is legal. Numbers doing this are small.
[84] U E, Ajmal A. Update of Illicit Trade in Tobacco Projects in New Zealand 2013. Auckland: ASH New Zealand. 2014

The most recent estimate of the size of the illicit tobacco market in New Zealand was made by KPMG in a 2017 report commissioned by Imperial Tobacco New Zealand Limited[85]. The main method of estimation used in this report was an Empty Pack Survey – collection of 2,000 discarded cigarette packs across the Auckland, Christchurch, Wellington, Hamilton and Napier/Hastings and verification of source by a consortium of tobacco manufacturers. This method is an attempt to quantify the proportion of "non-official" cigarettes smoked (by verifying whether they were legally sold in the country with manufacturers), to produce an estimate of total illicit market activity. However an analysis of empty pack survey methodology by the Cancer Council Victoria[86] raises a number of fundamental concerns about the representativeness of this method:

- Packs discarded outdoors are unlikely to be representative of all packs used in Australia
- Packs originating from overseas are likely to be over-represented in urban areas covered by the survey
- People who access illicit tobacco, and people who are tourists (carrying cigarettes from overseas) are more likely to litter
- The method cannot distinguish between cigarettes legally bought overseas and those smuggled into the country

The report also cites a consumer survey asking smokers about their purchases of unbranded tobacco and domestic growing of tobacco. This report estimates that, in 2017, 9.2% of total tobacco consumption (191 tonnes) in New Zealand was illicit. It states that 79% of this is made up by contraband, with the remaining 21% attributed to unbranded tobacco, and a very small contribution (0.2%) of counterfeit (illegally-manufactured) cigarettes. The survey estimated that only 3.2% of smokers have grown tobacco at home within the preceding 12 months (averaging 3.4kg/year), and that only 4% of these had exceeded the 15kg annual limit allowed for in the Customs and Excise Act. For comparison, Imperial Tobacco Australia Limited and Philip Morris Limited also commissioned KPMG to estimate the illicit tobacco market in Australia, using very similar methodology[87]. This report estimated illicit tobacco consumption to be 13.9% of total tobacco consumption in Australia in 2016.

There is little independent, peer-reviewed research that demonstrates a causative relationship between higher cigarette prices and increase in illicit tobacco market activity. By contrast, there is a wealth of tobacco industry-funded reports and analyses that claim this link. Reviews of tobacco industry marketing and report-commissioning activity by independent researchers demonstrate that in many cases, independent reports have failed to demonstrate increases in illicit tobacco consumption in the context of increasing excise taxes.[88] The IARC review concludes that the main determinants of illicit tobacco activity are corruption, informal distribution networks, the presence of organised crime, weak border controls and tax administration, and differential treatment of domestically-produced and imported products. It is also highest in the countries with the lowest cigarette prices and taxes, rather than those with high taxes, and the size of the illicit market is usually inversely related to a country's income.

New Zealand does very well in all of these domains when compared internationally, and is thus likely to be one of the lowest-risk jurisdictions for illicit trade. Research from New Zealand[89] has also shown a decrease in large-scale organised smuggling and a small increase in small-scale mailed shipments. This paper also found that, rather than encouraging illicit tobacco, excise taxes have forced industry to concentrate on producing cheaper cigarettes, which directly compete with illicit tobacco.

[85] KPMG. Illicit tobacco in New Zealand 2017 Full Year Report.
[86] Quit Victoria. Critique of, illicit tobacco in Australia: full year report 2013 by KPMG LLP. Melbourne, Australia: Cancer Council Victoria, 2014.
[87] KPMG. Illicit tobacco in Australia 2016 Full Year Report.
[88] Rowell A, Evans-Reeves K, Gilmore AB. Tobacco industry manipulation of data on and press coverage of the illicit tobacco trade in the UK. Tobacco control. 2014 May 1;23(e1):e35-43.
[89] Ajmal A, U VI. Tobacco tax and the illicit trade in tobacco products in New Zealand. Australian and New Zealand journal of public health. 2015 Apr;39(2):116-20.

To summarise, there is a highly variable body of literature that estimates illicit tobacco consumption in New Zealand. There has been no work since 2013 that was not funded by the tobacco industry, and methodologies over time are not directly comparable, which makes the production of a current reliable figure difficult. Given the ASH finding that illicit trade did not significantly increase between 2010 and 2013 despite a number of TETIs, there is not an established pattern of a growing illicit tobacco market in New Zealand, and there is no independent evidence that definitively shows that it has increased since 2013. The experience of Customs NZ of increasing commercial-sized interceptions of smuggled tobacco is an indicator that this is possibly increasing, but cannot determine the size of the market. When compared internationally, New Zealand is a low-risk jurisdiction for significant illegal tobacco activity.

The absence of reliable estimates of illicit tobacco importation and use represents a significant gap in New Zealand's tobacco control information. The New Zealand government could consider instituting its own monitoring programme, including using the methodology of the 2010 and 2013 ASH reports, as well as surveying smokers on whether they access illicit tobacco – this could be done through existing surveys e.g. the New Zealand Smoking Monitor.

Tobacco-related crime

There is no reliable source of data that reports tobacco-related crime in New Zealand. The New Zealand Police have only recently begun collecting data on the targeted product in robberies/burglaries, and this information is not publicly available.

Currently available data from the New Zealand Police does show an increasing trend in robberies at petrol stations, shops and liquor stores (excluding dairies, superettes and supermarkets) from a low point in 2013 to 2017, however this does not report what was stolen, and is not specific to stolen goods – it includes personal robberies that occurred outside these premises as well. As such, it cannot be inferred that this increase is related to the targeting of tobacco for robbery.

This is a major gap in data on a highly relevant issue to policymakers, which limits the ability of this report to comment on whether tobacco taxes are linked to increasing robberies and assaults at retailers.

4.1.11 Non-cigarette nicotine use

E-cigarettes

E-cigarettes are a relatively new form of non-tobacco nicotine use. There is significant controversy in public health literature about the role of e-cigarettes in tobacco control. As discussed in the literature review, some take the position that they are a useful harm reduction measures, while others argue that they are an appealing introduction to nicotine addiction for children, young adults and other non-smokers. Whichever the view, it is generally agreed that e-cigarettes have and will have a significant effect on smoking rates and it is thus important to consider their effect when evaluating the effects of TETIs.

Prevalence of e-cigarette use has increased significantly in recent years – in 2011 only 7% of smokers and recent quit-attempters had ever used an e-cigarette, while in 2014 this proportion had increased to 50%. The general prevalence of daily use of e-cigarettes has been estimated at 2-5% in 2014[90] using the New Zealand Smoking Monitor survey, while the 2016 Health and Lifestyle Survey estimated that 17% of all New Zealand adults have tried e-cigarettes, and 3% were current users.[91]

The 2016 YIS asked about e-cigarette use among 14-15 year olds[92], and found that 27.7% of participants had tried an e-cigarette (33.4% of males and 21.8% of females). The majority of "current users" (65%) used an e-cigarette less than once a month, with only 2% of youth using them at least weekly (3% of males and 1% of females). As with adults, Māori were much more likely to use e-cigarettes (approximately twice as likely to be daily, weekly or monthly users compared with European/Other ethnicities), with 45.8% having tried an e-cigarette. Only 3% of youth identifying as Asian used an e-cigarette at least monthly.

The 2017 ASH Year 10 Snapshot Survey also asks about e-cigarette use, and found that 29% of all year 10 students had tried an e-cigarette at least once, up from 25% in 2016. However, only 6.6% of year 10s are regular (at least once a month) e-cigarette users, demonstrating that experimentation is not highly linked to regular use. The prevalence of e-cigarette use in this survey also varies significantly by ethnicity – 52% of Māori and 32% of Pacific youth had ever tried an e-cigarette, compared with 22% of non-Māori non-Pacific (NMNP). 14% of Māori and 8.6% of Pacific youth are regular users, compared with 4% of NMNP. E-cigarette use is highly prevalent among youth who regularly smoke, mirroring patterns of use in the adult population, and international evidence. As discussed in the literature review, this does not necessarily represent a causative or "gateway" relationship between e-cigarettes and smoking.

The New Zealand Smoking Monitor (NZSM) has demonstrated that e-cigarette use is significantly associated with quit attempts amongst current smokers and recent ex-smokers. 39% of serious quit attempters have ever used an e-cigarette, compared with 23% of those who have not made a quit attempt in the past 3 months.[93] Smokers who were non-Māori, young (18-34) and had high household income were less likely to report exposure to e-cigarette use in 2014.

Other forms of nicotine

There are little data available on the use or sales of products such as smokeless tobacco, chewing tobacco and snus, as this information is not specifically collected in any regular surveys that occur in New Zealand. The importation, distribution and sale of forms of tobacco intended for oral use (chewing and snus) is prohibited under the SEA.

Smokeless tobacco is solid tobacco product that is heated to the point of vaporising nicotine and other chemicals, rather than being combusted and producing a smoke. These products have recently been developed by tobacco companies and are being heavily marketed internationally. Smokeless tobacco was recently the subject of a district court ruling after the Ministry of Health laid charges against Philip Morris (New Zealand) Ltd over their "HEETS" product. The court ruled that smokeless tobacco products were not covered by the SEA as they did not fit the description of a cigarette, nor that of tobacco products suitable for oral use as they produce "inhalable volatile compounds" rather than smoke.[94]

[90] Merry S, Bullen C. E-cigarette use in New Zealand-a systematic review and narrative synthesis. The New Zealand Medical Journal (Online). 2018 Feb 23;131(1470):37-50.
[91] Health Promotion Agency. Preliminary analysis on 2016 Health and Lifestyles Survey (HLS) E-cigarette Questions. Available at https://www.hpa.org.nz/research-library/research-publications/preliminary-analysis-on-2016-health-and-lifestyles-survey-hls-e-cigarette-questions
[92] Health Promotion Agency. E-cigarette use among 14 and 15 year olds: Results from the 2016 Youth Insights Survey. Available at: https://www.hpa.org.nz/research-library/research-publications/e-cigarette-use-among-14-and-15-year-olds-results-from-the-2016-youth-insights-survey
[93] Li J, Newcombe R, Walton D. The use of, and attitudes towards, electronic cigarettes and self-reported exposure to advertising and the product in general. Australian and New Zealand Journal of Public Health. 2014 Dec;38(6):524-8.
[94] http://www.districtcourts.govt.nz/assets/unsecure/2018-03-27/2018-NZDC-4478-MOH-v-Morris.pdf

5 Secondary data analysis

Analysis of the effect of tobacco excise increases on households

5.1.1 Introduction

The integrated data infrastructure (IDI) was used to access the household economic survey (HES). Each survey provided a full financial year of data, with the years available being 2006/07, 2009/10 and 2012/13. An initial cigarette and tobacco expenditure dataset was extracted by taking all households with any cigarette and / or loose tobacco expenditure from any HES (n = 3,906).

5.1.2 Descriptive analysis

5.1.2.1 Total population

The distribution of households with any cigarette and / or loose tobacco expenditure fluctuates over time; October has the largest spread, while June and July have the most similar counts (see **Figure 26**). Over time there appears to be a decrease in the number of households sampled which have any cigarette or tobacco expenditure. The total number of households with any cigarette and / or loose tobacco expenditure was 3,906 (n = 1,407 for 2006/07; n = 1,419 for 2009/10; n = 1,080 for 2012/13 – the lower number in 2012/13 may be indicative of a decrease in smoking prevalence of surveyed households).

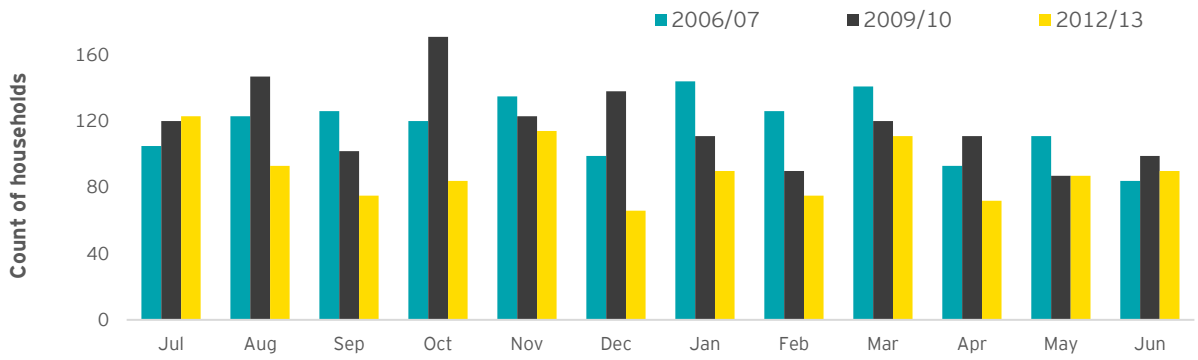


Figure 26: Count of surveyed households with any cigarette and / or loose tobacco expenditure

Over time, average annualised expenditure per person aged 15 and over appears to be increasing, from $825 in 2006/07, to $894 in 2009/10, and $1,112 in 2012/13 (see **Figure 27**)[95]. This is consistent with the rising prices of tobacco, and may also be indicative of a rate reduction in the number of more casual smoking households compared to more frequent smoking households. On average the increase equates to 5.1% per year from 2006/07 to 2012/13. There does not appear to be any evidence of seasonal trends in average expenditure[96].

Figure 27: Cigarette and tobacco household expenditure by HES year

[95] Due to expenditure being on an average annualised per person basis, there is some dilution of expenditure by non-smokers who share households with smokers
[96] Indexed in each HES year in July

Average expenditure before and after a tax increase does not show a consistent trend (see **Figure 28**). This makes it difficult to assess how the tax increase has affected smokers, as an expenditure increase after a tax increase may be due to a decrease in the casual smoking population and so the more frequent smoking population pushes the average up, or it may be due to increasing prices or perhaps inflation. On the other hand, a decrease may mean that the smoking population is reducing their expenditure or that greater expenditure is occurring in the months leading up the next tax increase.

Assessing the effect of demographic and other factors does not provide a clear sense how the tax increase affects the population, this may be due to the degree of censoring required to preserve anonymity.

Figure 28: Cigarette and tobacco expenditure before and after tax increases

5.1.2.2 Age

This, and following subsections, explores the percentage change in expenditure between before and after a tax increase in each HES period. The highest variation in expenditure occurred in households with people aged 15-24 (see **Figure 29**)[97]. The 25-44 age group is the next most affected, and the 45 and over age group appears to be more or less the same after each tax increase except for in 2012/13. For reference, the average expenditures by age group in 2012/13 were $753, $1,105 and $1,275 for age groups 15-24, 25-44 and 45 and over, respectively.

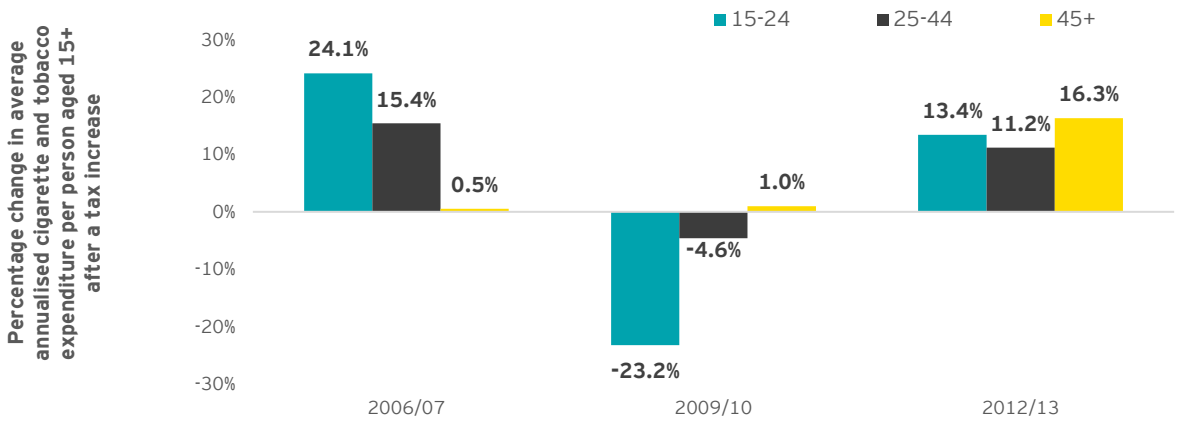


Figure 29: Percentage change in cigarette and tobacco expenditure after tax increases by age group

[97] Smaller counts were censored to preserve anonymity, and so the trend here is potentially biased if the expenditure of those censored has a particular pattern

5.1.2.3 Gender

By gender, males appear to have a larger relative change compared to females (see **Figure 30**). For reference, the average expenditures by gender in 2012/13 were $1,141 for males and $1,086 for females.

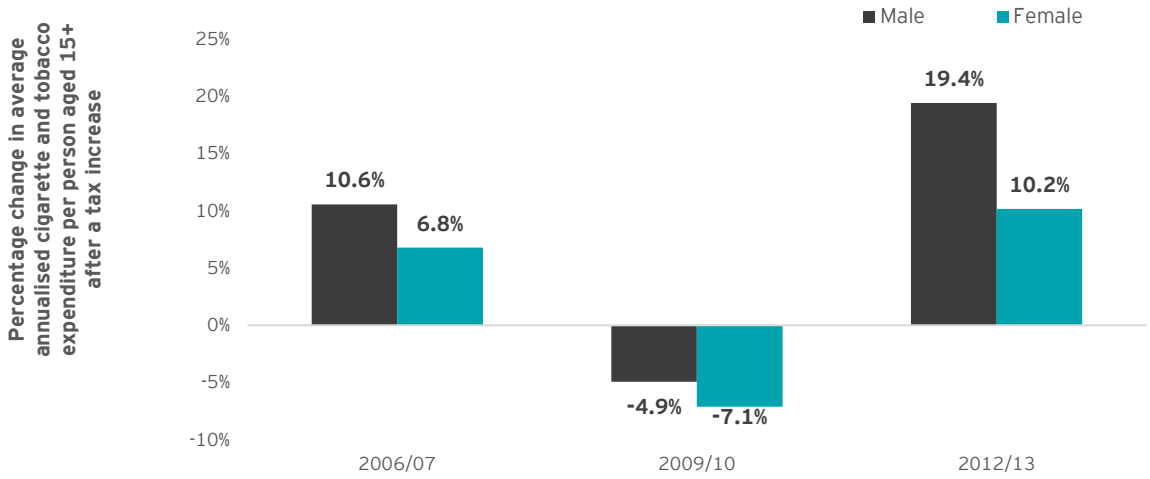


Figure 30: Percentage change in cigarette and tobacco expenditure after tax increases by gender

5.1.2.4 Ethnicity

By ethnicity, it appears that Māori / Pacific people were initially quite price sensitive in 2006/07 but were less price sensitive in following years, where Other people were more likely to have a larger relative change (see **Figure 31**). For reference, the average expenditures by ethnicity in 2012/13 were $895 for Māori / Pacific people and $1,191 for Other people.

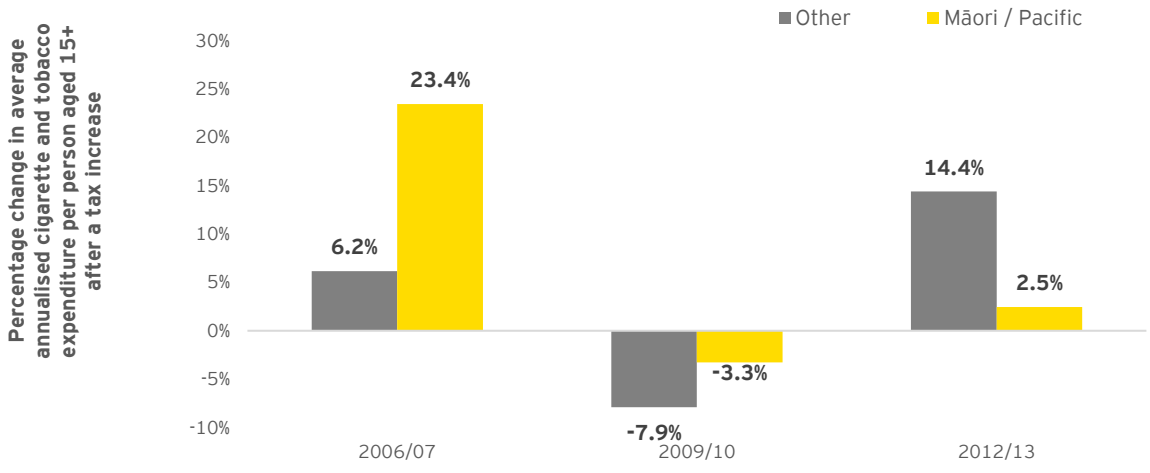


Figure 31: Percentage change in cigarette and tobacco expenditure after tax increases by ethnicity

5.1.2.5 Geography

Due to low counts geographically, Territorial Authorities were rolled up into districts and cities to provide a rough sense of the rural and urban split[98]. It appears that there is a more consistent increase in districts than in cities (see **Figure 32**). For reference, the average expenditures by rural and urban in 2012/13 were $1,287 for districts and $1,045 for cities.

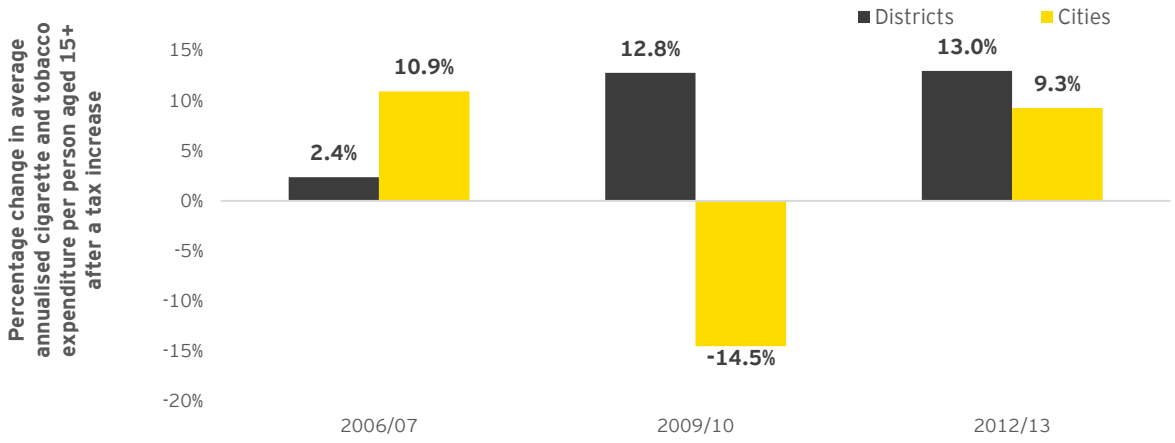


Figure 32: Percentage change in cigarette and tobacco expenditure after tax increases by rural / urban

5.1.2.6 Household composition

By household composition, it appears that single and other households have varied more after each tax increase. For reference, the average expenditures by household composition in 2012/13 were $1,104 for households with couples and $1,122 for households with single and other compositions (see **Figure 33**).

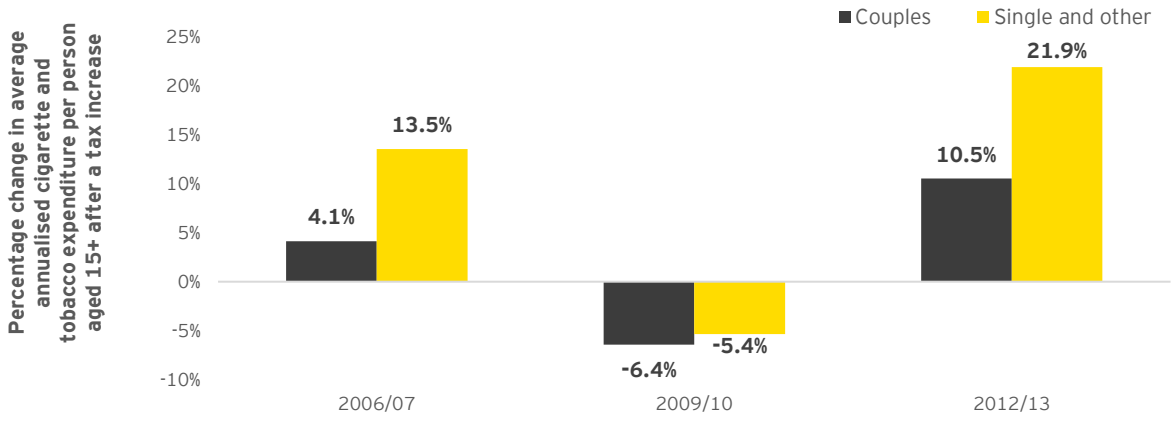


Figure 33: Percentage change in cigarette and tobacco expenditure after tax increases by household composition

[98] It is noted that there are some urban areas which are TA-coded as districts, e.g., Rotorua District, New Plymouth District

5.1.3 Average cigarette and tobacco expenditure distribution

The following distributions of cigarette and tobacco expenditure present the effect of the natural logarithm on expenditure (see **Figure 34** and **Figure 35**). The resulting log-expenditure distribution is relatively normally distributed so assumptions are more likely to hold.

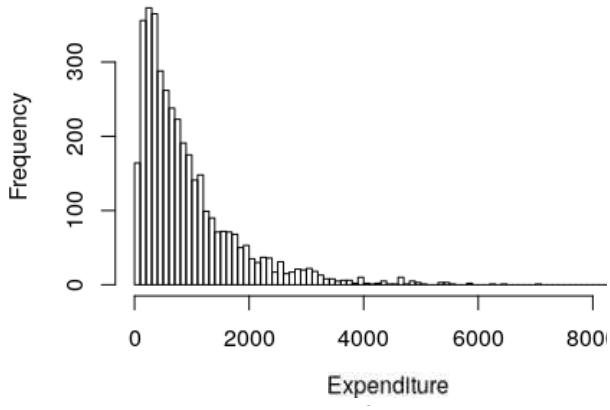


Figure 34: Histogram of cigarette and tobacco expenditure

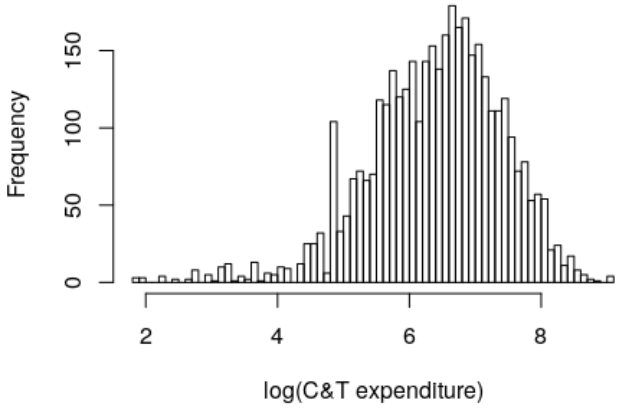


Figure 35: Histogram of cigarette and tobacco expenditure with natural log transformation applied

5.1.4 Differences in median cigarette and tobacco expenditure

For the 2006/07 HES, which had the smallest tax increase, there was no significant difference in median cigarette and tobacco expenditure before and after the tax increase.

For the 2009/10 HES which had two tax increases, there was a statistically significant decrease in median cigarette and tobacco expenditure of 10.7% after the tax increase ($p<0.03$)

For the 2012/13 HES which had one standard tax increase, there was a statistically significant increase in median cigarette and tobacco expenditure of 19.4% after the tax increase ($p<0.01$).

5.1.5 Interaction models

To consider the combined effect of household composition, demographics and tax increases on expenditure, interaction models were developed. For the 2006/07, 2009/10 and 2012/13 HES there was no significant interaction between the tax increases and ethnicity, gender, age and household composition (further details on this analysis are provided in **Appendix F**).

5.1.6 Conclusion

No clear or consistent pattern of changes in expenditure in relation to excise tax changes was able to be seen from the HES data in the IDI. This was due to the limitations of the data collection i.e. household-based, only three periods covered, stockpiling behaviour prior to price increases, and the lack of a clear retail price increase time point.

Price elasticity

5.1.7 Price elasticity of demand

Figure 36 presents the implied price elasticity of demand[99] for tobacco. While the graphs shows varied levels price elasticity ranging between -0.37 and -1.24 from 2010 to 2016, there appears to be no evidence of reducing price elasticity over the period of analysis.

An outlier is observed in 2011, which is likely to be correlated with the additional tobacco excise increase of 25.4 per cent implemented on loose tobacco in April 2010 (to equalise the tax with manufactured cigarettes by weight) and compounded by the fact RYO consumption is more common among lower-income smokers who generally have a higher sensitivity to price changes.

Excluding the 2011 outlier, the average price elasticity of demand is -0.5, which is consistent with The New Zealand Treasury tax modelling assumption of -0.5 and not dissimilar to findings from authoritative international research of general price elasticity of demand for tobacco products in developed countries of -0.4.

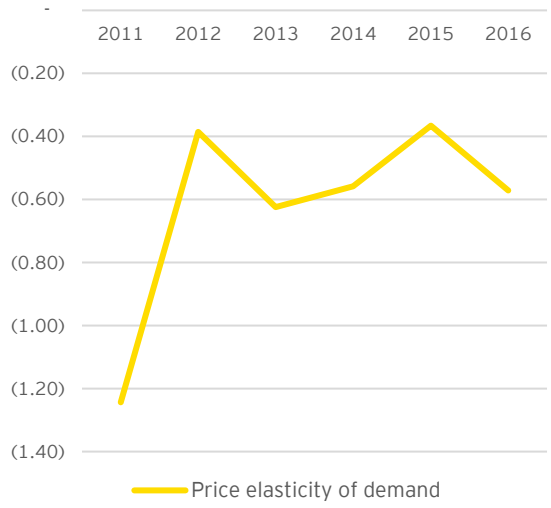


Figure 36: Implied price elasticity of demand for tobacco products in New Zealand. Source: Health Promotion Agency and Ministry of Health

This evaluation has also looked at an alternative calculation method for the elasticity using other data sources. In an effort to ascertain the effect of the excise tax regime on household tobacco expenditure, indicator variables were employed to determine if there was a material difference between tobacco consumed prior to the excise tax relative to after the tax.

The tobacco expenditure line of the HES was interpolated between 2004-2007 and projected to 2009. Data was also interpolated between the odd numbered years for years subsequent to 2010, with a break at 2010 reflecting the first full year of the tobacco excise tax regime. The expenditure on tobacco was adjusted based on CPI for all tobacco products. In this sense, it represents a volume proxy for all households.

The dependent variable of the model was the year on year change in (adjusted) expenditure on tobacco products, and the initial independent variables were:

- Change in household income (CPI – all goods adjusted)
- An indicator variable for whether an excise tax regime was in place (1) or not (0)
- Unemployment rate
- GDP growth Y-o-Y

Variables that were insignificant were eliminated, until the model was optimised. Ultimately, this left a formulation with only one independent variable: the presence or absence of the excise tax regime, which was significant at a 95% confidence level. The excise tax alone contributed to a 3.9% y-o-y reduction in real consumption of tobacco [-0.077, -0.002] with other trends contributing to some 5.3% of real expenditure on tobacco products. This is not the same as stating that there has only been a 12% reduction in overall tobacco use, rather that the excise tax does have a significant impact on smoking behaviour, even given other societal trends.

An *incidental* finding of this analysis also reveals a potentially interesting feature of household

[99] Price elasticity of demand refers to the change in demand for a product in response to a change in price. The negative number discussed refer to a percentage change e.g. for the total population (elasticity of -0.5), when the price increases by 10%, demand decreases by 5%.

behaviour. If expenditure on tobacco is adjusted for CPI (to normalise expenditure on the good relative to other household expenditure), then two variables are significant, but only at the 10% level: unemployment and the presence of the tax regime. A 1% increase in unemployment leads to approximately a 1.15% decrease in expenditure on tobacco products, and the presence of the tax led to a 3.7% increase in real expenditure on tobacco products over the period of the excise tax.

While the finding overall is not statistically significant, the increase in expenditure is almost exactly offset by the volume decrease, suggesting that since the advent of the excise tax, households overall optimise their budget to offset the overall impact of the tax.

Price responsiveness (Elasticity) – total demand

Total demand across the population has been modelled using a blended database of the Health Survey and Health and Lifestyles Survey Questionnaire. These surveys are subtly different, in that the Health Survey includes anyone who currently smokes daily in their estimates of smoking prevalence and the HLS includes only those who are currently smoking, and have smoked more than 100+ cigarettes in their life. The Health Survey is conducted by the Ministry of Health, and has slightly lower error margins than the HLS data at a population and subpopulation level (approximately +/-0.8% depending on the year compared to approximately +/-2% again depending on the sample year).

To provide a longitudinal examination of smoking behaviours both before and after the excise tax regime, these surveys have been used concurrently to develop time series data for Māori and Non-Māori populations. Real tobacco prices have been modelled using cigarette and tobacco CPI and then subtracting household CPI in any given year.

The results are similar to those reported earlier in this report. For the entire population, the elasticity of total per capita tobacco demand with respect to price is -0.44, which is significant at the 95% confidence interval [-0.82,-0.61]. This means that for a 1% real increase in price, tobacco demand is expected to decrease by 0.44% over the entire population.

Demand for existing smokers

We also tested the impact on demand across existing smokers by apportioning smoking consumption to Māori and Non-Māori populations by population (over age 15) and smoking prevalence in any given year. This provides a result with high error margins, as smokers who are not daily smokers are excluded from this estimate, but is instructive in terms of general trend analysis.

Māori – smoking amount

The Māori population that smokes appears to be responsive to price increases. The elasticity recorded is -0.88, which would imply a 0.88% decrease in smoking consumption per 1% increase in price. This result is significant at the 5% confidence level with a CI [-1.49,-0.27]. This result is likely to be overstated for the reasons noted above, but is suggestive of a significant price response in this population. The trend amongst Māori smokers actually reverse in the presence of the excise tax: smoking volumes increased on average 4.5% y-o-y in the 3 years prior the excise tax, and then reversed with smokers reducing their intake by 3% y-o-y in the six years hence (through 2016).

Unsurprisingly, the effect of the excise tax (comparing trends before and after its introduction) is also significant across the entire population. Decreases in daily smoking prevalence for Māori are significant in the post excise tax environment compared with the pre-excise tax regime. The indicator parameter is significant for Māori at the 5% level (p=0.03).

Non-Māori - smoking amount

The non-Māori population is less responsive to price increases in the population of those who already smoke. The elasticity is -0.25, but it is insignificant at even the 20% confidence interval (p=0.27) [95%CI: -0.72, 0.23]. This result can be partially explained by the underlying trend, which shows that the introduction of the excise tax did not change existing reductions in smoking volumes (the indicator variable is insignificant at p>0.2). Upon examining the trend, there is only a very modest increase (1.5-2% y-o-y) reduction in smoking volume from prior to the excise tax imposition (2%) compared with after (4%).

Again, unsurprisingly, the effect of the excise tax on smoking prevalence was insignificant for the non-Māori population, as the post excise environment appears to reflect continued trends and a perpetuation of decreasing smoking incidence that started prior to the excise introduction (indicator variable insignificant at p>0.2).

5.1.8 Price elasticity of daily smoking prevalence

5.1.8.1 Total population

Figure 37 presents the implied price elasticity of daily smoking prevalence[100] for the total population from 2011 to 2016. The year on year analysis shows highly variable levels of price elasticity, particularly for men, but no evidence of reducing price elasticity of daily smoking prevalence for the total population over the period of analysis.

The implied price elasticity of daily smoking prevalence for the total population varied significantly year on year over the five year period of analysis, with implied price elasticity of daily prevalence ranging from -0.73 up to 0.15, and an average of -0.34. This variance was even larger for men, ranging between -1.05 and 0.60, with an average value of -0.26 across the five-year period of analysis. Based on the foregoing analysis the elasticity of daily smoking prevalence is estimated to be -0.34 for the total population.

A simple liner regression analysis shows that, between 2011 and 2016, for every dollar changed in the average price of a cigarette or RYO equivalent daily smoking prevalence decreases by 5.7%, 7.4% and 3.6% for the total population, women and men respectively.

By not controlling for any variables other than the average unit price in this analysis, this analysis implicitly assumes that changes in prevalence are wholly attributable to changes in the price.

Figure 37: Implied price elasticity of daily smoking prevalence for the total population in New Zealand. Source: Health Promotion Agency and NZH

[100] Price elasticity of daily smoking prevalence refers to the change in daily smoking prevalence in response to a change in price. The negative numbers discussed refer to a percentage change e.g. for the total population (elasticity of -0.34), when the price increases by 10%, demand decreases by 3.4%.

5.1.8.2 Age

Figure 38 presents the implied price elasticity of daily smoking prevalence by age from 2011 to 2016. The year on year analysis shows highly variable levels of price elasticity but no clear evidence of reducing price elasticity of daily smoking prevalence over the period of analysis.

Consistent with international evidence and the HES analysis of tobacco expenditure by age, the analysis of price elasticity of daily smoking prevalence by age reveals significant differences in price elasticity, with younger populations being more price sensitive and experiencing sustained reductions in daily smoking prevalence compared with older populations. Price elasticity of daily smoking prevalence over the period of analysis for selected age groups are shown in **Table 12**, opposite.

A simple linear regression analysis shows that, assuming observed changes in prevalence occur as a result of changes in price, for every dollar change in average price of a cigarette or RYO equivalent daily smoking prevalence decreases for all age groups. This reduction is significantly larger for younger age groups than it is for older age groups.

Table 13, opposite, summarises the average reduction in daily smoking prevalence by age group over the period of the analysis.

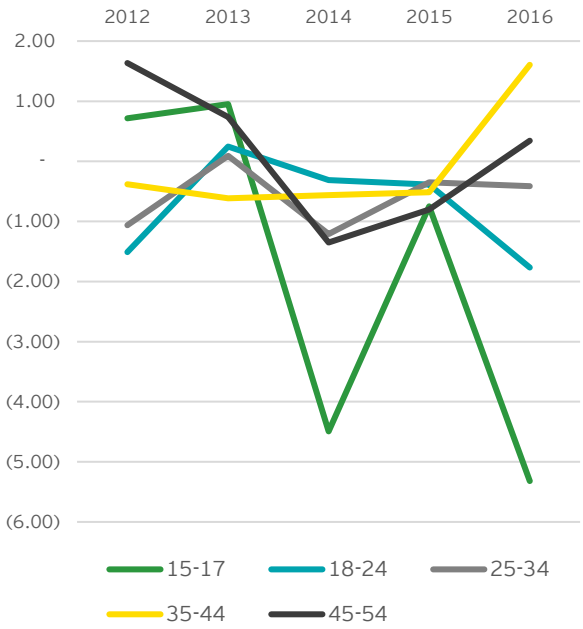


Figure 38: Implied price elasticity of daily smoking prevalence by age. Source: Health Promotion Agency and NZHS

Table 12: Average price elasticity of daily smoking prevalence by age group (Source: EY analysis)

Age group	Price elasticity of daily smoking prevalence
15-17	-1.78
18-24	-0.75
25-34	-0.81
35-44	-0.09

Table 13: Average reduction in daily smoking prevalence for a $1 increase in price by age group (Source: EY analysis)

Age group	Average reduction in daily smoking prevalence following a $1 increase in price
15-17	-7.8%
18-24	-14.2%
25-34	-12.7%
35-44	-4.9%
45-54	-0.9%

5.1.8.3 Ethnicity

Figure 39 presents the implied price elasticity of daily smoking prevalence by ethnicity from 2011 to 2016.

Price elasticity of daily smoking prevalence averaged -0.38, -0.11, -0.78 and -0.28 for Māori, Pacific, Asian and European/Other respectively over the period of analysis, however there is a significant amount of variation for all ethnicities within the five years of analysis. This is particularly evident for Māori, Pacific and Asian ethnicities, which have a number of years both above and below zero.

Year-on-year volatilities are likely confounded by small sample sizes and lag effects of differential pricing strategies and stockpiling behaviours.

A simple linear regression analysis shows that, assuming observed changes in prevalence occur as a result of changes in price, for every dollar change in average price of a cigarette or RYO equivalent daily smoking prevalence decreases by 10.0%, 0.8%, 3.0% and 4.7% for Māori, Pacific, Asian and European/Other respectively over the period of analysis.

Within the Māori population, the regression analysis shows that for every dollar change in average price of a cigarette or RYO equivalent daily smoking prevalence decreases by 9.6% and 10.5% for Māori men and women respectively.

Figure 39: Implied price elasticity of daily smoking prevalence by ethnicity. Source: Health Promotion Agency and NZHS

5.1.8.4 Deprivation

Figure 40 presents the implied price elasticity of daily smoking prevalence by deprivation quintile from 2011 to 2016, with quintile 1 representing the least deprived 20% of households and quintile 5 the 20% most deprived. These figures are unadjusted, so do not account for differences in ethnicity and age distribution between quintiles.

The year on year analysis shows highly variable levels of price elasticity across the analysis period for all deprivation quintiles. As with the ethnicity analysis, year-on-year volatilities are likely confounded by small sample sizes and lag effects of differential pricing strategies and stockpiling behaviours.

Given the variability observed, conclusions as to whether or not there is a significant difference in price elasticity of daily smoking prevalence across different deprivation levels cannot be drawn.

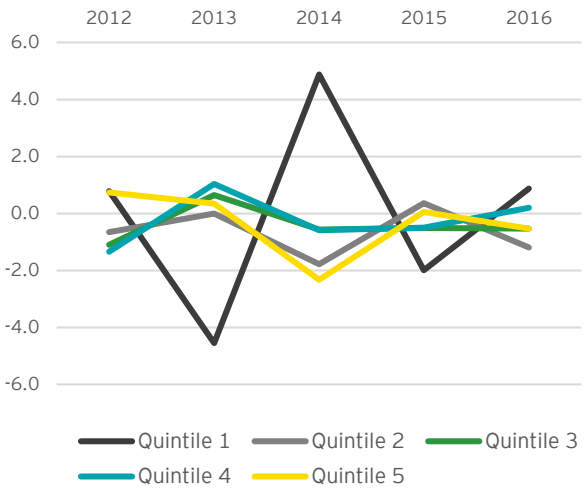


Figure 40: Implied price elasticity of daily smoking prevalence by deprivation. Source: Health Promotion Agency and NZHS

5.1.9 Variations within the elasticity

As noted above, the potential variation within the elasticity of -0.5 could potentially range from marginally negative to around -1 (e.g. -0.88 for Māori smokers). Testing of the methods and data sources suggests that around the core elasticity number, a range of -0.4 to -0.6 would be most likely given the range of potential data that could be applied and its limitations. As the qualitative research shows, the number of variables that affect smoking decisions, outside of the excise tax, are significant and can include:

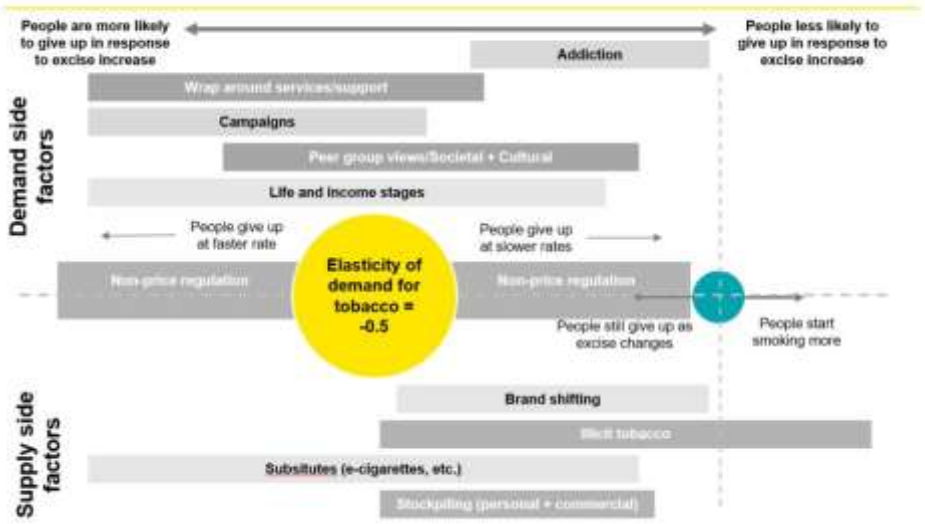
Supply side factors are things that tobacco companies, retailers and some consumers may do which affect the availability and price of tobacco, and include:

- **Non price regulation** which may include things such as age restrictions or point of sale restrictions.
- **Stockpiling** of tobacco that attracted a lower excise rate
- **Brand management and shifting** where lower cost, less premium products become more readily available.
- **Substitution** where the availability of acceptable substitutes becomes more prevalent (e.g. e-cigarettes).
- **Illicit tobacco** becomes more readily available at lower than established retail prices.

Demand side factors are things that change an individual's propensity to consume tobacco at the given price and can include:

- **Non price regulation** such as smoking bans in workplaces.
- **Life and income stages** which can include family or health factors.
- **Wrap around support** as part of wider quit campaigns
- **Information provision** most likely as part of official campaigns.
- **Societal, cultural or peer views** that make smoking more or less acceptable.

These dynamics can be shown graphically as follows:



5.1.10 Conclusion

The foregoing analysis of price elasticity of demand across the population shows a price elasticity of -0.5 over the analysis period from 2011 to 2016, with no significant positive or negative trend. This elasticity level is consistent with tobacco price elasticities found in international research. However, there is currently insufficient data to robustly estimate the price elasticity of demand at a more granular level – for example by ethnicity or age.

Within this average price elasticity, using the IDI data, we have assessed the potential variation around this average to be between -0.4 and -0.6. In real terms this means this would not result in a material shift from current quit rates in response to excise changes across the entire population.

The use of an alternative elasticity calculation method was also tested, using the Household Economic Survey. This data source is less robust as it does not compare similar cohorts over time (e.g. an individual born in the 1980's propensity to give up smoking as they get older, compared to an individual born in the 1970s). We have taken data from 2006-2017 and find the average elasticity to be -0.44 which is broadly comparable to the data using the IDI (noting the HES limitations).

As with the price elasticity of demand, there is evidence to suggest that daily smoking prevalence continues to be price elastic and that further excise tax increases will be effective in reducing prevalence. Based on the foregoing analysis, price elasticity of daily prevalence is estimated to be -0.34 over the period of analysis. This is broadly comparable with assumptions employed by the New Zealand Treasury of-0.25 and BODE3 of -0.2.

While there is confidence in the observations at the total population level, further data collection and monitoring would be required in order to produce robust estimates of price elasticity for daily prevalence at an individual demographic level such as by deprivation or ethnicity.

The weight of evidence is that the excise tax increases continue to be the single most effective tool for reducing tobacco consumption and prevalence and an essential part of a package of tobacco control interventions needed to achieve Smokefree 2025 targets.

However, given the volatility of price elasticities of smoking prevalence within the period of analysis, the analysis is inconclusive as to whether price elasticity varies significantly between ethnicities and deprivation levels.

There is currently no published research estimating price elasticity of demand of daily smoking prevalence by ethnicity and deprivation in New Zealand and based on the foregoing analysis, more data and ongoing monitoring by ethnicity, age deprivation would be required to establish robust estimates on which to model future impacts of tobacco excise policies.

6 Stakeholder consultation

Key observations

The overall attitudes of stakeholders towards the Smokefree 2025 initiative were positive, although most recognised that it was an ambitious target and would require a combined intersectorial effort if it was to be achieved. In discussing this, stakeholders highlighted a number of issues for consideration. These are listed below and explored in more detail later in this section.

1 Smoking has become less acceptable	Stakeholders noted shifts in community attitudes towards smoking in recent times with most indicating that they felt smoking had become less socially acceptable, while some specifically noted that they felt non-smokers had become more empowered to express their disapproval of smoking.
2 A holistic approach is needed to quit	Stakeholders acknowledged that people smoked for different reasons, that tobacco products were highly addictive, and that people required different levels and types of support. Stakeholders familiar with different approaches identified programmes that took a holistic, harm reduction approach as being the most successful.
3 Effective services are needs based	Smoking cessation programmes considered to be the least effective were those that focused on the harms of smoking, as opposed to wellbeing, limited their focus to being about quitting, rather than understanding the needs smoking met, and were perceived as culturally inappropriate and inaccessible.

4 Adequate and appropriate services needed	Although concerned about the hardships associated with the excise, stakeholders were generally supportive of it as long as there were adequate and appropriate support services in place to protect community members from experiencing further hardships, financially, socially or emotionally.
5 Investment needed in harm minimisation	May stakeholders raised concerns about the perceived imbalance between the revenue raised and the subsequent resourcing of tobacco control initiatives, including tobacco cessation / harm minimisation services, with the majority recognising an urgent need for a greater investment.
6 Challenges in Māori & Pacific communities	Stakeholders working directly with Māori and Pacific communities indicated that too few resources were being allocated to address the social problems that generally accompany poverty and disadvantage.
7 Excise highlights social challenges	Stakeholders felt that the excise had directly or indirectly contributed to a range of unintended consequences including: financial hardship; the use of illicit drugs over tobacco; social exclusion; and, safety and security issues. Most stakeholders also expected that these would continue to rise and potentially become even more prevalent.
8 Strategies used by industry to negate excise	Stakeholders identified a number of strategies used by the tobacco industry to negate the impact of the excise, including: the introduction of budget brands; differential pricing; providing rebates to retailers; and, using stalling tactics, with several stakeholders calling for a greater focus of controls on the supply side.

6.1.1 Context

6.1.1.1 Changing community attitudes and behaviours

Stakeholders considered that the tobacco landscape in New Zealand has undergone significant change in recent years, which in part were attributed to the collective efforts undertaken to reduce the harm associated with smoking.

It was felt that there has also been a notable shift in community attitudes towards smoking, with smoking losing the appeal it once had, with most stakeholders indicating that they felt smoking had become less socially acceptable, and was no longer seen as a "cool" or desirable thing to do. Some also felt that smoking had become "demonised", with non-smokers now feeling empowered and justified in expressing their disgust and disapproval of smoking.

> *"We created a quitting culture in New Zealand. Everyone who smokes except for the ones who have no intention of quitting… say – oh yeah, I'm quitting. Because that's socially acceptable. It's alright to smoke as long as you say you're quitting or you're intending to quit."*
>
> (Public health academic)

At a population level, these changes in attitudes were seen as a driver of sustained declines in the prevalence of smoking and the reduced initiation rate among younger people in particular. Stakeholders also recognised, though, that at a group level, smoking rates among people from Māori and Pacific communities had declined at a much lower rate compared to people from other backgrounds, suggesting to stakeholders that these populations need more effective smoking cessation support models.

6.1.2 Why people smoke

There are many reasons why people smoke. Stakeholders acknoweldged that in order to effectively support people to stop smoking, it was critical to first understand the reasons why people smoked, the perceived benefits that smokers link with their smoking, and the needs that their smoking fulfils for them.

At a physiological level, smoking was noted to provide a range of benefits to people: smokers were known to have reported that it helped them to think clearly, to stay alert and to feel calm and relaxed at the same time.

> *"There's a hundred reasons why they smoke… It's a stimulant. [Smoking] helps you think, helps you concentrate. It kicks up the speed of the brain so that it helps keep you alert, helps keep you awake… It also operates on the relaxation and sleep centre in the middle of the brain. So if you have stress, if you have anxiety, it also calms you down… So it's actually a highly functional – it really delivers huge benefit to people."*
>
> (Public health academic)

For people struggling to deal with problems, including financial stress, relationship difficulties, poor mental health, family violence, homelessness and so on, smoking was acknowledged by many stakeholders as something that may be being used as a form of "respite" from these issues. In effect, it becomes a coping mechanism to help them manage their lives.

> *"You've also got a huge amount of community who are struggling through poverty, homelessness, unemployment, mental health, family violence and the cigarette is their 'go to' in their household."*
>
> (Community organisation)

> *"For Māori women it's never about the smoking, it's about their trauma, it's about their isolation, it's about having too many children and trying to cope with that… it's about their lives without hope… Their ability to take 5 minutes out to watch your children through the window in the lounge but having that 5 minutes which was all about them is really important."*
>
> (Community organisation)

> *"For these Māori women, smoking is their time out. It's a terrible strategy but they're not going to stop."*
>
> (Community organisation)

Stakeholders who worked directly with people seeking support to quit, remarked that smoking often appeared to be the one thing in these people's lives that helped them to get through the day.

6.1.3 Preventing and supporting people to stop smoking

Tobacco products were also acknowledged to be highly addictive, and a key contributor to why relapses were common, with most smokers making multiple attempts to quit before succeeding. Whilst many people are able to quit unaided, or with minimal support, stakeholders were mindful that some people required a greater level of support to stop smoking. This was especially the case for people who relied on smoking to help them to deal with a complex array of problems in their lives.

Stakeholders familiar with a range of approaches to smoking cessation reported that effective models take a holistic approach, working with people to explore what their lives look like, the reasons why they smoke, their hopes and aspirations and what they need in order to live the lives they wish to lead.

> *"There's some good work [looking at]… innovative ways to support in particular young Māori women to quit smoking while they are pregnant or before they get pregnant… It actually involves providing financial incentives for these women, vouchers and things. [It's having a] phenomenal impact… and part of this because they're not saying 'you just need to stop smoking'. It's actually looking at these women's lives and what their lives are like and why they smoke, what are the drivers, and… taking a much more global look at making that… a much more holistic approach to what is it that you need."*
>
> (Government stakeholder)

Other models have approached the issue of smoking through a focus on financial wellbeing, and/or the wellbeing of their families, rather than on (stopping) smoking itself.

> *"[We run a] Vape to Save programme which… is very successful for Māori and Pacific women predominantly. [The facilitator] doesn't get on the smoking side. She gets on the budgeting side. [She says] 'okay we are going to rebudget for you, give me all your costs and everything like that, okay here's the cost of your tobacco, here's the cost of such and such. We just need to reorganise your budget and if you were to go on e-cigarettes'."*
>
> (Community organisation)

> *"You're dealing with addiction and there are lots of reasons why people have become addicted so you've got be prepared to uncover some of that because that's really what's meaningful for people… We're actually looking into people's lives and it's more about how do we create people's wellness or co-create people's focus on their wellness and the wellness of their tamariki, it's not just about smoking."*
>
> (Community organisation)

Another common feature associated with effective smoking cessation support models was the adoption of a harm reduction approach, with people supported to transition from current smoking behaviours (frequency, location, amount) to safer alternatives such as reducing the frequency with which they smoke, where they smoke, and even the use of alternative products such as e-cigarettes.

> *"[We use a] harm minimisation product because we're mindful that some of our whānau, if I've got a mental health issue or I've got domestic violence in my household, the cigarette is my go to for a lot of my community so if … if we're wanting them to give up smoking, what are you going to give them to replace that, to help them get through their day? It's not meth or synthetics or you know, cannabis. We're very pro things like e-cigarettes and vaping."*
>
> (Community organisation)

Youth smoking prevention programs that had adopted a focus on wellbeing as opposed to a focus on the harms of smoking, were also reported to have achieved positive results in preventing youth smoking.

> *"There's an organisation in South Auckland [that]… work with youth… They're well known for hip hop and dancing… What they do is they… talk about sexual health, looking after your body… The message wasn't about smoke, the message was "hey do you want to be cool and be a hip hop dancer like Parris [Goebel] and go on and dance with Justin Bieber? Let's talk about your wellness and going to school. By the way, you should probably not smoke because if you're going to be a dancer, that's not very good for your fitness'."*
>
> (Community organisation)

In contrast, less effective service models were considered by stakeholders to be ones which limited the focus to being about quitting smoking rather than understanding the needs that smoking meets. These programmes were time-limited (with insufficient time), and/or lacked cultural appropriateness and acceptability to all members on the community.

Attitudes towards Smokefree 2025

In 2011, the government adopted the Smokefree 2025 goal for New Zealand in response to a landmark Parliamentary Inquiry by the Māori Affairs Select Committee.

Awareness of the Smokefree 2025 initiative was high among all stakeholders, reflecting the proximity of their organisations' focus on tobacco and/or tobacco control. Familiarity with the initiative, included a clear understanding of its goal to reduce the prevalence of smoking in the community to less than 5%, and to achieve as close to 0%.as possible

In general, stakeholders' attitudes towards the government's Smokefree 2025 initiative were positive, with several describing it as "laudable", "bold" and "ambitious". Most felt that the initiative was a tangible demonstration of the government's commitment to reducing the harms associated with tobacco products in the community. Some felt that it had helped to generate discussion in the community, which in turn, may prevent people from smoking and encourage current smokers to quit.

> *"I believe that an iconic objective like Smokefree 2025 is really important because it's created a whole lot of discussion and I think a good focus and people thinking about how we achieve that."*
>
> (Community organisation)

> *"The goal is lofty. It is a great goal if we can achieve that and have a few less people die on us. That would be good."*
>
> (Industry and retail associations)

Stakeholders working in roles focused on tobacco control were most supportive of this initiative due to its strategic alignment with their organisations' purpose. Although more restrained in their enthusiasm for this initiative, stakeholders representing industry and retail groups, including those from the tobacco industry, also voiced their support for this goal.

Despite supporting the initiative, some stakeholders acknowledged that the prospect of reducing smoking prevalence to the point where New Zealand was essentially smoke free by 2025 was a challenging one, and possibly unrealistic, given the highly addictive nature of nicotine and the overall lack of support available to people who face the greatest life challenges and therefore greatest difficulties quitting.

> *"Its feasibility is rapidly disappearing seeing as we've only got about seven years to go to reach that goal and particularly for Māori communities… how do we support those communities which have a very high smoking prevalence to quit?"*
>
> (Public health academic)

> *"I don't know how we're going to hit [the goal]. The sector has a lot of work to do. It will take a whole of sector approach."*
>
> (Community organisation)

Tobacco industry stakeholders considered the goal to be somewhat paternalistic as they viewed smoking as a matter of personal choice, and thus felt that this goal did not accommodate the preferences of people who did not wish to quit.

> *"There is an opportunity for creating healthier options for people. [However smoking] is a personal decision after all."*
>
> (Industry and retail associations)

Several stakeholders felt that the only way New Zealand would become Smokefree by 2025 would be through reorienting its current tobacco control approach towards one that encompasses more holistic support services. It needs a harm reduction approach that supports people to reduce smoking, not just quit, acknowledges small changes / achievements, and involves encouraging smokers switch to the use of less harmful alternatives, including e-cigarettes.

> *"We can get to Smokefree 2025 if we embrace the harm reduction approach which the Ministry says it will do."*
>
> (Public health academic)

Attitudes towards tobacco excise

Stakeholders expressed a range of views concerning the tobacco excise. Whilst there was overwhelming support among the majority of stakeholders for strategies to prevent and reduce the harms associated with tobacco products, there was a divergence in views as to the point at which the positive impacts of the excise were outweighed by the negative impacts, including financial burden on more vulnerable community members. Stakeholders agreed that understanding this "tipping point" was critical. They also acknowledged that New Zealand was in new territory with the excise, that the excise was not intended to operate on its own, and that it was critical for the right support services to be implemented to complement the intended influence of the excise.

6.1.4 Context and purpose of tobacco excise

According to stakeholders with lengthy involvement in the tobacco control sector, calls for a tax on tobacco first emerged during the 1990s, and had been the subject of some controversy ever since. The issue appears to have divided the Māori community, with some stakeholders intimating that Māori groups felt pressured to support the tax despite their concerns about the impact on the community.

> *"Taxation of course was put to [the Māori community]. They said no. Clearly [they] did not support tax because it hurts people… So having listened to what Māori wanted then my personal, professional opinion was no, Māori don't want tax…So that group then held a national consultation hui in 1997 and I was at that hui as well and again at that hui everyone said no to taxation. And there was quite heavy lobbying from our Pākehā counterparts – you know – tax is what works, we must do the tax blah blah blah and the hui still concluded no… The true Māori community never supported the tax, but [there was] huge pressure to come in line."*
>
> (Public health academic)

Despite the apparent lack of consensus around a tobacco tax among the Māori community, in 2010 a bill to increase the excise on tobacco by 10% a year was introduced by Tariana Turia, the then Leader of the Māori Party. Several stakeholders reported that her motivation for introducing this bill was to address the differences in health outcomes between Māori and non-Māori, as some 25% of this variation was attributable to smoking. They felt that she demonstrated considerable political courage given the potential for backlash from the community.

> *"[One politician] was worried formally about public backlash. And she [Associate Minister Tariana Turia] just said to him 'I'm not too worried about a public backlash. I've buried too many of my people in the urupā, which is the Māori word for cemetery, across the road to be worried about a bit of a public backlash. I can look after myself'."*
>
> (Government stakeholder)

The tobacco excise that is the subject of the present evaluation was introduced in the 2016 Budget, with four 10% increases legislated for in the Government Customs and Excise Act 1996 starting in 2010.

Stakeholders generally understood that the intent of the tobacco excise was to use price to encourage existing smokers to quit, and to discourage others from taking up smoking. Several stakeholders also recognised that there was evidence to support this approach as an effective means to reduce smoking in the community. Whilst many were aware that the excise generated significant revenue for the government, they generally viewed it as a health initiative, rather than as a means to generate revenue.

> *"The tobacco excises recently has been very much a health policy measure rather than a revenue raising measure… I think we said in our advice two years' ago that it [the excise] was the most effective tool in reducing levels of smoking prevalence. That was our opinion and that was the opinion of lots of academics around the world and the World Health Organisation."*
>
> (Government stakeholder)

Many stakeholders also either believed, or suggested that the excise raised should be being used to support the development of holistic support services to assist people to reduce and/or stop smoking.

6.1.5 Attitudes towards tobacco excise

Overall attitudes towards the excise reflected the combination of stakeholders' concerns about harm from tobacco products and financial hardship faced by more vulnerable community members.

Stakeholders most supportive of the tobacco excise were generally those working in public health academic settings. Although cognisant of concerns around hardships associated with the excise, they tended to feel that this could be offset through the provision of safer and less costly alternatives to tobacco products, such as e-cigarettes, as well as holistic support services.

Stakeholders from community organisations working directly with people seeking help to stop smoking, also expressed support for the excise, which was once again tempered by some concern about the impacts. Their main concern related to the amount of the excise, whether a "tipping point" had been reached, and whether the excise now had little impact on people with the least resources to reduce or stop their smoking.

> *"Tax increases we support as an organisation. We were fully supportive of the last three we put through. We are supportive of additional tax increases. We don't know the percentage of what those tax increases should be because there needs to be some sort of reconciliation between savings to the community in terms of people not smoking vs harms to the community in terms of budgets… We just need to know what's the break point on really hurting our communities without some good investment into those communities."*
>
> (Community organisation)

> *"I'm saying [I'm supporting] increased taxes, but I don't want to hurt any more people in the community because of those tax increases but then I also want to stop young people starting to smoke. So the two things I want to do is stop young people starting and help people who are currently smoking to stop smoking."* (Community organisation)

> *"I'm in two minds [over the excise]. As a strategy to reduce the youth uptake of smoking, it's good. Encouraging quitting, it's not so good because people will just prioritise spending on tobacco."*
>
> (Community organisation)

Several government stakeholders whose current and previous roles had brought them into direct contact with more vulnerable groups of people were supportive of the excise as long as there were adequate supports in place to protect these community members from experiencing further hardship, financially, socially, and emotionally.

They recognised that smoking was highly addictive, and that people experiencing a range of challenges in their lives derived a degree of comfort from tobacco products.

Some also speculated as to whether a tipping point had been reached, and whether additional increases were justified as the financial penalty for this behaviour may undermine the efficacy of this stress-reduction technique.

This group also tended to describe the tax as a "regressive" tax, or to consider it to be "punitive", due to the greater burden borne by people with the least financial resources.

> *"I'm supportive of [the excise] in the sense that it's shown to be effective in a whole range of settings and… I would assume it's been an important part of the suite of measures that have been introduced to help and that has impacted on reducing smoking. But I think we should be deliberately asking and looking for answers to the question about what now in 2018 is the role of excise tax? What impact has it had on in particular the groups with residual high smoking rates – Māori, Pacific, low income and people with mental health and addictions? Because they are the ones who can least afford to keep – because it is also a pretty regressive tax."*
>
> (Government stakeholder)

> *"Smoking is a form of stress relief, it's an addiction, they're addicted and then you think well what have they got going on in their lives… But the thing is, if we want to be serious around reducing the consumption of tobacco, especially for low socio-economic, increasing tax excise is almost like punitive. And this is my view as an individual not necessarily the view of [name of organisation]. It's punitive unless you can put something in place to help people to get over the addiction."*
>
> (Government stakeholder)

The lowest level of support for the excise as a measure to reduce harm from smoking came from a small, disparate group of stakeholders, including those working closely with Māori communities impacted by the excise, and the industry and retail associations that experience direct negative financial consequences which they attributed to the excise. These groups were not opposed to tobacco control measures per se, but rather the wider impacts specifically associated with the excise.

Concern was expressed that the excise sends a message to consumers that that their behaviour is problematic, and warrants punishment in the form of a tax. As such, the excise was felt to have a shaming effect on people who used tobacco products.

> *"Tax is a punishment for moral judgement. It's a moral judgement. The [tobacco excise] says the government does not like that you do that."*
>
> (Public health academic)

Retail associations expressed concern that the excise had made tobacco a valuable commodity among criminals, and had been responsible for an overall increase in robberies.

> *"The issue we have in New Zealand is that is why we have such a large theft issue and such a large robbery issue because of the high prices of the tobacco. It is not about the quantity of tobacco – it is about the price now."*
>
> (Industry and retail associations)

6.1.6 Other issues related to the tobacco excise

Stakeholders were aware that the excise was applied to tobacco products, and did not extend to e-cigarette devices and nicotine liquids. Although none were under the impression that the government had plans for these products to be included in the tobacco excise, they felt that it was important to emphasise that these be excluded from such taxation as they represented safer alternatives to combustible tobacco products.

> *"Don't tax nicotine products, such as vape liquids. It's not nicotine that's harmful but tobacco, therefore there's not a case for taxing nicotine."*
>
> (Government stakeholder)

> *"We don't believe there should be any excise on [vaping] products because it goes back to what it is [that the government] are trying to achieve [in reducing harm from smoking]."*
>
> (Industry and retail associations)

Another common sentiment expressed by stakeholders related to resourcing tobacco control initiatives. Most understood that funds generated from the excise were not specifically earmarked for tobacco control, and instead were allocated into general revenue. Their concern related to a perceived imbalance between the revenue raised and the subsequent resourcing of tobacco control initiatives, including tobacco cessation services. The majority of stakeholders consulted felt that there was an urgent need for considerably greater investment in tobacco control initiatives of all persuasions. This is due to the scale of disadvantage facing lower socio-economic communities with disproportionately higher use of tobacco products, especially in the context of the limited time in which to realise the Smokefree 2025 goal.

> *"[There's] 1.7 billion dollars of excise that the government collects and what's the investment, 61 million or something like that, in tobacco control. Compare that with other countries or other investments, say road crash prevention, you're talking about $216 million in New Zealand for road crash prevention yet here we've got this epidemic killing 5,000 New Zealanders a year and a goal that is sort of evaporating [unless] we do something drastic. So I think you could argue for a much greater investment in the whole tobacco control system including… mass saturation, TV advertising… and you would obviously want to have mass media that you also targeted to the vulnerable population groups."* (Public health academic)

Stakeholders working directly with Māori and Pacific communities in areas of high deprivation also expressed that they felt too few resources were being allocated to addressing the social problems that generally accompany poverty and disadvantage, and which in turn were often factors that they felt gave rise to people smoking. They considered there was a role for at least some of the revenue raised through the excise to be allocated to remediating these social issues.

> *"There is homelessness out there and there's poverty. Some of our whānau are being released from prison. There's so social deprivation, there's unemployment, there's heaps of things and what you tend to find is that the stats that I gave you for Māori and Pacific in terms of smoking correlates to the hardships on those other social deprivations so because we haven't addressed those as a society, cannabis, alcohol, meth, tobacco, synthetics as our go to in some of our communities to help us deal with some of those issues… We only put 3% of the excise tax back into looking after those communities. I think it's a disgrace."*
>
> (Community organisation)

Impacts and effectiveness of tobacco excise

Overall, stakeholders considered that the excise had had an impact on reducing smoking prevalence and intensity in the community by lessening the affordability of tobacco products. Most felt that the effectiveness had been not been spread evenly through the community, though, with lower reductions in smoking observed among Māori and Pacific communities relative to non-Māori and Pacific communities.

Stakeholders also emphasised that, in the absence of statistically reliable data, it was difficult to determine the extent to which changes in the prevalence of smoking in the community were attributable to the excise, compared to other initiatives to prevent and reduce smoking, or even simply changes in the attitudes of community members.

6.1.7 Impact on smoking behaviour

Stakeholders working in community settings, including smoking cessation services, reported that the higher prices of tobacco products were a key motivator for people to quit or reduce their level of smoking. They stated that they had experienced an increase in demand for their services as the prices of these products had gone up, and therefore surmised that the excise was having its intended impact on the smoking behavior of New Zealanders.

> *"Pricing seems to be the major issue why people want to give up. I think that's a good thing."*
>
> (Community organisation)

> *"I'd still like to see [the excise] continued to be increased because that's why people are wanting to give up. And even at this level, I know that there is an argument around it continues to hit people in poorer areas in communities, but I still think it's a good thing amongst a number of other things. I still think that the pricing has been the one thing that's bought people in to seek help."*
>
> (Community organisation)

Community based stakeholders also felt that the excise had helped prompt community members to reflect on how they budget, which in turn had helped some people to shift from the pre-contemplative phase of behaviour change to taking action to address their smoking behaviour.

> *"[The excise] has given [people from Māori communities] an opportunity to continue to weigh up, do I put kai on the table or do I have a packet of cigarettes?"*
>
> (Community organisation)

These stakeholders also believed that the higher prices of tobacco products had helped to prevent relapses among ex-smokers. They noted that people using these services had indicated that they would start smoking again if tobacco products became more affordable, as in many instances, people's desire for these products remained unchanged.

> *"Pacific quitters say that the excise is fantastic because it really helps people to think about quitting. When cigarettes were cheaper, they wouldn't have thought about quitting."*
>
> (Community organisation)

> *"If the tax was taken away and cigarettes became cheaper again, people say they'd start smoking again because they enjoy it."*
> (Community organisation)

6.1.8 Impact on smoking uptake

Stakeholders were generally aware that rates of smoking among young people had declined dramatically in New Zealand over the past two decades, and that this trend could not be wholly explained by the introduction of the 10% excise. Several felt that one of the main reasons why rates of smoking have fallen among young people was due to changes in its appeal amongst this cohort, with smoking no longer being seen as "cool". Age restrictions on sales of tobacco products were also felt to have been effective in reducing access amongst children aged under 18 years.

Despite the potential contributions of these other variables, stakeholders felt that the excise had played a considerable role in preventing young people from taking up smoking. Irrespective of the appeal (or otherwise) of smoking, younger people were more likely to lack the financial resources to be able to afford tobacco products.

> *"We know about 18,000 young people have not started smoking in the last three or four years for various reasons, not just tax increases but we know increasing the price of product makes it less available to young people. So we categorically know that they have stopped, not started smoking. We can't 100% point the finger at that but we do know there is still social pressures in the community… so some of it might be public health awareness but we do know there is social deprivation so if people aren't smoking at an earlier age, you have to say part of it could be tax increases have created a barrier because we know any tax increase on a product will increase the price and therefore have less availability to people, to young kids."*
>
> (Community organisation)

6.1.9 Effectiveness of tobacco excise

At a population level, stakeholders considered that the excise had been effective in encouraging existing smokers to quit or reduce their usage, and in preventing young people from taking up smoking. However, most felt that its effectiveness had varied across different population groups, with many expressing concern about the excise contributing to, and indeed, exacerbating, inequities between different population groups.

Overall, stakeholders commented that the greatest declines in smoking had been among people from more advantaged backgrounds, who had the resources including money, time and energy to dedicate to quit attempts. They noted, for example, if people from more affluent backgrounds used smoking to help them deal with stress in their lives, they were more likely to be aware of, willing to access, and be able to afford to seek professional support to manage the factors that were contributing to their stress levels.

Stakeholders also acknowledged that the prevalence of smoking among people from less advantaged backgrounds had not declined at the same rate. This group was most likely to include people from Māori and Pacific backgrounds, many of whom were felt to be struggling with significant levels of poverty and financial hardship already, and potentially be less willing to access support services.

> *"Our smoking rates at the moment is 35% for Māori in New Zealand, 25% for Pacific and 13% for non-Māori/non-Pacific. The non-Māori/non-Pacific rate has dropped significantly so that's relatively okay… So things like tax increases obviously work [for this group of people]… But some of our other whānau who are just struggling, we're still at 35% and we've had three tax increases… Pacific haven't moved in five years and that's been about 25%-24% for the last four or five years. So we're supportive of tax increases but we don't know what the percentage should be."*
>
> (Community organisation)

Some stakeholders felt that the people from lower socio-economic backgrounds were caught in a vicious circle, with smoking providing an important stress reliever to them, which in turns lessens the likelihood of them changing their behaviour in relation to smoking.

> *"So all the living costs are going up and income is not keeping pace with it and all of that increases stress. And stress increases the need for the stimulant, which increases the need to smoke. It's a vicious cycle and so the increasing tax, there's increasing the stress which is increasing their need to smoke which is - the people who most are supposed to be most responsive to price are also the ones who are most impacted by the need of the perverse effects of the tobacco tax. They are stuck in a vicious, vicious cycle."*
>
> (Public health academic)

There was also acknowledgement among stakeholders that some disadvantaged population groups were known to be less responsive to price signals, and that they were disinclined to change their behaviour no matter what the price of tobacco products.

> *"The Māori women told [the Ministry] themselves they don't care about the price… The tax is not having the effect on young Māori women particularly but it's actually not having the effect on many groups where you see no drop in smoking prevalence. Pacific Islanders for instance there was no drop… So there are major important and significant minority groups who are totally unaffected by the price increase."*
>
> (Public health academic)

The evident disparities in smoking between different population groups highlighted for stakeholders that whilst the excise had undoubtedly made a significant contribution to reductions in smoking prevalence and initiation in the community, they also saw that there was a need for more holistic support services, which in their experience were known to be both accessible and appropriate for these groups. Without these other approaches, smoking rates were felt to be unlikely to change amongst these groups, which would hinder progress towards achieving the Smokefree 2025 goal.

> *"The excise has played a part in reducing smoking in the community but without other strategies, we won't reach the SM goal."*
>
> (Community organisation)

Unintended consequences

Despite overall support for the tobacco excise, stakeholders felt that it had directly or indirectly contributed to a range of unintended consequences of varying levels of severity. These consequences, ranging from individual and household impacts through to broader community impacts, including, but not necessarily limited to:

- Financial hardship, including prioritising spending on tobacco products over other essential items such as food and bills
- Use of illicit drugs rather than tobacco
- Social exclusion and associated psychological harm
- Safety and security issues, such as illicit trade and robberies.

Stakeholders indicated that they expected these unintended consequences to continue, and to potentially become more pronounced as further increases in the tobacco excise further lessen the affordability of tobacco products. These unintended consequences are explored below.

6.1.10 Financial hardship

Stakeholders expressed varying degrees of concern that the tobacco excise was causing significant financial hardship to people from disadvantaged backgrounds, especially as they are perceived to have fewer resources at their disposal to absorb the price increases on tobacco products. As previously noted, stakeholders were aware that rates of smoking among people from less advantaged backgrounds had generally not declined to the same extent as smoking among the broader population, which suggested to them that the current approaches to supporting people quit needed to be reviewed as they were not reaching, or did not resonate as well, with some groups.

Their main concern, however, was that many lower income earners prioritised spending on tobacco products over other essential household items, such as food, rent, utilities, transport and clothing, which in turn caused further hardship. There was widespread concern that children in particular suffered, and did not have their basic needs met because their parents were spending part of the household budget, sometimes a considerable portion, on tobacco products.

> *"I think the issue of contributing to poverty in families where, particularly say both mum and dad might both be heavily addicted to smoking and they're burning through $100 worth of cigarettes out of their paltry income each week and so we've seen kids without shoes and no food and all that kind of stuff."*
>
> (Public health academic)

A related concern is that in order to stretch finite household budgets, people are buying cheap energy dense foods instead of more nutrient rich food because of price. The cheaper foods though were recognised by stakeholders as generally being less healthy and more fattening, which in turn many believed contributed to the higher incidences of obesity among people in lower income smoking households.

> *"So those that don't stop smoking are a low socio-economic Māori and Pacific... They keep smoking, they have less money for food and then that leads to obesity because all they can afford is the cheaper food which is the fattening food."*
>
> (Public health academic)

Stakeholders working directly with vulnerable members of the community reported that these practices were relatively common among their clients, as was the practice of people picking up discarded cigarette butts in the street so they can get their nicotine fix.

> *"[The excise] does create financial hardship... We even have people walking down the street and picking up discarded cigarette butts to smoke."*
>
> (Community organisation)

6.1.11 Use of other illicit drugs

Some stakeholders reported that people were trading their addiction to tobacco products with other more "affordable", although not necessarily less harmful addictions. These cheaper alternatives included products such as cannabis and methamphetamine (or "P").

> *"We don't want tobacco in our community because it kills 5,000 people but we don't want to create more harm when people move to another addictive product because tobacco is now more expensive and meth is cheaper for example."*
>
> (Community organisation)

> *"We are in new territory now… We have the highest priced tobacco, smoked tobacco in the world. What you're starting to see is that sometimes cannabis is cheaper. Sometimes P is cheaper. So simple economics are a given. If [tobacco] is the most expensive stimulant then they'll go to a cheaper one and that is exactly what we're seeing."*
>
> (Public health academic)

Stakeholders noted that in the absence of any research, these observations were largely anecdotal. However they felt that these practices demonstrated how unaffordable legal tobacco products had become compared to illegal and unregulated substances.

6.1.12 Social exclusion and associated harm

Some stakeholders indicated that they believed the public health messaging around smoking had resulted in lower levels of acceptance of smoking in the community. These shifts in public attitudes were also seen by many of stakeholders to have resulted in smokers increasingly being viewed with some disgust. They also felt that the excise compounded these attitudes as it signaled to smokers that their smoking was undesirable, and that they deserved to be financially "penalised" for this behaviour. Stakeholders expressed concern that these messages and attitudes would cause smokers to experience psychological harm, and to experience perceived or actual exclusion from society and isolation from their support network.

> *"The tobacco tax it hurts people in their pocket but it also hurts them psychologically. It says to them you're bad so it's punishing, psychologically and socially."*
>
> (Public health academic)

Some stakeholders also acknowledged that employment policies which sought to exclude smokers from consideration for roles represented a form of indirect discrimination against some groups in the community, such as Māori people who are smoking at higher rates, and would compound their relative disadvantage by excluding them further from economic participation. .

> *"New Zealand Defence Force have set their policy, they'll no longer have any staff who smoke by 2025. So if you're a smoker, and they're one of the largest employers in the country and a third of Māori smoke, so there goes one of the biggest employers in the country won't employ you if you smoke."*
>
> (Public health academic)

Excluding people who smoke from participation in social and community life was identified by many stakeholders as contributing to an individual's sense of alienation and powerlessness where they felt that they did not belong. These psychological consequences were identified by stakeholders as then causing more stress in these people's lives, which in effect would only serve to sustain their smoking behaviour.

6.1.13 Safety and security issues

The majority of stakeholders acknowledged that as the price of tobacco products had increased, its value to criminals had increased, which in turn had resulted in an increase in the number of robberies across the country that involved tobacco products. Many stakeholders considered that the excise had directly contributed to this trend.

> *"I think it was the 2016 price rise – zoom – up [the robberies] went [the robberies]. That was a tipping point and we had the robberies, the injuries to the shopkeepers and people who work in the shops. The tobacco tax has led to the robberies."*
>
> (Public health academic)

Stakeholders broadly acknowledged that cigarettes are attractive to criminals because of their declining affordability, they are easy to transport as they are compact and lightweight compared to other commodities such as alcohol, and are relatively easy to sell for a profit.

> *"[Tobacco] is a product that can sell easily whatever the retail cost is… So if it's say a $20 packet of cigarettes, I can sell it for $10. So it's a pretty good profit margin for an offender to get 50% of the value of the product… I could easily steal a hundred packets of cigarettes. Couldn't steal a hundred bottles of whiskey."*
>
> (Government stakeholder)

While there is little publicly available data on the frequency and nature of such robberies, evidence provided by stakeholders compiled from news reports suggests that on average, there has been one retail outlet robbery per day in New Zealand for quite some time.

> *"The biggest challenge we face at the moment is that tobacco [is] such a high price product, it is now attracting a lot of criminals… so we are having more of those every day… We would say at minimum at one a day."*
>
> (Industry and retail associations)

Robberies were understandably a major concern for retail outlets and the Industry and Retail Associations. Apart from the potential financial losses to businesses from theft, stakeholders reported that the costs to the health and wellbeing of owners and employees' were also high due to the trauma associated with being exposed to these types of these crimes.

According to retail stakeholders, a few retail outlets have sought to reduce the risks of theft by transferring the point of sale of tobacco products from areas accessible to retail staff to vending machines, while continuing to ensure that products are only sold to people aged 18 years and over. Convenience stores have also invested in security upgrades including grills and lockable doors.

In response to the rising number of robberies in dairies, stakeholders also reported that the government had established a $1.8 million Justice Sector Fund. This fund had been provided to police to support the installation of crime prevention technologies in dairies. As part of this process, fog cannons had been identified as an effective preventer of crimes as they make a noise, and threw offenders off balance. As of August 2018, funds had supported the installation of around 250 fog cannons in dairies.

Despite these efforts criminal activity was still reported by stakeholders to be evident, one convenience store owner was reported to have decided to stop selling tobacco products after being robed 15 times over a period of 12 months, even though the sale of tobacco products accounted for around half of the in-store sales. The owner apparently felt that the risks of continuing to sell tobacco products, outweighed the expected loss in revenue, and the need to have to lay off staff. There was also at least one incidence reported where criminals had managed to steal a vending machine.

> *"There are stores putting in vending machines which are theoretically robbery proof but we already have one of them hooked up by a car and dragged out of the place and take away. It is a bigger problem that I think everyone actually realises… we haven't had anyone actually being killed yet, but we had quite a number of our employees injured over time and that is the scary part – how far will they go."*
>
> (Industry and retail associations)

6.1.14 The illicit tobacco market

Some stakeholders considered that the increase in robberies was illustrative of the growth in the illicit market for tobacco products, with demand for cheaper priced items seen as a direct response to the excise increases.

In addition to the black market in locally stolen goods, stakeholders reported that most illicit tobacco enters the country undeclared through international parcel post. A smaller proportion is brought into New Zealand undeclared by air travellers, although this was reported by Customs to have dropped considerably with the introduction of amnesty bins at airports. There was some conjecture by stakeholders that this black market tobacco was being sold largely in Asian grocery stores and via the placement of ads on social media, with very little making its way to dairies. Unlike other countries in the Asia Pacific region, many stakeholders felt that New Zealand's relatively remote geographical location provided it with some protection from large volumes of tobacco products arriving by ship. Representatives from Customs also highlighted the willingness and cooperation between international law enforcement agencies as being a key to preventing large shipments entering New Zealand.

Some stakeholders considered that this market was enabled by the relatively high acceptance of illicit purchases in the community and the absence of strong penalties to deter this practice, while others were of the opinion that there was not much of an appetite in the community to purchase illicit products. Despite their perceptions of past practices, many stakeholders felt that it was plausible that the demand for illicit tobacco could continue to grow, especially among those from disadvantaged backgrounds who were addicted to nicotine, as increasing excise reduced the affordability of tobacco products.

> *"There's always been a culture of consumer acceptance of illicit purchases. New Zealand has a long history of purchasing illicit tobacco."*
>
> (Government stakeholder)

> *"They see it as a cheaper choice and therefore they take hold of those opportunities and most wouldn't see it necessarily as breaking the law… there is no penalties."*
>
> (Industry and retail associations)

Tobacco industry response

A number of stakeholders had observed changes to tobacco products and pricing following the implementation of tobacco control initiatives. These changes include the introduction of budget brands, differential pricing structures, the provision of rebates to retailers and the use of 'stalling' techniques. Each of these strategies is outlined further below.

6.1.15 Introduction of 'budget' brands

Stakeholders reported that tobacco companies had introduced lines of budget brands to complement their more costly 'premium' brands. These budget brands were reported by stakeholders to be priced in a way to make them appear relatively more affordable.

With the recent shift to plain packaging in New Zealand, many stakeholders felt that it was too early to tell whether the standardised packaging would lead people who were more price-sensitive to switch from premium to the budget brands.

6.1.16 Differential pricing structures

Some stakeholders reported that tobacco companies were using differential funding of the tax obligations on their cigarettes, by raising the price of their premium brands disproportionately to their budget brands, thereby propping up the affordability of their budget brands.

> *"The tobacco companies cleverly use this trick when the tax increases come through. So they've got low level products for want of a better word, say they're $10 a pack. They've got high products which might be $20 a pack. When the 10% tax came in, they put 20% tax on high product knowing that those consumers can still afford an increase. They leave the [cheaper] product at a low price which still made it accessible for our communities… So what they're doing is using high margin products that affluent people could afford to subsidise the low end products which still makes it accessible for our communities."*
>
> (Community organisation)

Stakeholders familiar with this differential shifting of tax reported that tobacco companies had been able to conceal this practice as they were only required to declare the duty or tax paid to government by category. Stakeholders urged that this reporting regime change so that there is greater transparency associated with the declarations of excise on individual products.

> *"So when they declared their declaration of duty or tax to the government, they said this is the cigarettes, we should pay you this in excise tax, we paid you this. We found out because they have got to break it down by category in terms of what they present… So that needs to stop. There needs to be a per product tax, not a per category or per company excise tax."*
>
> (Community organisation)

6.1.17 Providing rebates to retailers

Some stakeholders also reported that tobacco companies have established contracts with smaller retailers, mainly dairy owners who typically operate on low margins.

> *"This is what [the tobacco companies] do in their contract. They sell you a package of $20,000, they build in a rebate right at the front. So they say that product is 20 grand, we're giving you a ten grand rebate but we're giving it to you right now and you just pay the rest of the product as you sell it. If you pull out your products, you owe me that rebate back."*
>
> (Community organisation)

According to stakeholders with knowledge of this practice, these small retailers tend to remain locked into these contractual arrangements due to fears of litigation if they withdraw from them. They also felt that the rebates provided retailers with an inducement of sorts to continue selling their products.

6.1.18 'Stalling' techniques

Stakeholders also believed that tobacco companies have long employed 'stalling' techniques to delay the introduction of tobacco control measures aimed at preventing the uptake of smoking and encouraging smokers to quit. They observed that this was most recently evident during the introduction of plain packaging, pointing to the length of time it took for the legislation to be passed.

> *"So plain packaging and we would rate that as a success now. It did take 50 months to get that legislation through. In Australia, it was like 18 months because the policymakers said 'yeah that's a good idea' but over here, the tobacco companies tied up the government in legislation which was disgraceful because over the period, 30,000 people died."*
>
> (Community organisation)

6.1.19 Impact of strategies

The majority of stakeholders considered that the collective impact of strategies used by the tobacco industry was that they, the tobacco companies, had been able to undermine the intent of the excise by ensuring their products remained relatively affordable and accessible to the community. There was also a perception among stakeholders that these companies were still making significant profits despite any impacts the excise may have had on their sales.

> *"[The excise] gets passed onto the consumer. There is no ramifications on the tobacco company so they're still making full margin. In fact, tobacco company margins have doubled since tax increases came in because what happens is they're putting 10% on their excise tax and 10% on the product so they're making another 10% margin as well. So they're paying the additional excise tax to government and they're banking it as margin and they're just printing money at the moment."*
>
> (Community organisation)

Further excise increases

Stakeholders expressed a range of views in relation to the two remaining 10% increases in the tobacco excise. To a large extent, these views reflected their attitudes towards the excise to date, and their overall perceptions of the costs versus the benefits of these future increases, as well as their concerns as to the perceived inequity of the impact of the excise on different groups within the community, especially those from disadvantaged backgrounds.

Stakeholders who were most supportive of the excise approach felt that it was important for the future excise increases to proceed. They considered that stopping or reducing the excise would be seen as damaging to the government, and could potentially undermine broader tobacco control initiatives. Even reducing the rate of increase in excise taxes could send the 'wrong signal' to the population that the problem of smoking was not so bad now, and might affect people's motivation in deciding whether to continue smoking or not.

One stakeholder organisation suggested, for extra impact, that the last two excise increases (scheduled for January 2019 and 2020) should be combined so that there is one 20% increase. Their rationale for this suggestion was that people generally prepare for a 10% increase (by stockpiling tobacco products). They felt that a "surprise factor" of 20% could jolt more people into quitting.

Some stakeholders supported a tobacco excise in principle but expressed ambivalence over the remaining two increases. Their ambivalence stemmed from concerns over the hardship that more vulnerable community members were experiencing. They felt that a "tipping point" had been reached, and that whilst the excise had been effective in prompting contemplators to quit, it had been less effective in motivating the more "hardened" or addicted smokers to change their behaviour. As such, they were concerned that people for whom tobacco products were least affordable would continue to smoke, and would prioritise spending on tobacco over other essential household items.

> *"The excise has had an impact, and we've seen all the things we expected to see. The prevalence of smoking has gone down. The consumption of tobacco products has gone down. But have we reached a tipping point?... It's unlikely the last two excise increases will be repealed, but I don't think there's much appetite to continue beyond that."*
>
> (Government stakeholder)

Other stakeholders, including those who were "ambivalent", also reinforced that the excise, in their view, was not intended to be a standalone initiative, but rather one of a range of strategies designed to help support and encourage people to reduce, and ultimately quit, smoking. The more holistic support services discussed earlier were again called out as a cornerstone to ensuring the effectiveness of the excise, and critical to supporting communities in light of the additional increases.

Stakeholders who were least supportive of the excise called for the last two increases to be withdrawn due to their concerns over the unintended consequences associated with this initiative.

Stakeholders whose work brought them into close contact with Māori communities felt that the level of financial hardship inflicted by the excise on these communities exceeded any further incremental gains to be made in terms of reduced smoking.

> *"So what we need is to just pause the tax increases because the harm is too great now."*
>
> (Public health academic)

Others felt that the diminishing affordability would only push more people towards the black market for tobacco products, which in turn would ensure the continuation of robberies.

> *"I suppose if you look at – if you're looking at the consumers – low socio-economic – do you get them to a point when they virtually can't afford to purchase anymore? What are they going to do because they've got an addiction? They're going to buy off the black market aren't they? They're going to buy from a source which they can – a supply – a far lower level than they can if they go into a store and pay retail costs."*
>
> (Government stakeholder)

Industry and retail associations that bore direct financial consequences through reduced sales and robberies expressed support for alternative tobacco control approaches which did not make these products appealing to criminals.

> *"What I would hope to see beyond 2020 is that we revert back to the CPI increase and adjustment which is essentially what was legislated originally before we had these ad hoc increases along the way. I think there are other avenues to consider."*
>
> (Industry and retail associations)

Further opportunities for achieving Smokefree 2025 goal

In general, stakeholders felt that significant gains had been made in New Zealand to prevent young people from taking up smoking and encouraging existing smokers to quit or reduce their consumption of tobacco products. Whilst most considered that the excise had played a role in achieving these outcomes, they identified a number of other complementary approaches to support the Smokefree 2025 goal. These opportunities for improvement reflect the need for a suite of approaches which are intersectoral, culturally appropriate, and well-resourced and underpinned by the best available evidence. Some of the key approaches recommended by stakeholders are discussed below.

6.1.20 Empower services to implement harm reduction approaches

Community organisations providing smoking cessation services reported that their funding agreements and service orientation are aimed at supporting people to quit smoking. They felt that there was a need to reorient services so that they can embrace harm reduction approaches which support people with an addiction to nicotine to not only reduce the frequency, amount and locations in which they smoke, but to also have access to less harmful products. E-cigarettes were felt by most stakeholders to represent a safer, but not necessarily safe, alternative for the delivery of a nicotine hit than through smoking.

At present, the services consulted with reported that they were not authorised to recommend people switch to e-cigarettes. Some mentioned that they were discouraged from talking to people about these less harmful approaches as there was an expectation that services should promote the quit message to the exclusion of a harm reduction message.

> *"It's immoral to deny addicted smokers access to harm minimisation approaches… There are plenty of ways to enjoy life without nicotine, but if people are addicted, they need to be able to access it in the least harmful way."*
>
> (Government stakeholder)

6.1.21 Greater investment in holistic, wraparound support services

Stakeholders acknowledged that short term service models which have a narrower focus on smoking cessation will not meet the needs of community members who have more complex psychosocial support needs, especially where smoking meets a need for respite from stress caused by deeper issues in their lives. Stakeholders were also mindful that clients with mental health challenges need time to build rapport and trust with support workers, and that smoking often provides an important mechanism through which this can be achieved.

Harm minimisation approaches recognise that if a person is using smoking as way of dealing with poverty, anxiety, social isolation, family violence or strained relationships, to name a few, then the best way to help that person to stop smoking is by addressing the underlying issue (or issues) from which they seek respite through their smoking.

> *"It's about recognising smoking is sometimes a symptom of more complex issues in their lives and it may provide some temporary relief from all the pressures that people have."*
>
> (Public health academic)

In some circumstances, holistic, wraparound services, which seek to address the underlying reasons why people smoke can be more effective in promoting cessation, as they empower individuals to learn more about themselves, and to explore their hopes, aspirations and fears in a safe environment. These approaches were also recognised by stakeholders to be more sustainable as they may help people to develop alternative coping mechanisms when confronted with challenging situations.

While these longer term, holistic models tended to be more common among services targeting Māori and Pacific communities, many stakeholders felt that increasing the level of investment in these service models would not only help to increase their availability and accessibility across in these communities, but would also have a positive impact on the effectiveness of support available for the broader community.

6.1.22 Restrict supply of tobacco products

Several stakeholders felt that for too long tobacco control initiatives had focused on the demand side, and that it was time to extend these approaches so that they encompass supply side drivers of smoking. This approach reflects their view that tobacco products, and not their users, are the problem.

Suggestions for restricting the supply of tobacco products included:

- Increasing the age of smoking to 21 years (or by 1 year, every year, to 21) to help prevent young people from taking up smoking
- More radically, aiming for a 'smokefree generation' by raising the age of smoking by 1 year every year
- Reducing the number of retailers selling tobacco. Suggestions were made to employ a staged approach, banning the sale of tobacco products from dairies and convenience stores, then supermarkets, and finally only allowing authorised tobacconists to sell tobacco products.
- Restricting sales of tobacco near schools, churches and other community organisations.

7 Community survey

Key observations

While the overall sentiment of people towards Smokefree 2025 was positive, a number of key findings were identified regarding the effectiveness of increasing the tobacco excise. These are listed below and explored in more detail later in this section:

1 Tobacco excise has reduced smoking	The tobacco excise was identified by many smokers as changing their smoking behaviours. For example, in the 12 months prior to the survey, 47% of people who had tried to reduce or quit smoking, and 21% of those who had actually quit, cited the increase in the price of cigarettes and/or tobacco as a reason for their change in behaviour.
2 Some modified their behaviours to keep smoking	Almost all households that purchased tobacco products reported noticing a price rise in the two years prior to the survey. This resulted in around half (47%) of these households purchasing fewer products, while many "smoking" households tried to mitigate the price increases by using strategies such as purchasing cheaper brands (49%). In the 12 months prior to the survey 10% reported going without something that they needed. The proportion of households going without was twice as likely to occur in Māori households than European/Other households.

3 Pacific households most likely to have stopped smoking	The excise was found to affect different community groups in different ways, with Pacific households that smoke twice as likely to have stopped purchasing cigarettes and/or tobacco than Māori households because of the price rise, while Māori households were more likely to seek out cheaper brands, find other places to purchase tobacco products, or switch to roll your own. People from European/Other backgrounds were more likely to use nicotine replacement products such as e-cigarettes or NRT.
4 Smokefree 2025 is supported overall	While 68% of people agreed or strongly agreed that the Smokefree 2025 initiative was a good one for New Zealanders. Smokers opinions on Smokefree 2025 were polarised, with the proportion supporting it similar to the proportion opposing it.
5 Most smokers likely to quit	With over half (55%) of current smokers indicating that they would be likely to quit smoking in the future, short term increases to the excise will also be likely to continue to be effective at encouraging people to change their smoking behaviour. The extent to which smokers will continue to quit into the longer term is unclear.
6 Smoking is a greater financial burden on low income households	A higher proportion of lower income households purchased tobacco products than higher income households. They were also more likely to go without or spend less on food and groceries, utilities, and so on in order to continue to purchasing tobacco products.

Context

The primary purpose of the community based survey was to measure household expenditure, behaviours and attitudes, with respect to the changing price of tobacco.

Both smoking and non-smoking households were included in order to ensure the perceptions and attitudes of the broader community were obtained in relation to Smokefree 2025, including the excise.

The characteristics measured at a household level included:

- Current expenditure and relative changes in spending habits in relation to a range of common household purchase categories such as general living expenses, expenditure on utilities, transport, food and groceries, and so on.
- Behaviours and perceptions associated with tobacco purchases, including where it is purchased from, the impact of the excise on other household purchases, and the impact on members of the household.
- Financial wellbeing and the ability of households to meet their basic needs, while also paying for occasional luxuries.

The current and future behaviours of individuals were also investigated by exploring issues such as:

- The smoking behaviour of individuals in relation to the frequency with which they smoke, changes to their smoking behaviour, and attempts to quit.
- Awareness of policies about the tobacco excise and Smokefree 2025.
- Perceptions about the affordability of tobacco, along with individual sentiment towards the excise increases, along with the perceived impacts of these increases on their behaviour.

Information pertaining to the characteristics of the household and demographic information about the respondent (e.g., household composition, income, ethnicity, age, gender, location, and work status) was collected from respondents to help determine the impact of the excise on specific subgroups.

Current smoking behaviour

7.1.1 Households that buy tobacco

Overall, 23% of people reported that their household had spent money in the month prior to the survey on tobacco products. Smoking rates for the household were highest when reported by someone from a Māori (43%) or Pacific (31%) background and lowest for those from an Asian background (16%), while 21% of those from a European/Other background reported that someone in their household smoked.

Where tobacco was purchased by a household, on average, two members of the household smoked. This number is higher among Māori (2.4) and Pacific (2.5) households, than Asian (1.6) and European/Other (1.7) households, (see **Figure 41**).

The characteristics of households that purchase cigarettes and/or tobacco are complex. In comparison to households that do not purchase cigarettes and/or tobacco, households that do are more likely to:

- Have a total income of less than $50,000 per year, but
- State they are easily able to pay for the essentials and extras
- Live in the Canterbury – West Coast or Waikato regions.

And are less likely to be a:

- Household comprising a couple without children.

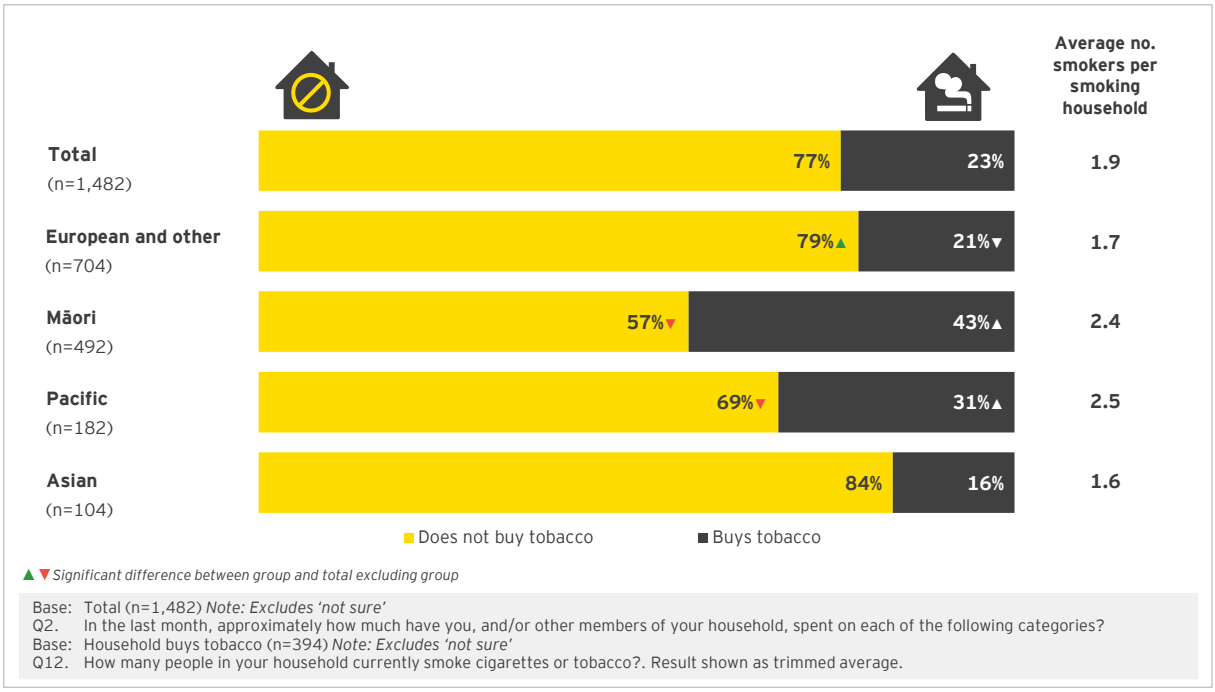


Figure 41: Profile of households that buy cigarettes or tobacco

Compared to the total population for a region, smoking households were over-represented in the Canterbury – West Coast (18%) and Waikato (13%) regions (see **Figure 42**), while, most tobacco purchasing households were located in Auckland, the most populous region (35%).

When comparing households which did and did not buy tobacco within ethnic groups (see **Figure 43**), households that purchased tobacco tended to be overrepresented by:

- Low income European/Other and Māori households
- Māori households with children (such as couples or with whānau under the same roof)
- Shared or whānau Pacific households
- European/Other households within the Canterbury – Westcoast region

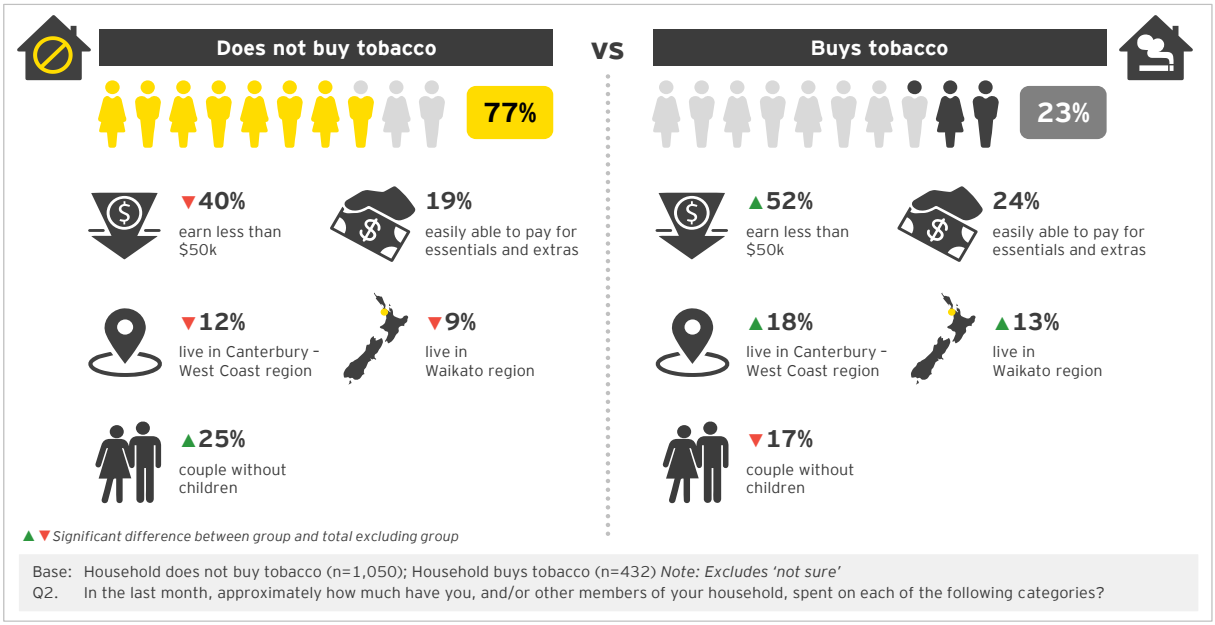


Figure 42: Comparison of households that do and do not buy cigarettes or tobacco

	Household buys tobacco				
	Total (n=432)	European & Other (n=142)	Māori (n=218)	Pacific (n=56)	Asian (n=16!)
Earn less than $50k	**52%**	50%	62%▲	44%	50%
Easily able to pay for essentials and extras	**24%**	26%	15%▼	19%	45%
Live in Canterbury – West Coast region	**18%**	25%▲	5%▼	1%▼	14%
Live in Waikato region	**13%**	14%	16%	7%	0%
Live in Auckland region	**35%**	27%▼	28%▼	65%▲	75%
Couple without children	**17%**	22%▲	9%▼	5%▼	11%

▲▼ *Significant difference between group and total excluding group*

Base: Household buys tobacco (n=432)
Q2. In the last month, approximately how much have you, and/or other members of your household, spent on each of the following categories?
Note: ! Caution, small base size

Figure 43: Characteristics of households that buy cigarettes / tobacco by main ethnicity

7.1.2 Household expenditure on tobacco

On average, 7% of monthly expenditure, or $155, is spent on tobacco and/or cigarettes by households that buy tobacco products. Although this tends to be higher among respondents from a European/Other background ($167) than Māori ($151), Pacific ($142) or Asian ($118) background, the differences are not statistically significant (see **Figure 44**).

As highlighted earlier, households that buy cigarettes and/or tobacco, tended to have lower incomes and on average receive slightly less income ($4,700 per month) than households that do not buy cigarettes and/or tobacco ($5,000 per month), although the differences between these averages is not statistically significant. Total household expenditure is also about the same regardless of whether cigarettes and/or tobacco are purchased or not ($2,300 per month for both). This suggests that households which purchase tobacco may face greater budgetary challenges as they are purchasing tobacco within the same expenditure pattern as households which do not purchase tobacco (see **Figure 45**).

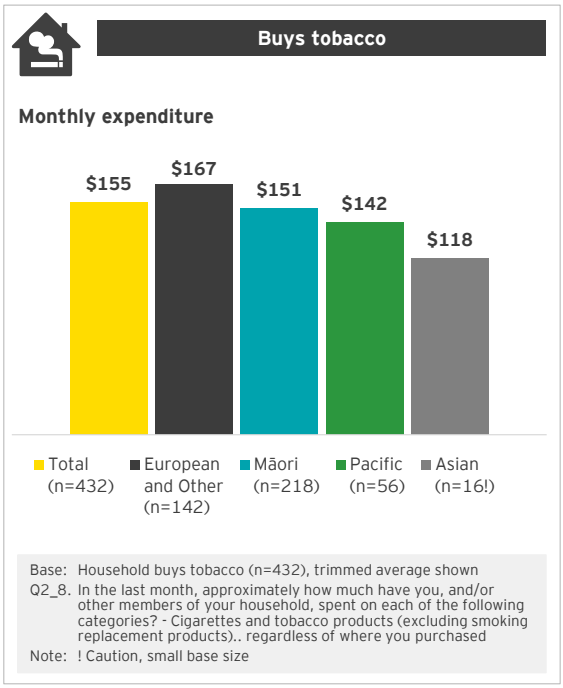


Figure 44: Monthly household cigarette or tobacco expenditure by main ethnicity

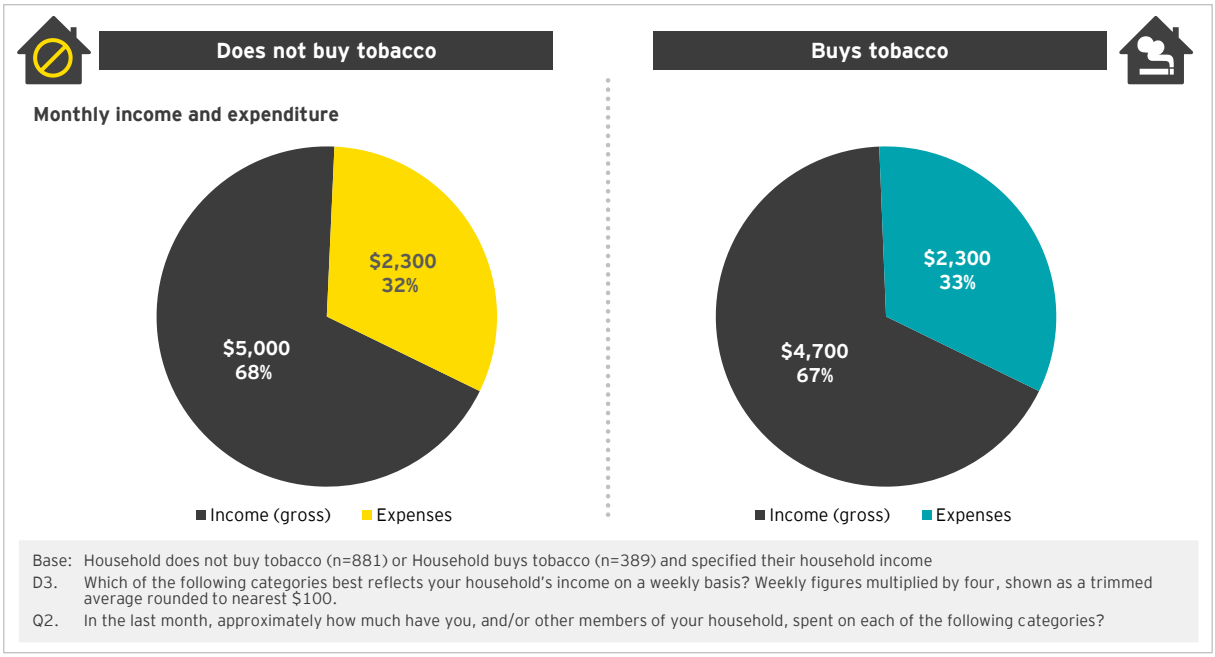


Figure 45: Comparison of monthly household income and expenditure by households which do and do not buy tobacco

How money is spent also differs between household types. Households that did not buy cigarettes and/or tobacco tended to spend more on food and groceries, utilities, personal expenditure (including savings, entertainment, clothing etc.) and transport related costs than households that brought cigarettes and/or tobacco (see **Figure 46**).

Regardless of ethnicity, households that bought tobacco reported spending a similar proportion of their expenses on tobacco products. As mentioned earlier, the amount tended to be slightly higher for European/Other households, although these households also tended to spend a statistically significant greater amount on living expenses (including rent, mortgage, and insurance), and medical expenses than Māori households (see **Figure 47**).

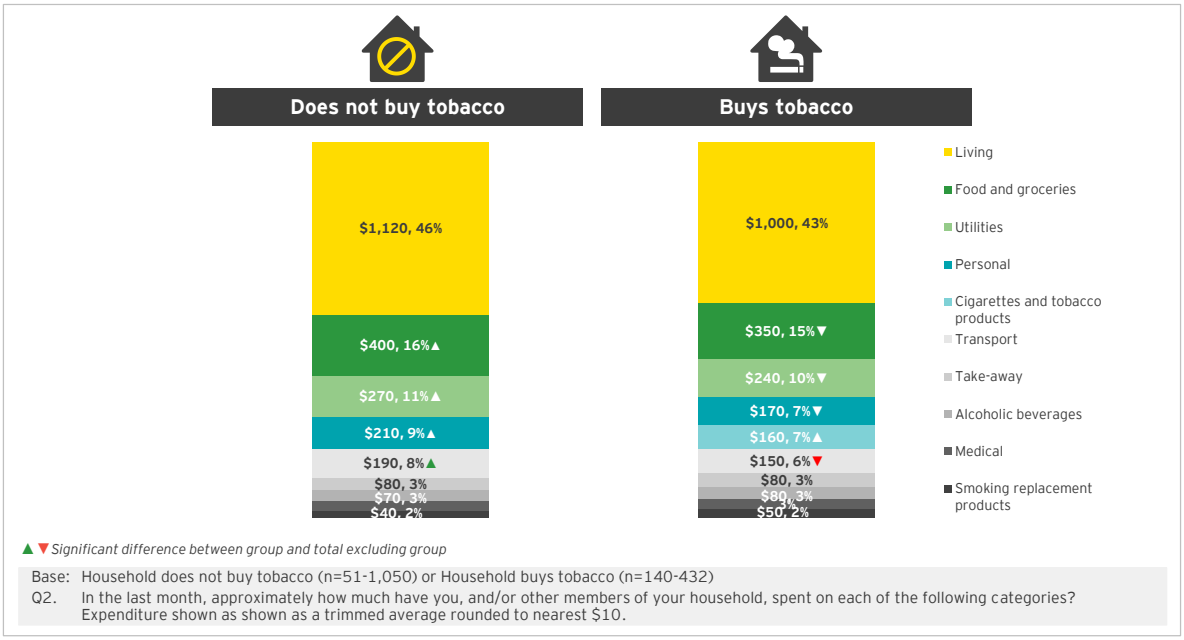


Figure 46: Comparison of monthly expenditure breakdown by households that do or do not buy tobacco

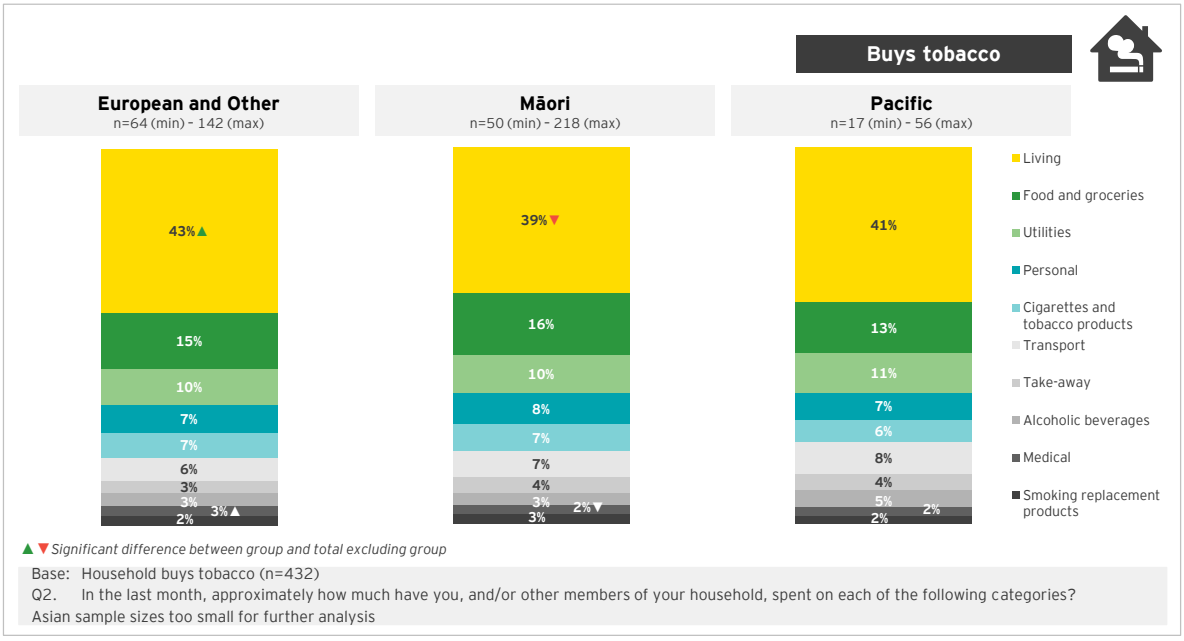


Figure 47: Comparison of monthly expenditure breakdown for households that buy tobacco by main ethnicity

7.1.2.1 Impact of tobacco on households

Of the households that purchased cigarettes and/or tobacco, 68% reported that they had never gone without something that they needed because there wasn't enough money left over after cigarettes and/or tobacco were purchased (see **Figure 48**).

When looking at what has happened in the last month, 10% of tobacco purchasing households reported that they went without something they needed because there wasn't enough money left over after cigarettes and/or tobacco were purchased. The proportion of households going without in the past month is twice as high where the respondent is from a Māori background (19%), compared to someone from a European/Other background (9%) (see **Figure 48**).

In total, 27% reported having ever gone without something due to their cigarette/tobacco expenditure. Not surprisingly, households going without something because of cigarettes and/or tobacco tended to be more likely to have a low household income, regardless of ethnicity.

In addition, European/Other and Māori households that had gone without tended not have children (62% and 57% respectively), while 42% of Pacific households that had gone without, were identified as cross generational households with children (see **Figure 49**).

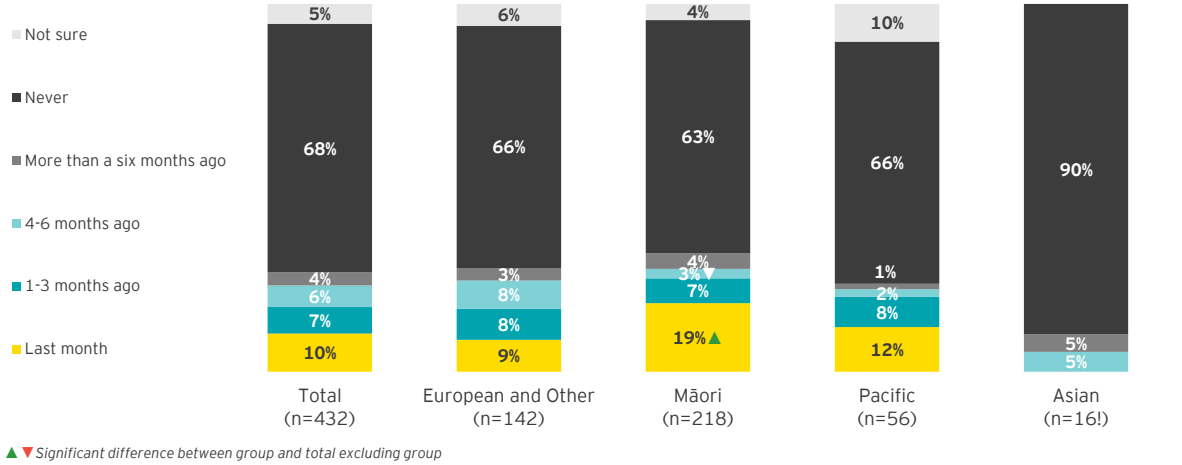


Figure 48: Comparison of impact of tobacco on households by main ethnicity of respondent

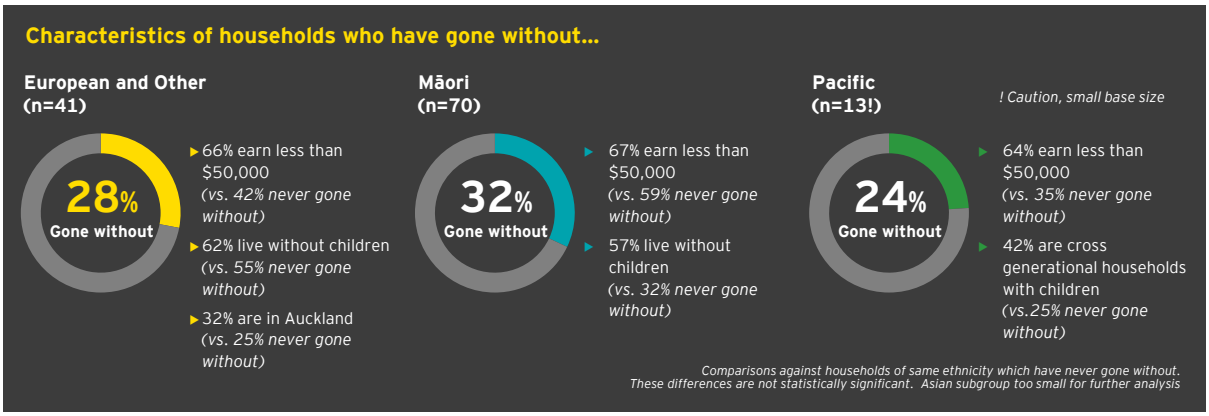


Figure 49: Characteristics of households who have gone without

7.1.2.2 Where tobacco is purchased

Most households reported that they purchased cigarettes and/or tobacco from outlets such as supermarkets (57%), dairies (55%), service stations (45%), liquor stores (23%) and/or tobacconists (21%). Where a respondent was from a Māori or Pacific background, compared to a respondent from a European/Other background, purchases were more likely to be made from:

- Dairies (Māori: 68%, Pacific: 78% compared to European/Other: 49%)
- Liquor stores (Māori: 30%, Pacific: 35% compared to European/Other: 17%)

Māori respondents (32%) were also more likely to say that their household purchases were from a tobacconist than those from a European/Other (20%) or Pacific background (13%) (see **Figure 50**).

Overall, 30% of households (see **Figure 50**) reported purchasing cigarettes and/or tobacco from a supplier other than those already mentioned. The most common "alternate supplier" was identified as friends and/or family (11%), which was most commonly used by those from a Pacific background (20%), and less so by those from a Māori (13%) or European/Other background (7%) (see **Figure 50**).

At the time of the survey, purchasing cigarettes and/or tobacco from online sources, including auction sites (5%) and other online sites (4%), was relatively uncommon.

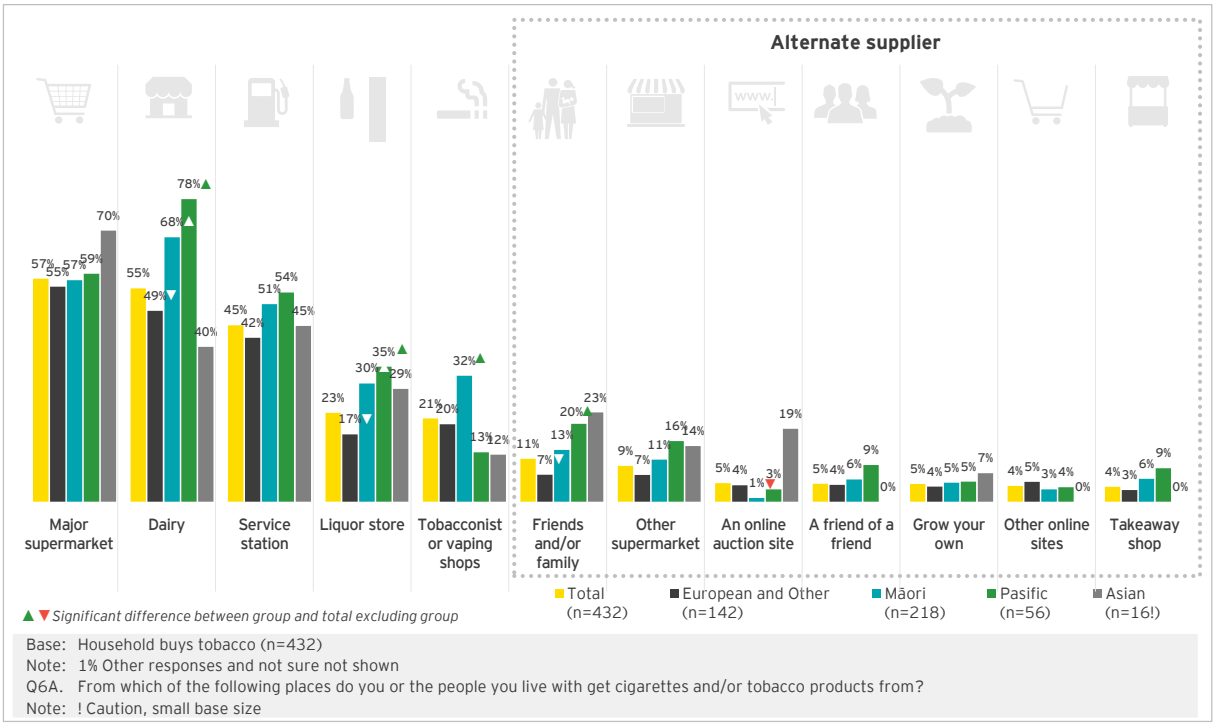


Figure 50: Comparison of cigarette / tobacco source by main ethnicity of respondent

It could be assumed that "sourcing from the black market", such as purchasing stolen products, could be hidden in the 'friends' or 'friends of friends' categories. As the latter numbers are small, akin to those who state they are growing their own, and focus group participants openly talked about family members "scabbing" off each other, it is anticipated that this cross over, if it exists, would be relatively small.

Based on the analysis of data collected, there did not appear to be a conclusive profile of the types of households that were more likely to use "alternate suppliers" to purchase cigarettes and/or tobacco, with those reporting good financial wellbeing just as likely to use alternate suppliers as those struggling to afford the essentials.

As shown in **Figure 51** there appears to be a slightly higher propensity to use "alternate sources" among:

- Those from a Pacific origin
- Those from a Māori background who are struggling to afford the essentials.

Within all households which buy tobacco	Total (n=432)	European and Other (n=142)	Māori (n=218)	Pacific (n=56)	Asian (n=-16!)
Total	**30%**	28%	27%	37%	44%!

Households which buy tobacco and individuals which are...	Total (n=61-146)	European and Other (n=15!-54)	Māori (n=32-72)	Pacific (n=5-17!)	Asian (n=1-7)
Easily able to pay for essentials and any extras that you want	**40%**	32%	31%	49%!	n/a
Able to pay for essentials and have some money left over for occasional extras	**30%**	37%	19%	15%!	n/a
Able to pay for essentials only and have little or no money left over for anything else	**22%**	11%	30%	51%!	n/a
Struggling to afford the essentials	**29%**	23%!	40%	n/a	n/a

Base: Household buys tobacco (n=432)
Note: 1% Other responses and not sure not shown
! Caution, small base size
Q6A. From which of the following places do you or the people you live with get cigarettes and/or tobacco products from?

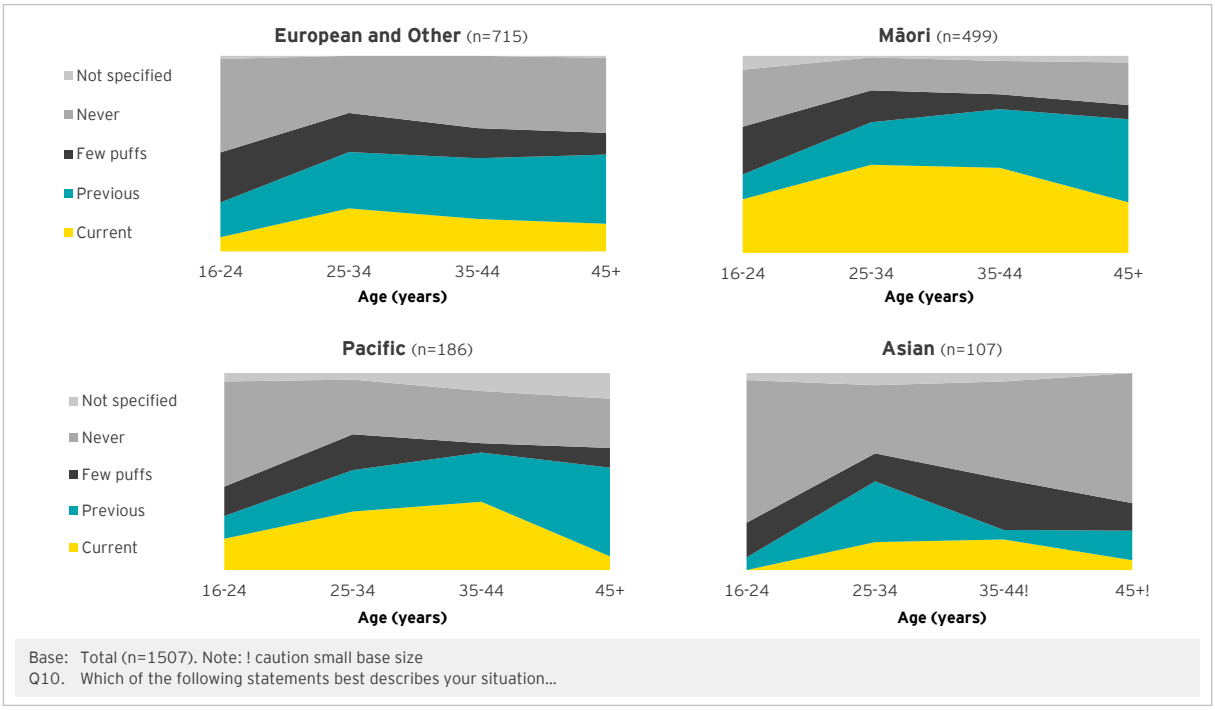
Figure 51: Financial wellbeing of households using alternate suppliers for cigarettes or tobacco

7.1.3 Individuals who smoke

In addition to their household's smoking behaviour, survey respondents were also asked about their individual smoking behaviour. Overall, 17% of people who participated in the survey indicated that they currently smoke tobacco with rates highest among those who identified their main ethnicity as Māori (34%) or Pacific (22%), with less respondents from a European/Other (15%) or Asian (8%) background reporting that they currently smoked tobacco. These results are in line with current national estimates (see **Section 4**).

Smoking rates within each main ethnic group also varied by both age (see **Figure 52**) and gender (see **Figure 53**):

- **European/Other:** current smoking rates peak among 25-35 year olds, particularly among males (32%). Those aged 16-24 were less likely to have ever smoked compared to older age groups.
- **Māori:** current smoking rates were highest among 25-44 year olds, particularly females (47%), and 41% of those aged 45 and over having smoked in the past.
- **Pacific:** current smoking rates were highest for 35-44 year olds. People 45 years and older were more likely to have smoked previously (35%) than be currently smoking (14%).
- **Asian:** smoking rates were low, regardless of the age group, but were more than twice as high for men (12%) than for women (5%).



Base: Total (n=1507). Note: ! caution small base size
Q10. Which of the following statements best describes your situation...

Figure 52: Breakdown of smoking status by age group and main ethnicity

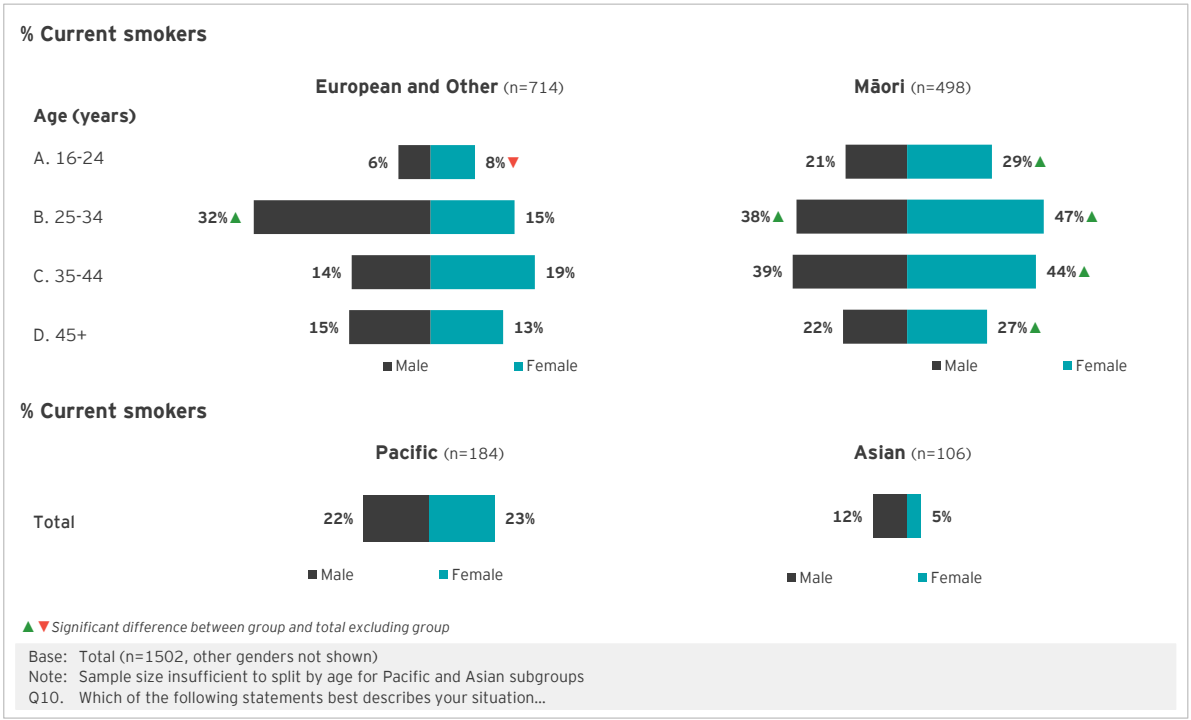


Figure 53: Breakdown of current smokers by gender and main ethnicity (and age where there is a sufficient sample size)

7.1.4 Impact of excise changes on households

The different types of impacts that the excise has had on households was established using both attitudinal and behavioural measures. These measures included asking questions pertaining to the unprompted and prompted awareness of price changes, understanding changes to purchasing behaviours at a household level, as well as self-assessed impacts of the price rises on individual and household behaviour, and the wider community.

7.1.4.1 Awareness of and sentiment towards Smokefree 2025

Among all survey respondents, 60% were aware that the government has set a goal to have less than 5% of New Zealanders smoking by 2025, while 44% were aware that the price of cigarettes and/or tobacco would rise by 10% next year (see **Figure 54**).

Awareness of both the Smokefree 2025 goal and increases to the price of cigarettes and/or tobacco was highest among those who were current smokers, although this awareness is not universal, with two-thirds of current smokers (65%) aware of an scheduled price rise on 1 January 2019, while 20% indicated they were not aware and 6% were not sure (figures not shown in chart). Those who reported that they had previously smoked, or taken a few puffs, tended to be more aware of the initiative and price rises than those who have never been a smoker.

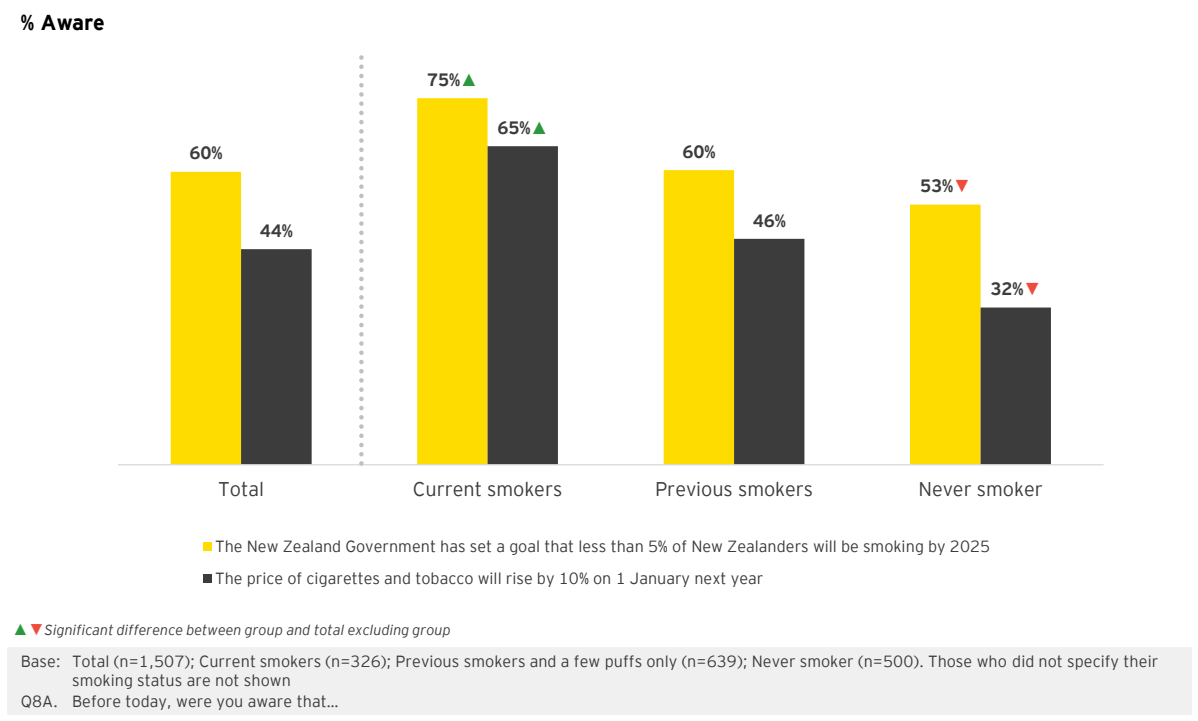


Figure 54: Awareness of Smokefree 2025 initiatives by smoking status

In general, community sentiment towards Smokefree 2025 was positive, with 68% of respondents either agreeing or strongly agreeing that it was a good initiative for New Zealanders and for people in their community (see **Figure 55**).

Those who identified as current smokers were more likely to disagree that Smokefree 2025 was a good initiative for New Zealanders (36%) or for people in their community (32%) (see **Figure 55**).

While views about Smokefree 2025 being a good initiative for all New Zealanders and people in the respondent's community were relatively consistent across smokers, regardless of ethnic background (see **Figure 56**), the level of support among non-smokers from different ethnic group was more variable. As can also be seen in **Figure 56**, non-smokers from a Māori background tended to be less supportive of Smokefree 2025 (62% and 64%), while those from an Asian background tended to be more supportive (80% for both metrics).

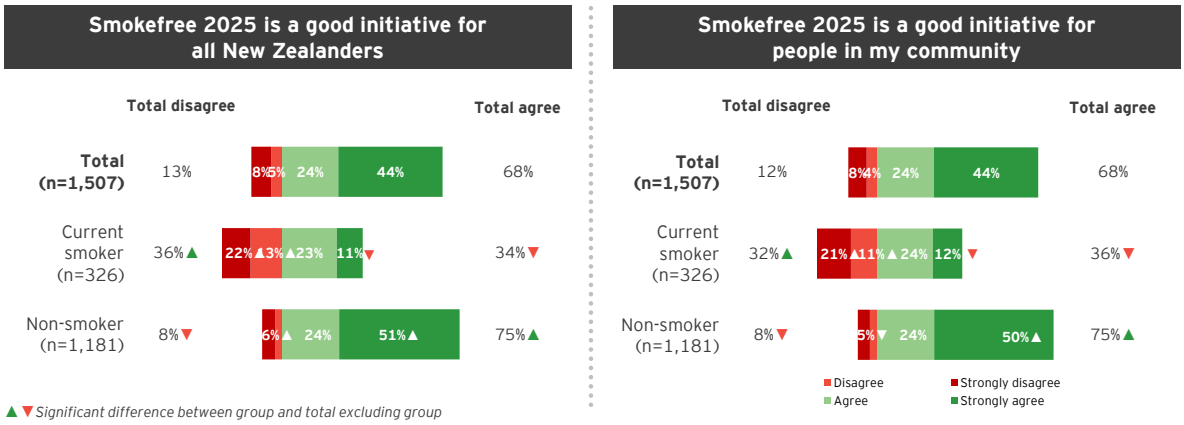


Figure 55: Attitudes towards Smokefree 2025 by smoking status

Current smoker

% agree / strongly agree	Total (n=326)	European and Other (n=105)	Māori (n=172)	Pacific (n=41)	Asian (n=-8)
Smokefree 2025 is a good initiative for all New Zealanders	**34%**	31%	35%	40%	n/a
Smokefree 2025 is a good initiative for people in my community	**36%**	32%	39%	46%	n/a

Non-smoker

% agree / strongly agree	Total (n=1180)	European and Other (n=610)	Māori (n=327) ▼	Pacific (n=145)	Asian (n=-99)
Smokefree 2025 is a good initiative for all New Zealanders	**75%**	76%	62%▼	71%	80%
Smokefree 2025 is a good initiative for people in my community	**75%**	75%	64%▼	73%	80%

▲▼ *Significant difference between group and total excluding group*

Base: Current smokers (n=326) ; Non-smokers (n=1,181)
Note: n/a base size n<10 and too small to report; ! caution small base size
Q8B. To what extent do you disagree or agree with the following statements?

Figure 56: Agreement towards Smokefree 2025 by main ethnicity

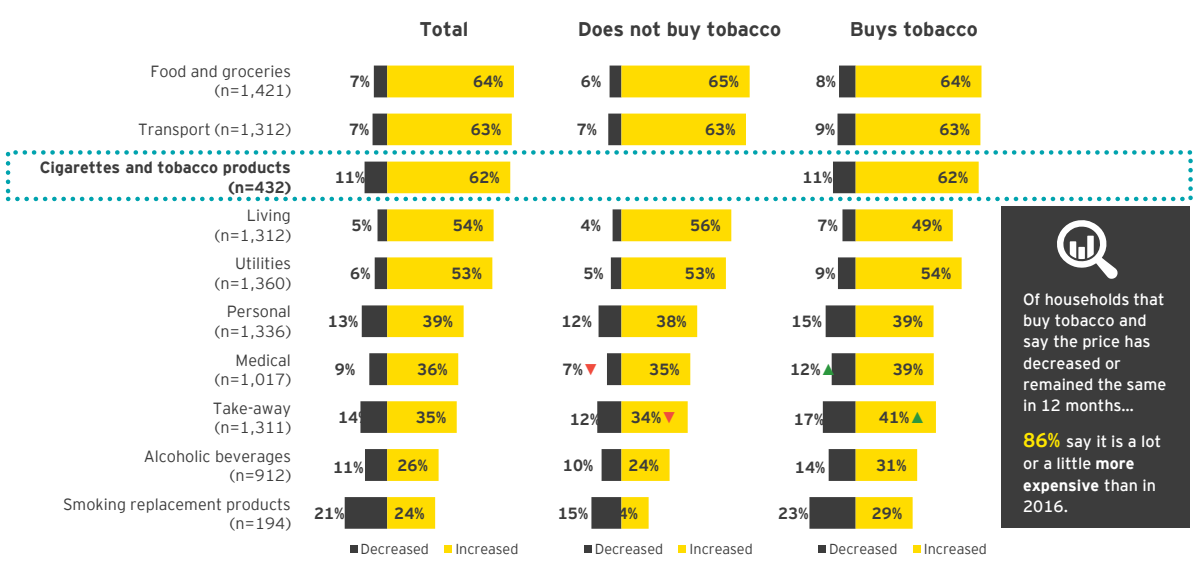
7.1.4.2 Household impact relative to other changes

The majority of households (62%) buying tobacco products reported noticing price rises to cigarettes and/or tobacco in the past year, although 11% indicated that they thought that the price of cigarettes and/or tobacco had decreased and 22% thought the price had remained the same. On follow-up with those who thought the price had decreased or remained the same, 86% indicated that they thought tobacco was a little or a lot more expensive in 2018 than it had been in 2016 (see **Figure 57**).

This finding makes it difficult to measure the impact practices such as differential pricing structures, or the introduction of budget cigarette and/or tobacco brands, may be having on masking the price increases.

It must also be recognised that tobacco products are just one of many household purchases which are increasing in price, with respondents reporting price rises across many household items in the 12 months prior to the survey. Price rises were particularly noted by respondents in relation to food and groceries (64%), and transport (63%). To some extent, the price rises to expenses other than tobacco may mean that a price rise to tobacco products is just seen as one of multiple growing pressures for households buying tobacco.

When it came to smoking replacement products, including Nicotine Replacement Therapy, NRT, e-cigarettes and vaping products, 21% of households reported that they thought the price had decreased in the 12 months prior to the survey, while a similar proportion (24%) thought the price had increased. It is unclear as to the extent to which respondents and/or households are aware of subsidised NRT, or the lower ongoing costs associated with the use of e-cigarettes or vaping products.



Base: Have purchased in past month (sample size shown in brackets); Does not buy tobacco (min n=51; max n=987); Buys tobacco (min n= 140; max n=432)
Note: 'Stayed the same' and 'Not sure' not shown.
Q3. In the last 12 months, has the price of the following items increased, decreased or stayed the same?
Q4. Is the average price of cigarettes or tobacco more or less expensive now than in 2016?

Figure 57: Price changes in household purchases by households which do and do not buy tobacco

7.1.4.3 Managing the impact

The price rises to tobacco products was reported to have caused a mixed response in households, with some moving away from tobacco, while others reported looking for alternate sources. Of those that bought tobacco and had noted a change to prices in the past two years, the most common way households managed the impact was to split between purchasing cheaper brands (49%) and/or reducing the amount of tobacco purchased (47%) (see **Figure 58**). Interestingly, this is slightly different to what was reported during the community focus groups, where smokers also openly talked about reducing their expenditure on other purchases such as food and clothing.

Other strategies reportedly used by respondents or members of their household tended to be influenced by the ethnic background of the respondent. For example, respondents from a European/Other background were more likely to say they purchased smoking replacement products (33%) than those from a Māori background (21%), while those from a Māori background were more likely to say they had looked for other places to buy tobacco (37%), or switched to roll your own (31%) than those from a European/Other background (20% and 13% respectively). Respondents from a Pacific background were also found to be more than twice as likely to stop buying tobacco all-together (18%) than those from a Māori background (7%) (see **Figure 58**).

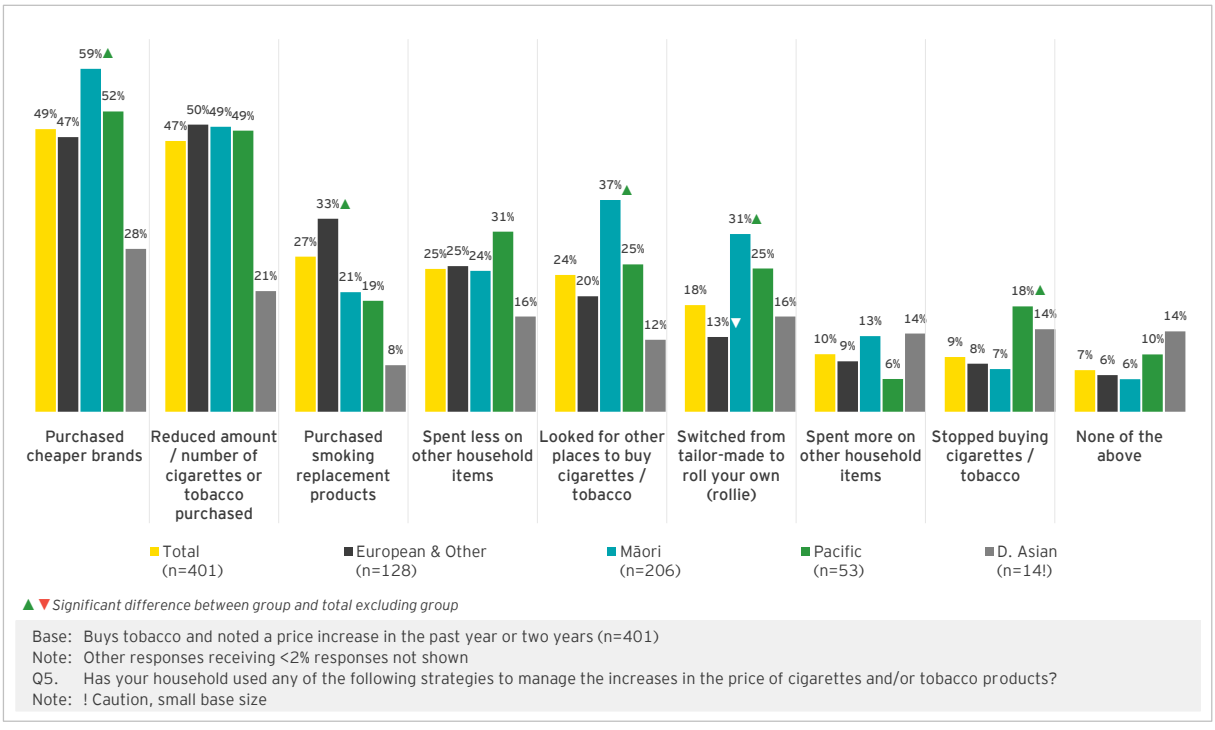


Figure 58: How households that purchase tobacco have managed price increases

Overall, 25% of households reported that they had managed the impact of the price rises to cigarettes and/or tobacco by spending less on other items. As shown in **Figure 59**, the most common areas where less of the budget had been allocated included:

- Take-aways (77%)
- Personal expenditure (including savings, entertainment, clothing etc.) (65%)
- Food and groceries (55%)
- Alcoholic beverages (45%).

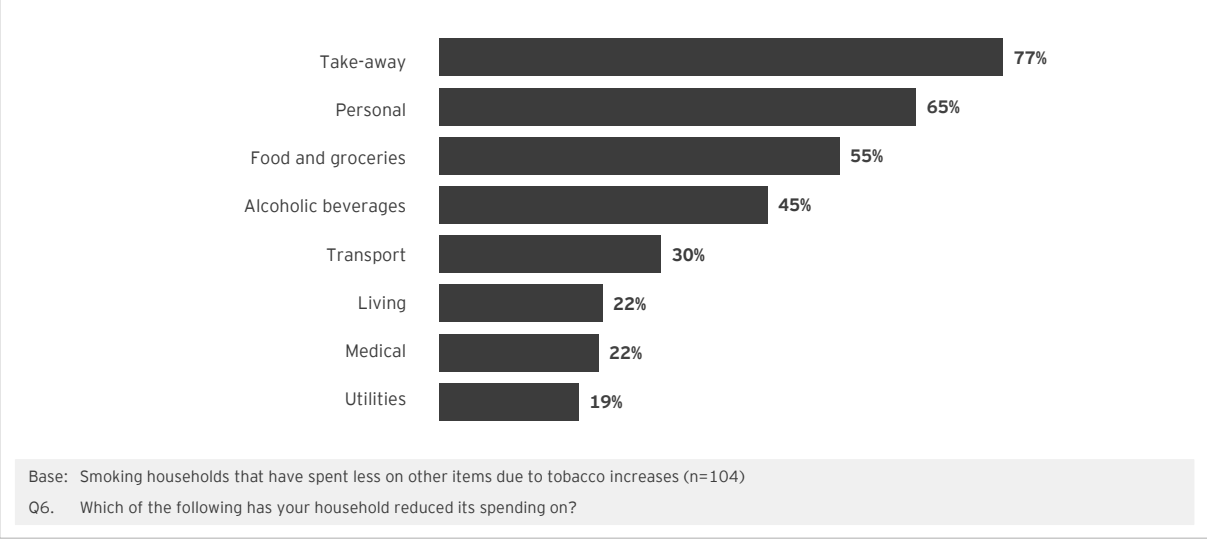


Figure 59: Where households spent less on other household items

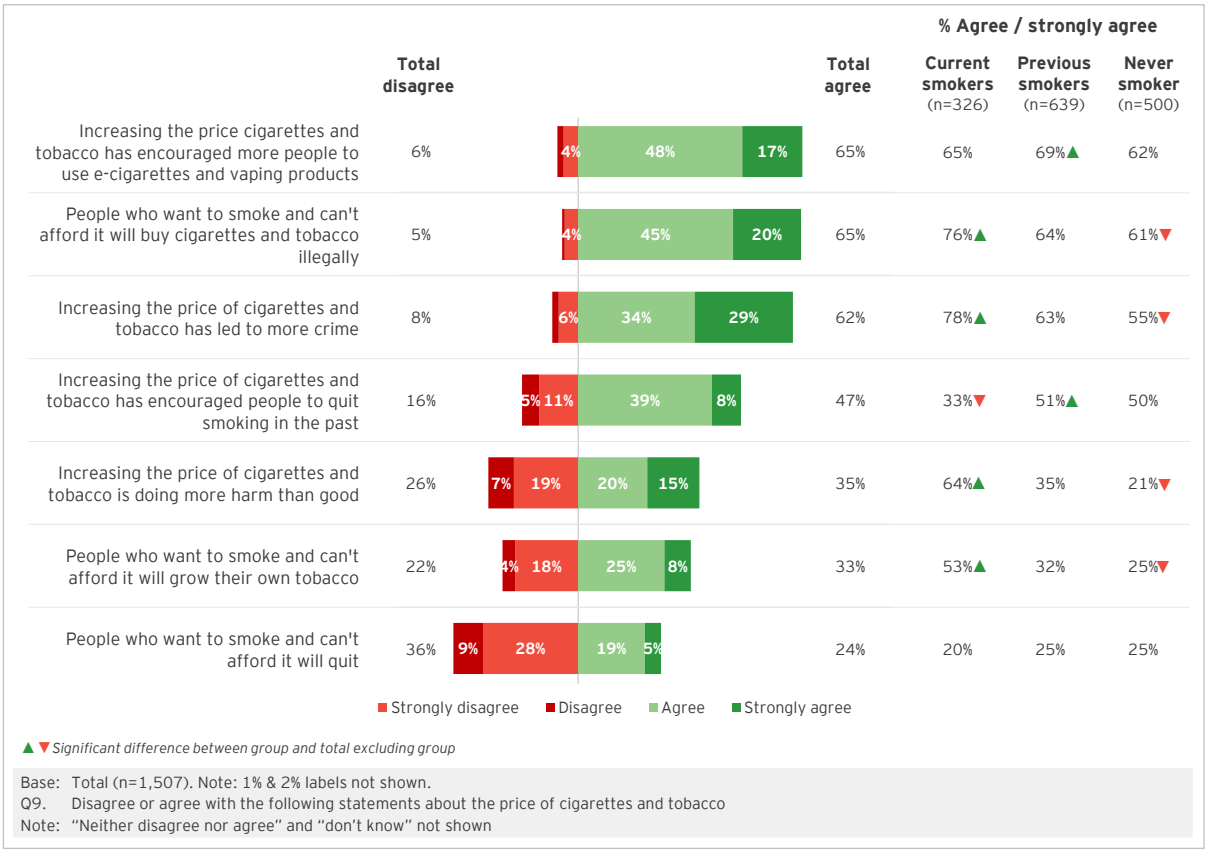
7.1.5 Impact of excise changes on individual behaviours

The attitudes of survey respondents about how the increases to the price of cigarettes and/or tobacco are affecting the community were mixed, and largely depended on their smoking status (see **Figure 60**). Those who have never smoked were more positive about the price rises, in particular, 50% agreed that the increase had encouraged people to quit (vs. 11% who disagreed), while people who were currently smoking tended to be more negative, in particular:

- 78% agreed that the increase had led to more crime
- 76% agreed that the increase would push those who couldn't afford it to buy through illegal sources
- 64% agreed increasing the price was doing more harm than good.

The views of those who reported that they had smoked in the past unsurprisingly tended to lie between those who currently smoke and those who had never smoked. Over half of past smokers agreed that the price rises had encouraged people to quit (51%), although many (63%) also reported that they felt that the price rises had also led to more crime.

Regardless of smoking status, 65% of respondents indicated that they believed the price increases had led to more people using e-cigarettes and vaping products.



Base: Total (n=1,507). Note: 1% & 2% labels not shown.
Q9. Disagree or agree with the following statements about the price of cigarettes and tobacco
Note: "Neither disagree nor agree" and "don't know" not shown

Figure 60: Attitudes towards current price rises by smoking status

7.1.5.1 Smoking reduction and quitting

As mentioned earlier, 17% of survey respondents identified themselves as a current smoker. Of this group, 77% (or 13% of the total sample) reported that they had tried quitting or reducing their smoking in the past, while 23% (or 4% of the total sample) indicated that they had not attempted to stop or reduce their smoking. The rate of smokers who had not tried to change their behaviour is twice as high among those from a Māori (9%) or Pacific (8%) background than a European/Other (3%), or Asian (3%) background (see **Figure 61**).

For those trying to quit or reduce their smoking, 25% reported that they had tried to do this in the last month, while in total, 76% reported that they had tried to quit at some time in the 12 months prior to the survey (see **Figure 62**).

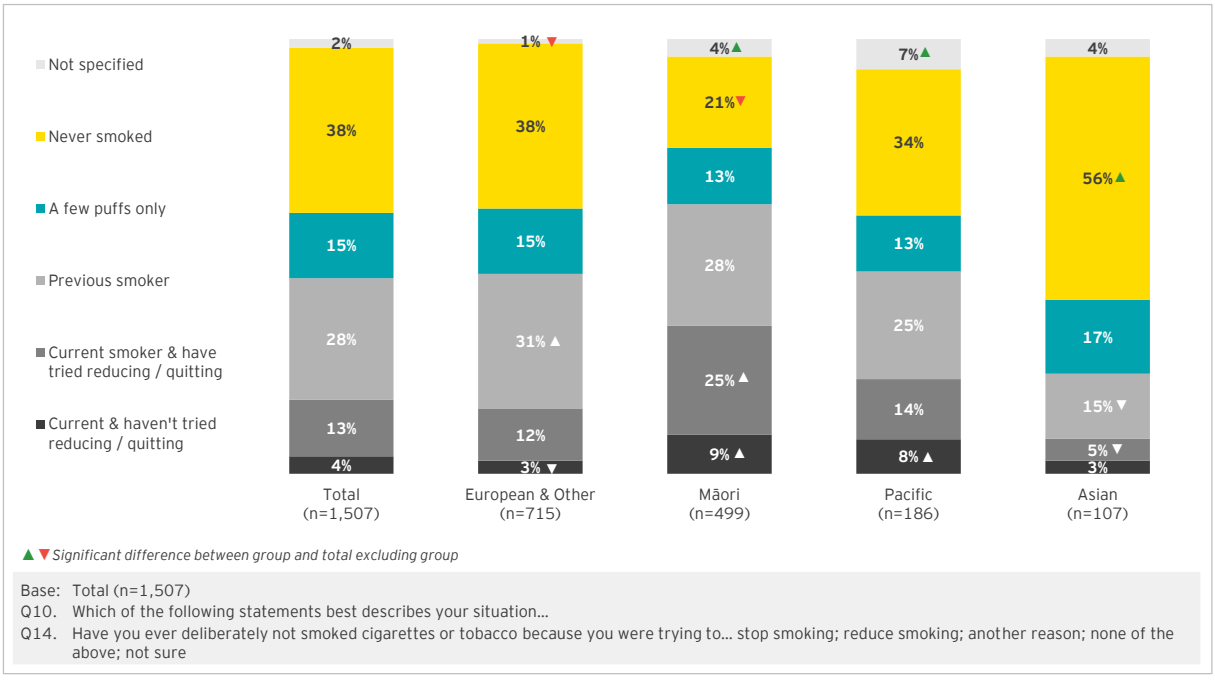


Figure 61: Individual smoking status by main ethnicity

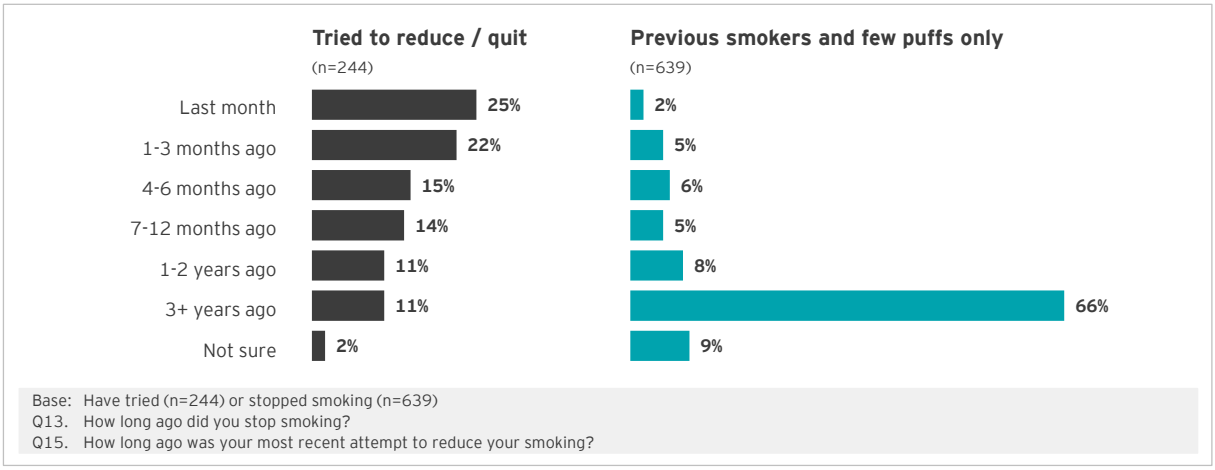
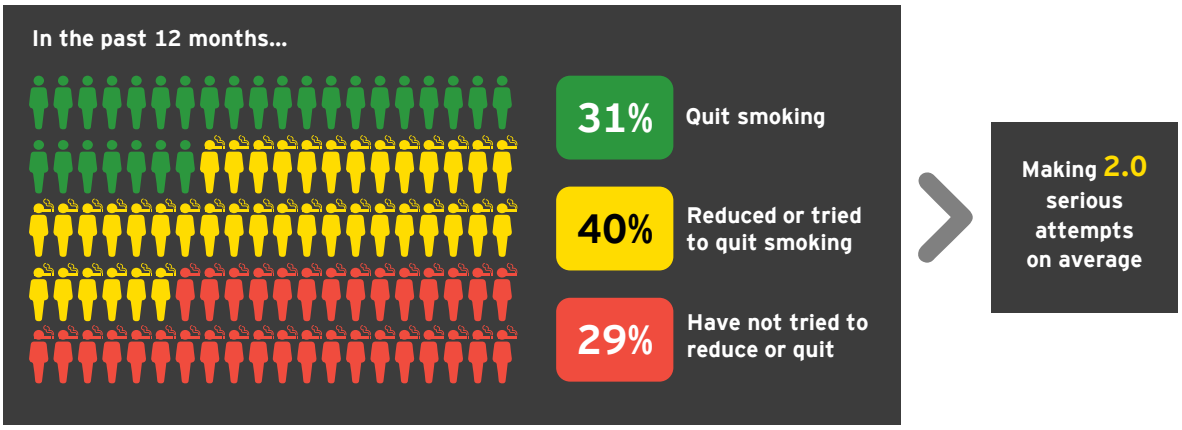


Figure 62: Length of time since attempt to quit or reduced smoking by smoking status

Looking back over the 12 months prior to the survey, 31% of smokers had quit or not smoked again, 40% had reduced, tried to reduce or quit smoking, while the remaining 29% had not tried to reduce or quit smoking (see **Figure 63**).

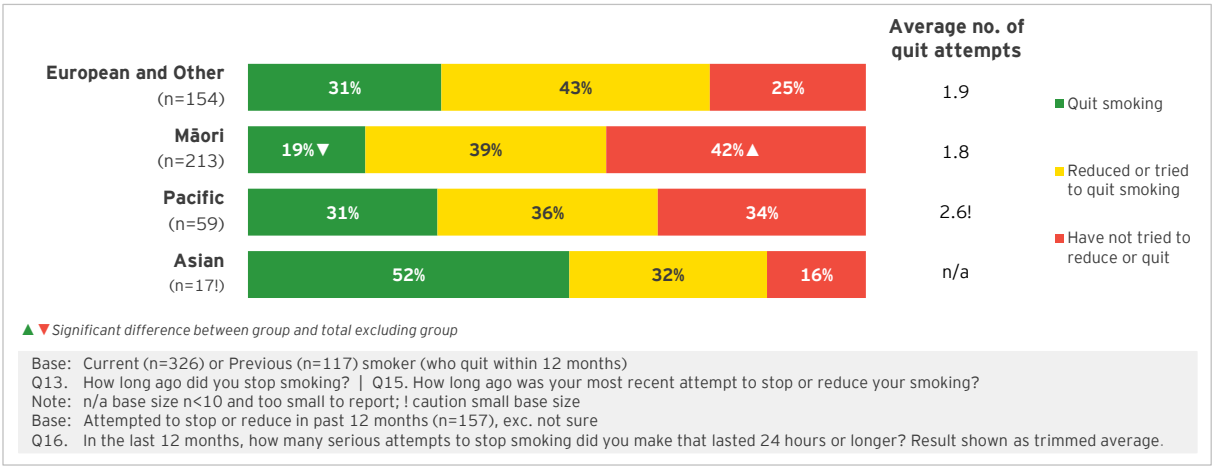
Respondents from a European/Other background were found to have been more likely to quit smoking in the 12 months prior to the survey (31%) than those from a Māori background (19%), while those from a Māori background tended to be more likely to have not tried to reduce smoking (42%) than those from a European/Other background (25%) (see **Figure 64**).

Pacific responses were mixed, with 31% quitting smoking and 34% not attempting to try to stop or reduce. Of the 36% who tried to reduce or quit, most had tried more than twice in the 12 months prior to the survey (Average number of attempts was reported as 2.6).



Base: Current (n=326) or Previous (n=117) smoker (who quit within 12 months)
Q13. How long ago did you stop smoking?
Q15. How long ago was your most recent attempt to stop or reduce your smoking?
Base: Attempted to stop or reduce in past 12 months (n=157), excluding not sure
Q16. In the last 12 months, how many serious attempts to stop smoking did you make that lasted 24 hours or longer? Result shown as trimmed average.

Figure 63: Quitting and reducing behaviours of smokers in the 12 months prior to the survey



Base: Current (n=326) or Previous (n=117) smoker (who quit within 12 months)
Q13. How long ago did you stop smoking? | Q15. How long ago was your most recent attempt to stop or reduce your smoking?
Note: n/a base size n<10 and too small to report; ! caution small base size
Base: Attempted to stop or reduce in past 12 months (n=157), exc. not sure
Q16. In the last 12 months, how many serious attempts to stop smoking did you make that lasted 24 hours or longer? Result shown as trimmed average.

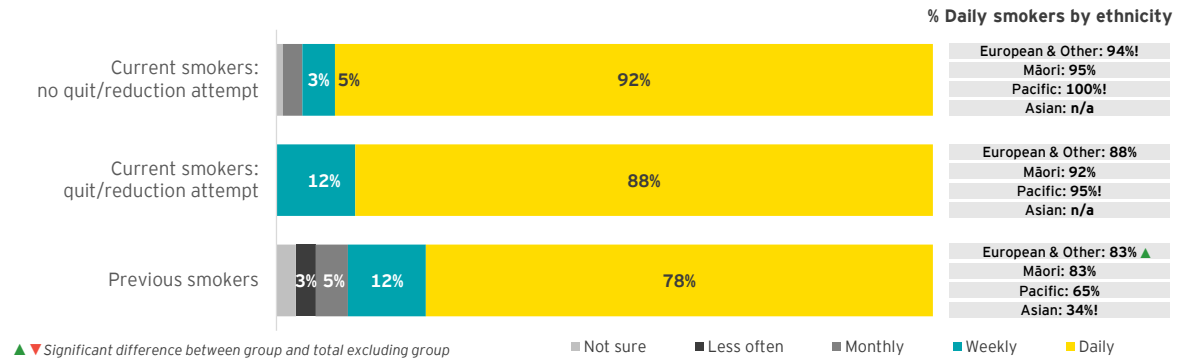
Figure 64: Quitting and reducing behaviours of smokers in the 12 months prior to the survey by ethnicity

The majority of current and previous smokers, reported that they smoked or used to smoke on a daily basis. This trend is consistent regardless of ethnic background (see **Figure 65**).

Those who reported that they had given up smoking were less likely to say that they had smoked daily (78%) than those who were currently smoking. Current smokers who had not attempted to quit or reduce their smoking reporting the highest daily smoking rate (92%).

Regardless of whether respondents had tried to quit or reduce their smoking, or had actually quit, the main reason for people changing their behaviour was to improve their health (54% of those who tried to reduce or quit; 47% of those who had actually quit). Saving money or being prompted by the price increases were also common reasons given by respondents for changing their smoking behaviour. Saving money and increased price were more commonly cited as main reasons for those who have tried to reduce or quit smoking (save money: 52%; increased price: 42%) than those who have already quit (save money: 26%; increased price: 16%) (see **Figure 66**).

Reasons to reduce or quit smoking also varied by age, although the most common reasons were still to improve health and save money. The increased price of cigarettes and/or tobacco was a greater prompt for those aged 45 and over either trying to (56%) or successful quitting (22%), than for those in younger age groups, particularly 25-44 year olds (trying to quit: 32%, successfully quit: 13%) (see **Figure 66**).



Base: Current (n=326) or Previous (n=428) smoker
Q11. How often do you smoke? / How often did you used to smoke?
Note: n/a base size n<10 and too small to report; ! caution small base size

Figure 65: Individual smoking status by main ethnicity

	Tried to reduce / quit				Previous smokers and Few puffs only			
	Total	Age group			Total	Age group		
	(n=244)	16-24 (n=34)	25-44 (n=129)	45+ (n=81)	(n=639)	16-24 (n=104)	25-44 (n=250)	45+ (n=285)
I wanted to improve my health	**54%**	61%	52%	53%	**47%**	42%	41%	53%▲
I wanted to save money	**52%**	43%	55%	50%	**26%**	21%	30%	24%
Increased price of cigarettes / tobacco	**42%**	41%	32%▼	56%▲	**16%**	7%▼	13%	22%▲
Started smoking electronic cigarettes / vaping instead	**25%**	7%▼	22%	34%	**8%**	13%	9%	5%▼
Pressure from my family	**19%**	13%	24%	14%	**9%**	11%	10%	8%
Doctors / professional advice	**16%**	10%	15%	19%	**8%**	5%	3%▼	12%▲
Change in personal situation (e.g. had kids)	**16%**	10%	28%▲	3%▼	**15%**	13%	21%▲	11%▼
I didn't like smoking / the taste	**9%**	27%▲	7%	8%	**26%**	30%	27%	23%
Availability of cigarettes / tobacco	**8%**	11%	4%	11%	**1%**	4%▲	1%	1%
Pressure from my friends	**5%**	4%	6%	3%	**5%**	11%▲	7%	3%▼
Smoking is not allowed at work / school etc.	**4%**	4%	3%	7%	**5%**	12%▲	5%	4%

Base: Have tried (n=244) or stopped smoking (n=639) | Other, Not sure and responses receiving less than 4% of responses not shown
Q17. Which of the following encouraged you to stop or reduce the number of cigarettes or the amount of tobacco you were smoking? | What prompted you to quit smoking?
▲▼*Significant difference between group and total excluding group*

Figure 66: Reasons for stopping or trying to reduce or quit smoking by age

The continued price increase is a proportionally greater motivation for smokers trying to or actually quitting in the past 12 months than those who attempted or actually quit more than 12 months ago. Pressure from family (23%) and friends (6%) were more commonly recalled as reasons for attempting to quit or reduce smoking among those trying to change their behaviour in the 12 months prior to the survey than those who had quit or attempted to quit more than 12 months ago (see **Figure 67**).

Regardless of a respondent's ethnic background, the main reasons for quitting or trying to quit or reduce smoking in the 12 months prior to the survey included health, monetary and/or price change reasons. In particular, Māori respondents who had recently been prompted to change their smoking behaviour, reported that it was because of the increased price of cigarettes and/or tobacco (44%), while only 23% of those with a Pacific background reported that the price prompted changes to their smoking behaviour (see **Figure 68**). Other key reasons that varied by ethnic background included:

- **European/Other:** started using e-cigarettes / vaping (29%)
- **Asian:** reported pressure from family (27%)
- **Māori:** cited changes in personal circumstances, such as having kids (24%)

	Tried to reduce / quit			Previous smokers and few puffs only		
	Total (n=244)	Less than 12 months ago (n=175)	More than 12 months ago (n=63)	Total (n=639)	Less than 12 months ago (n=117)	More than 12 months ago (n=461)
I wanted to improve my health	**54%**	56%	50%	**47%**	53%	48%
I wanted to save money	**52%**	53%	47%	**26%**	34%	25%
Increased price of cigarettes / tobacco	**42%**	47%▲	25%▼	**16%**	21%	16%
Started smoking electronic cigarettes / vaping instead	**25%**	28%	16%	**8%**	18%▲	6%▼
Pressure from my family	**19%**	23%▲	4%▼	**9%**	18%▲	8%
Doctors / professional advice	**16%**	17%	13%	**8%**	7%	8%
Change in personal situation (e.g. had kids)	**16%**	12%▼	25%	**15%**	19%	15%
I didn't like smoking / the taste	**9%**	11%	4%	**26%**	15%	28%
Availability of cigarettes / tobacco	**8%**	9%	4%	**1%**	6%▲	0%▼
Pressure from my friends	**5%**	6%▲	1%▼	**5%**	13%▲	4%▼
Smoking is not allowed at work / school etc.	**4%**	4%	6%	**5%**	13%▲	3%▼

Base: Have tried to stop or reduce smoking (n=244) or quit smoking (n=639) | Other, Not sure and responses receiving less than 4% of responses not shown. Respondents who are not sure when they tried to quit or actually quit not shown.
Q17. Which of the following encouraged you to stop or reduce the number of cigarettes or the amount of tobacco you were smoking? | What prompted you to quit smoking?
▲▼ *Significant difference between group and total excluding group*

Figure 67: Reasons for trying to stop or reduce smoking by how recent the behaviour was

	Quit or tried to reduce / quit 12 months prior to survey				
	Total (n=292)	European and Other (n=117)	Māori (n=123)	Pacific (n=38)	Asian (n=14!)
I wanted to improve my health	**55%**	51%	61%	59%	64%
I wanted to save money	**44%**	44%	49%	47%	37%
Increased price of cigarettes / tobacco	**36%**	39%	44%	23%	16%
Started smoking electronic cigarettes / vaping instead	**24%**	29%▲	17%	11%	13%
Pressure from my family	**21%**	21%	16%	20%	27%
Doctors / professional advice	**13%**	15%	16%	6%	0%
Change in personal situation (e.g. had kids)	**15%**	13%	24%▲	13%	16%
I didn't like smoking / the taste	**13%**	15%	10%	11%	8%
Availability of cigarettes / tobacco	**8%**	7%	7%	14%	7%
Pressure from my friends	**9%**	9%	8%	4%	14%
Smoking is not allowed at work / school etc.	**8%**	7%	4%	9%	16%

Base: Quit or have tried to stop or reduce smoking (n=292) | Other, Not sure and responses receiving less than 4% of responses not shown.
Note: ! caution small base size
Q17. Which of the following encouraged you to stop or reduce the number of cigarettes or the amount of tobacco you were smoking? | What prompted you to quit smoking?
▲▼ *Significant difference between group and total excluding group*

Figure 68: Reasons for trying to stop or reducing smoking by ethnic background

Potential impact of further changes

Similar to the attitudes about the impact of price rises to cigarettes and/or tobacco, sentiment towards continued increases to the price of tobacco products varied depending on smoking status. Once again, those who had never been a smoker, or who had previously been a smoker, were found to be more positive than current smokers about future price rises. In particular, these "non-smokers" were more likely to agree that future price increases would have long-term benefits to the health of New Zealanders (Previous smokers: 57%, Never smoked: 61%), and would encourage more people to quit smoking (Previous smokers: 47%, Never smoked: 53%) than current smokers (32% and 31% respectively) (see **Figure 69**).

Conversely, current smokers were more likely to focus on the negative impacts of raising the price, including further price rises leading to more crime (81%).

Overall, though, 81% of survey respondents agreed that hardened smokers would buy cigarettes, no matter the price. This finding should be taken into consideration when reading the next section, which suggests that hardened smokers make up a relatively small proportion of those who currently smoke.

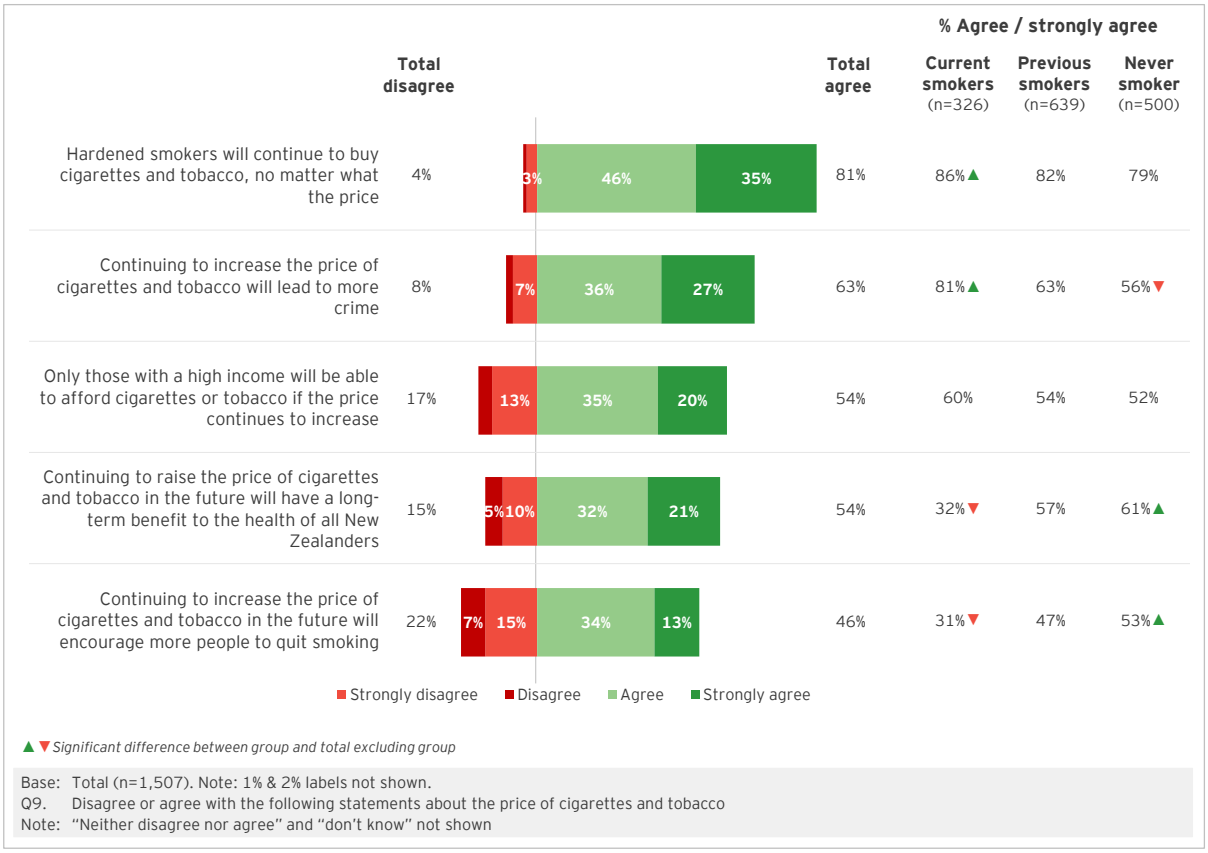


Figure 69: Attitudes towards future price rises by smoking status

7.1.6 Likelihood to quit smoking

Within current smokers, 55% reported that they would probably or definitely stop smoking in the future, while a further 15% indicated that they probably or definitely would not stop. Without taking price into consideration, the results suggest that more smokers than not will try or, in most cases, try again, to quit (see **Figure 70**).

While the above differences are not statistically significant between ethnic groups, further analysis suggests that those who are unlikely to quit smoking are most likely to be in households earning less than $50,000 per annum (61%), to be within the Auckland region (43%), to be living alone (36%), and/or didn't have children (72%) (see **Figure 71**).

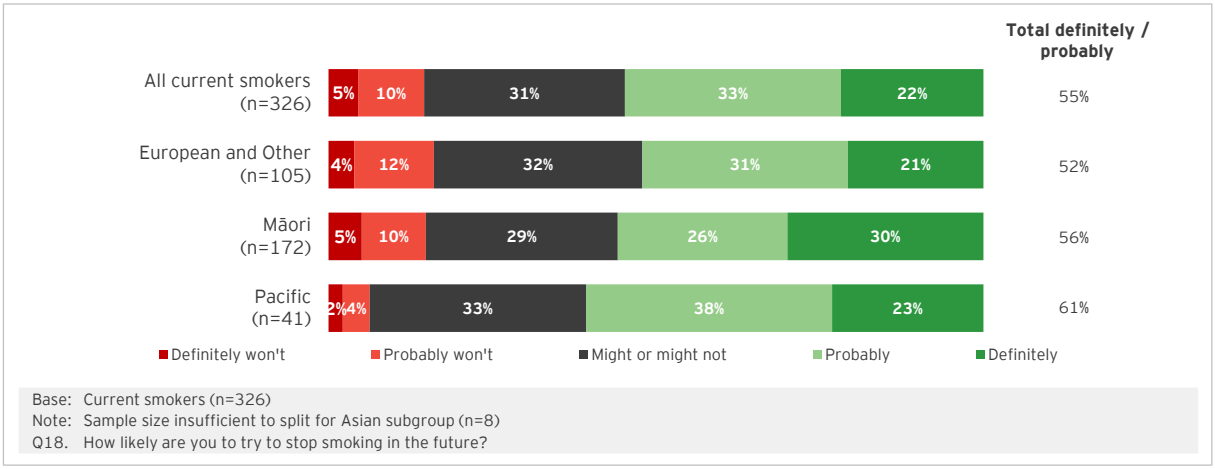


Figure 70: Likelihood to try to stop smoking in the future

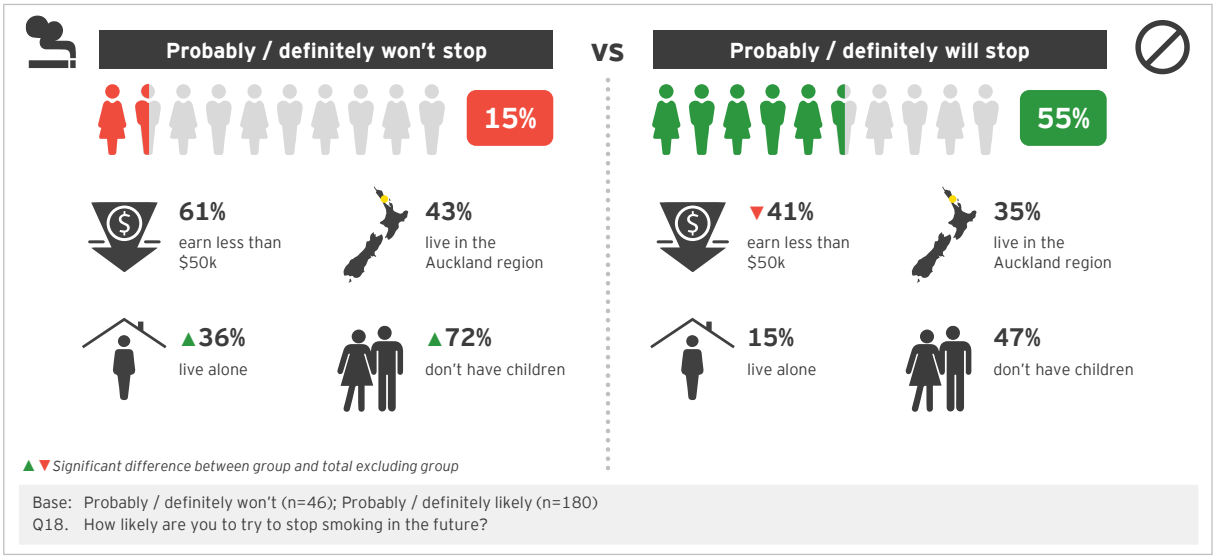


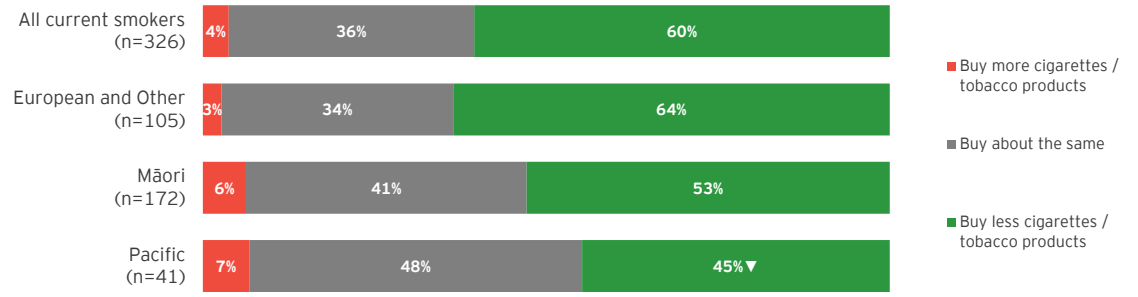
Figure 71: Comparison of the profile of those who probably or definitely will try to stop against those who won't

7.1.7 Impact of price on smoking reduction

When considering the impact of the two future price rises in 2019 and 2020, 60% of current smokers reported that they would buy less cigarettes in the future (see **Figure 72**). This result is relatively consistent with those who reported that they would probably or definitely try to quit in the future (55%).

People from a European/Other background tended to be more likely to say that they would buy less tobacco products (64%) than respondents from the other main ethnic groups, particularly Pacific (45%).

Among the relatively small proportion who indicated that they would definitely or probably not stop smoking in the future, most indicated that they would not be influenced by the future price rises, with 78% indicating that they would buy more or about the same amount of cigarettes in the future if the price increased (see **Figure 73**).



▲▼ *Significant difference between group and total excluding group*

Base: Current smokers (n=326).
Note: Sample size insufficient to split for Asian subgroup (n=8)
Q19. The price of cigarettes and tobacco will increase by at least 10 per cent on 1 January next year (2019) and again the year after (2020). This means that in two years' time, the average price of a pack of 20 cigarettes will be over $30. Looking to the future, do you think you will...

Figure 72: Impact of future price increases on tobacco consumption

	Likelihood to quit			
	Total (n=326)	**Probably / definitely won't quit** (n=46)	**Might or might not quit** (n=100)	**Probably / definitely will quit** (n=180)
Buy less cigarettes / tobacco products	**60%**	22%	45%	79%
Buy about the same	**36%**	73%	50%	18%
Buy more cigarettes / tobacco products	**4%**	6%	5%	3%

▲▼ *Significant difference between group and total excluding group*

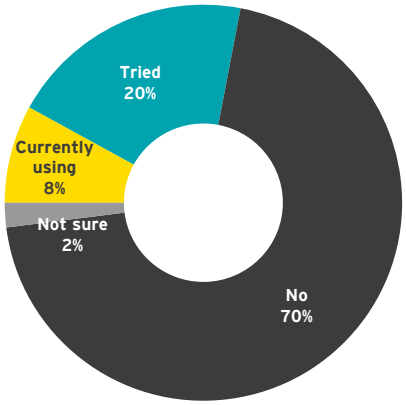
Base: Current smokers (n=326)
Q18. How likely are you to try to stop smoking in the future?
Q19. The price of cigarettes and tobacco will increase by at least 10 per cent on 1 January next year (2019) and again the year after (2020). This means that in two years' time, the average price of a pack of 20 cigarettes will be over $30. Looking to the future, do you think you will...

Figure 73: Impact of future price increases on tobacco consumption by likelihood to stop smoking

7.1.8 Current and future e-cigarette usage

Of the respondents who completed the survey, 8% reported that they were currently using e-cigarettes or vaping products, while 20% reported that they had tried these products in the past (see **Figure 74**).

E-cigarette or vaping usage was found to vary by ethnic background and age group, with more people from a European/Other (10%) and Māori background (8%) currently using e-cigarettes or vaping products than Pacific (4%) or Asian (5%) respondents, while. more respondents from a Māori (39%) or Pacific (27%) background reported that they had tried e-cigarettes or vaping products than respondents from a European/Other (17%) or Asian (18%) background (see **Figure 75**).



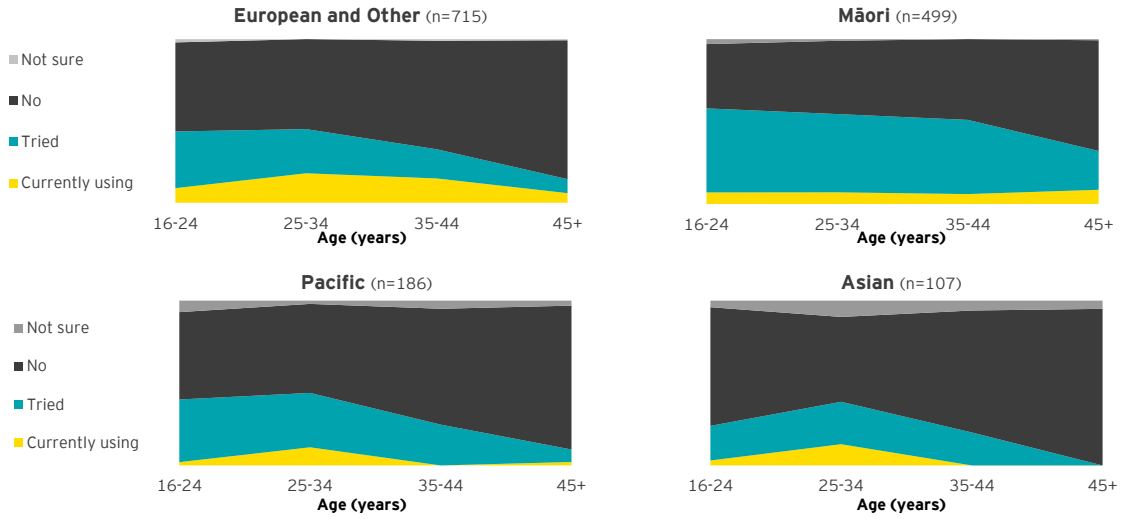
Base: Total (n=1507)
Q20. Have you ever tried or are you currently using electronic cigarettes or personal vaporisers?

Figure 74: Total e-cigarette and vaporing usage

Those who had tried or currently used e-cigarettes or vaping products were most likely to be aged 34 years and younger, except for Māori respondents where e-cigarettes tended to be being tried across all age groups.

E-cigarettes and vaping products appeared to be being used by some smokers to supplement their cigarette and/or tobacco use, and to help them reduce smoking, rather than it being something that respondents wanted to switch to, or to use in an effort to help them stop smoking all together. Among current smokers, 25% were currently using e-cigarettes, while 46% had tried them but were not currently using the products. For those who had previously smoked, but since quit tobacco, 12% were currently using e-cigarettes and 23% had tried them but were not currently using the products.

As noted earlier, among those who had tried to quit or reduce their smoking in the 12 months prior to the survey, 28% had started using e-cigarettes instead. In comparison, 18% of those who had actually stopped smoking in the 12 months prior to the survey reported that it was because they had switched to e-cigarettes.



Base: Total (n=1507). Note: ! caution small base size
Q10. Which of the following statements best describes your situation...

Figure 75: E-cigarette and vaping usage by ethnicity and age

The most common reason provided by respondents for using e-cigarettes was the understanding that they were less harmful than cigarettes and/or tobacco (57%). The lower cost (48%) of e-cigarettes, as well as their ability to help respondents quit (47%) or reduce smoking (41%), were also common reasons cited for usage (see **Figure 76**).

Those trying, but not necessarily intending to continue using, e-cigarettes commonly reported they just wanted to see what they were like (52%), or were generally curious about them (45%).

	Reason for using e-cigarettes					Reason for trying e-cigarettes				
	Total (n=117)	European and Other (n=68)	Māori (n=36)	Pacific (n=8)	Asian (n=5)	Total (n=392)	European and Other (n=125)	Māori (n=199)	Pacific (n=50)	Asian (n=18!)
Less harmful to my health than cigarettes / tobacco	**57%**	57%	49%	n/a		**20%**	24%	10%	19%	22%
Cheaper than cigarettes / tobacco	**48%**	48%	37%			**21%**	24%	19%	15%	14%
To help quit smoking cigarettes / tobacco	**47%**	49%	47%			**27%**	29%	24%	23%	26%
To help reduce the amount of cigarettes / tobacco smoked	**41%**	44%	39%			**18%**	20%	17%	18%	11%
For the flavours / taste	**37%**	39%	25%			**25%**	24%	27%	40%	14%
To help keep me smokefree	**35%**	35%	35%			**10%**	10%	15%	7%	5%
Smells better than cigarettes / tobacco	**32%**	34%	36%			**18%**	19%	15%	27%	14%
Less harmful to the health of other people than cigarettes / tobacco	**31%**	34%	31%			**14%**	18%	6%	11%	17%
Something to hold / keep my hands busy	**21%**	24%	24%			**14%**	17%	10%	13%	5%
I wanted to see what they were like	**20%**	20%	31%			**52%**	52%	57%	62%	33%
Someone recommended them	**19%**	20%	11%			**23%**	19%	27%	28%	29%
More accepted socially than cigarettes / tobacco	**16%**	19%	7%			**9%**	9%	5%	7%	15%
I was curious about them	**16%**	16%	22%			**45%**	45%	48%	54%	38%
To use where cigarettes / tobacco are not allowed	**12%**	13%	17%			**6%**	3%	7%	11%	10%

▲▼*Significant difference between group and total excluding group*

Base: Currently using e-cigarettes (n=117) or have tried (n=392) | Other, Not sure and responses receiving less than 2% of responses not shown
Note: n/a base size n<10 and too small to report; ! caution small base size
Q21. Why do you use electronic cigarettes or personal vaporisers? | Why did you try electronic cigarettes or personal vaporisers?

Figure 76: Reasons for trying or using e-cigarettes

Intended future use of e-cigarettes among current users, or those who have tried e-cigarettes in the past, was found to be mixed, with 42% of current users reporting that they probably or definitely would use e-cigarettes in the future, while a similar proportion of users (38%) said they definitely or probably would not use these products in the future (see **Figure 77**).

Among those current users likely to keep using e-cigarettes, 52% ere current smokers. In comparison, those who reported that they probably or definitely would not use e-cigarettes in the future, 24% reported that they were current smokers (see **Figure 78**).

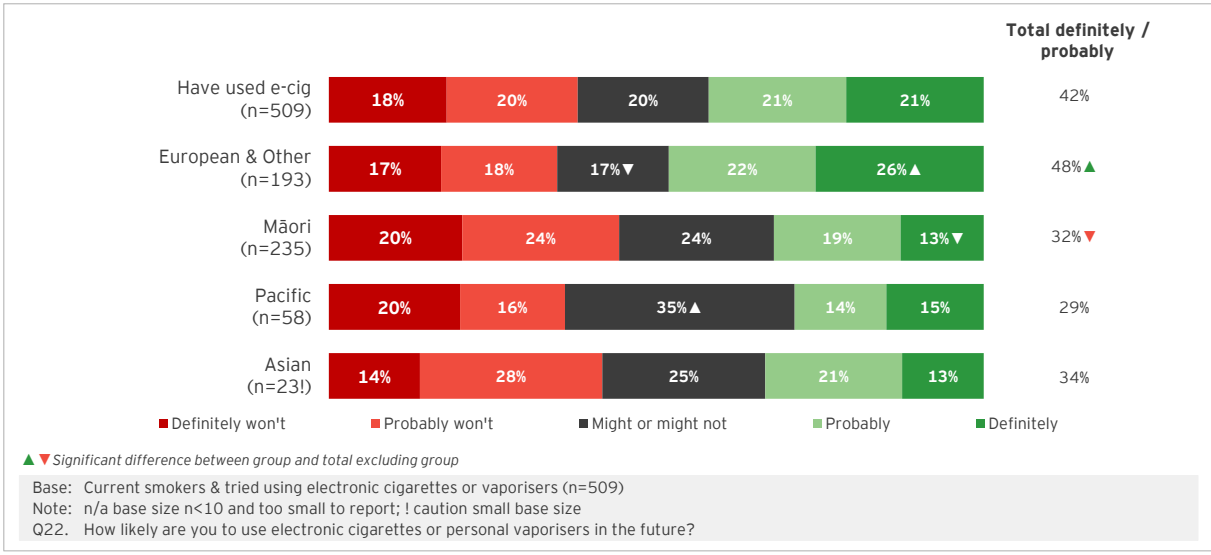


Figure 77: Likelihood of current users to use e-cigarettes in the future

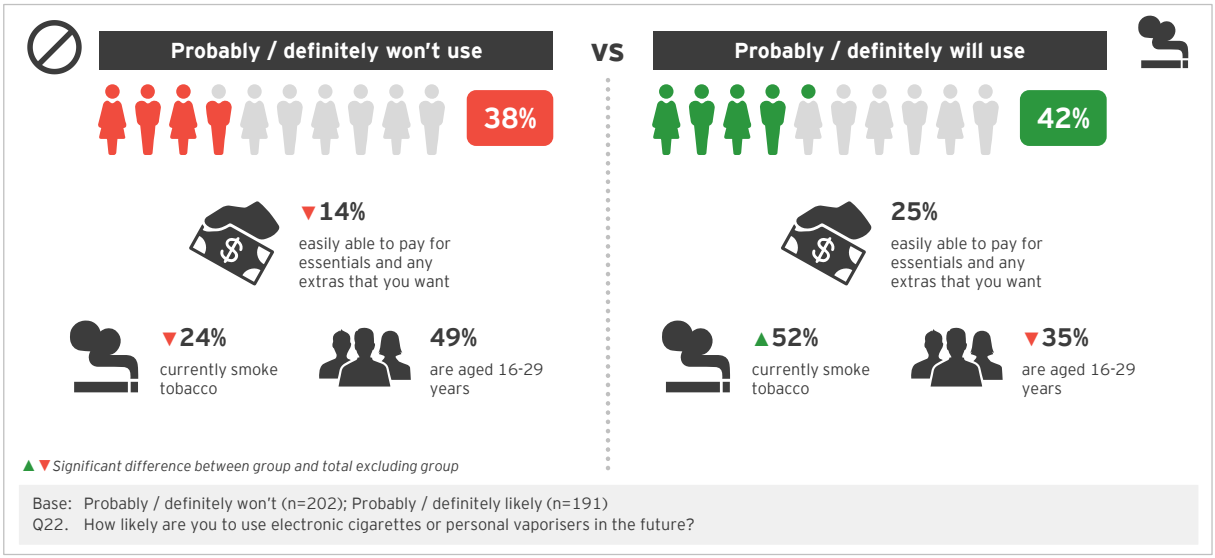


Figure 78: Comparison of the profile of those who probably or definitely will use e-cigarettes in the future against those who won't

8 Community focus groups

Key observations

Focus group discussions highlighted the changing attitudes towards smoking within the community, with smokers in particular reporting that felt pressured by both the community and family to quit. In discussing Smokefree 2025, focus group participants highlighted a number of issues for consideration. These are listed below and explored in more detail later in this section:

1 Smoking is used to manage stress by many smokers	Many smokers reported that they continued to smoke as a way to help manage stress and/or deal with personal issues, despite it no longer being considered cool. Young Māori took a different view of smoking, indicating that it was still considered cool in their community.
2 Awareness of Smokefree 2025 was low	There was a generally low level of awareness among focus group participants as to what Smokefree 2025 was about, with most acknowledging that they hadn't heard of it before. It was universally agreed, however, that it was an important goal for government to have.
3 Attainability of Smokefree 2025 goals were questioned	Most focus group participants questioned whether Smokefree 2025 was a realistic goal given that smoking is a personal choice, and, highly addictive. Some also questioned whether smoking was the right focus for the government given the wider community issues, and specifically called out alcohol as having the ability to cause significant harm.
4 People knew about excise, but didn't understand it	Most focus group participants were familiar with the tobacco excise, but did not understand how it worked. There was also widespread suspicion among focus groups as to the motivation of the excise.

5 Many smokers would rather pay than go without	Focus group members' views on the effectiveness of the excise were mixed, with all groups acknowledging that many smokers would rather pay for the increase than go without. Some thought that the excise may have been effective in keeping some ex-smokers from starting up again, but not all.
6 The impact on low SES and minority groups was considered unfair	All groups believed that the excise was unfairly affecting those from a lower socio-economic background, or racially discriminating against minority groups, more so than against affluent groups.
7 Tobacco expenditure prioritised	Many focus group participants reported times when they had had to choose between tobacco products and other essential expenses, as well as limiting their expenditure on other purchases in order to buy tobacco products.
8 Smoking stigma and increased vulnerability	In addition to financial hardships, Māori and Pacific community members in particular talked about the stigma of smoking which they felt left them more vulnerable to being judged harshly by others.
9 Black market cigarettes available	There was an awareness across the groups that cheaper cigarettes could be accessed through the "black market", although many thought that this might have been due to the robberies rather than organised imported products. Only a limited number of focus group members reported accessing tobacco products via the black.
10 Perceptions of e-cigarettes are mixed	Attitudes, perceptions and experiences with e-cigarettes was mixed, with some young focus group participants suggesting that they had become more attractive because of the different "nice smelling" flavours.
11 Media campaign effectiveness was questioned	Mass media campaigns were generally not considered effective, engaging or relevant, with young focus group participants suggesting that there needed to be a greater diversity of "actors". Other strategies suggested to help reduce the prevalence of smoking included increasing the use of social media, providing support in schools, reducing the accessibility of cigarettes, and hosting family friendly Smokefree events.
12 Awareness of smoking cessation programmes was low	Awareness of smoking cessation programmes was generally low, with many feeling that they were largely ineffective, and should be more personally tailored. Concerns were also raised about the approach of some health professionals who promoted stop smoking messages, but didn't check to see if their "patient" was interested in quitting.

Context

Focus group discussions highlighted the changing community attitudes towards smoking. Many groups reported that smokers felt a general pressure from the community and family members to quit smoking, with some participants indicating that smoking is less enjoyable because it is no longer considered "cool". Several smokers also reported that they found non-smokers had become more intolerant of their smoking, giving them "dirty looks" or making comments about them in earshot. Some older smokers also contrasted the current culture with the more "smoke friendly" times that existed when they had begun smoking.

As highlighted by stakeholders, many smokers reported that they continue to smoke to help them manage the stress they feel, including through the work they do such as in the hospitality and retail industries. Others reported that they smoked to help them deal with personal issues from their youth, or to simply socialise with others.

> *"Those of us that smoke, we all know it's bad and we have good morals... I know I should stop and I feel sorry for that person who has to walk through my smoke, but the reason we smoke is rooted in other problems. I smoke to de-stress."*

> *"I learned to smoke to socialise. For some reason, I'm more confident when I smoke".*

There was a distinct difference in the attitude between the group of young Māori women and the other focus groups, however, with young wāhine Māori suggesting that smoking was still "cool at school".

Attitudes towards Smokefree 2025

Focus group discussions explored the knowledge and understanding of participants about the government's smoke-free priorities, as well as whose responsibility it was for achieving the goals of Smokefree 2025.

In general, there was low awareness across the groups about the Smokefree 2025 initiative, including what the objectives or goals were. Most reported that they had not previously heard of the initiative, whilst a few mistook the initiative for smoking bans in public places such as restaurants. One participant also believed that the intent was "to ban smoking" and "to raise the price of a pack of cigarettes to $100", so that people had to quit smoking. This person also attributed the policy to Auckland Council rather than the Ministry of Health.

When informed about the purpose of Smokefree 2025, groups tended to be conflicted:

- It was universally agreed across all groups that it was important for the government to have a smoke-free goal, as smoking contributed to poorer health outcomes and accounted for considerable government expenditure on public health.
- Many community members, however, questioned whether Smokefree 2025 was a realistic goal. The two main reasons for this included:
  - Current smokers were more likely to regard smoking as a "personal right" and to believe that "what people do in their own homes is their own business". Some smokers expressed some resentment that "the government" was trying to compel them to change their behaviour according to an arbitrary timeline, which did not take into account whether or not the smoker wished to quit or reduce their smoking behaviour. As such, they felt that this goal was being imposed on them irrespective of their rights.
  - Both current and ex-smokers also acknowledged that smoking is highly addictive, and that quitting can be extremely difficult for many individuals, no matter how hard they try. Many felt that there was also a cohort of "hardened" smokers who would be "unable" to quit, which suggested to them that New Zealand was unlikely to become an essentially smoke-free nation at any time in the future.
- Groups also questioned whether smoking and tobacco use was the right focus for the government in the context of wider community issues, such as drink driving, homelessness, and so on.
- Some community members noted that the Smokefree 2025 goal seemed incongruent with New Zealand's drinking culture, which they observed had the ability to cause significant harm not just to the individuals who consumed alcohol regularly, but also to the families who experienced domestic violence and abuse, and to members of the wider communities who might encounter intoxicated individuals on the street, in a public setting or even driving a vehicle.

"New Zealand has such a drinking culture... and [the government] is not doing anything about the drinking – so why one and not the other?"

"Why isn't the tax also aggressive on alcohol?"

- All groups identified some confusion, and even frustration, that the government has chosen to focus so much attention on smoking, when there are other public health or social issues that appear just as, if not more, serious. Poverty within the community was cited as a major concern, as well as a contributor to smoking.

"Cigarettes are the bottom of the list of priorities for PI communities. We have gangs selling drugs on the street to little kids, we have families who can't afford to put food on the table."

- Pacific and Māori groups also noted that the goal will be difficult to achieve within a culture of racism and negative stereotyping.

"It's not really achievable in the context of why we or other people might be more inclined to smoke, to meaningfully reduce smoking, I don't think it's possible in 7 years if they're not going to give way more attention to [addressing] the structural barriers that make people more likely to smoke... like, racism, discrimination, access to healthcare, access to resources about smoking, access to education... living wage."

"[Smokefree 2025] still focusses on individuals... making the individual be the problem."

"There's a reason why there's a higher prevalence of Māori women smoking... because of the social situation and inequities between races."

Some groups suggested an anecdotal correlation between smoking prevalence and our high suicide rates, asking "why are people so unhappy here?"

Attitudes towards tobacco control approaches

During focus groups the perceptions and effectiveness of the current approaches toward tobacco control were explored. In particular, whether participants felt that they would help prevent people from smoking in the first place, as well as to help people stop smoking and then remain smoke-free.

Most groups identified a range of approaches deployed for tobacco control purposes. The key strategies identified for preventing people from taking up smoking included: the excise increases, the plain packaging on cigarettes and tobacco packets, and the reduced visibility of tobacco in stores. When asked about strategies for supporting people to stop smoking, participants mostly cited the excise increases, Quitline, incentive programmes, and subsidised nicotine patches and lozenges.

8.1.1 Attitudes towards the tobacco excise

Whilst nearly all community members were familiar with the tobacco excise, few had a clear understanding of how it worked, including the frequency and rate of increases.

There was widespread suspicion around the motivation for the tobacco excise, with a view that the government was only seeking to raise revenue rather than discourage or reduce smoking. Some understood that the government raised millions of dollars each year from smokers, and sensed that budgets could suffer were it not for the contributions coming from smokers. Older smokers also expressed some resentment at the extent to which tobacco products were currently taxed.

> *"People who want to smoke have to pay a lot of tax, I pay my taxes anyway."*

There was also a level of confusion among groups about how the excise increases were applied. Many community members believed that the increase occurred twice a year, suggesting that tobacco company pricing strategies meant that the increase in retail price was spread across the year rather than being included all at once from 1 January when the excise increase applied.

Whilst most people familiar with the policy understood that the excise amounted to 10% increases, few understood that the excise was time limited, with most under the impression that the increases would incur indefinitely.

For those who did understand the application of the excise, there was discussion about how smokers they knew would attempt to "stockpile" cigarettes before the 1 January increases, which concurred with the insights gained through the stakeholder consultations.

8.1.2 Effectiveness of the tobacco excise

Community members' views on the effectiveness of the excise were very mixed. All of the groups believed that the even as the price increased, that many smokers would rather pay the increase and "go without" other goods and services, than not purchase tobacco.

> *"I personally don't think it was a very good idea, because people still smoke they are just spending more money… it kind of back fired."*

All groups also discussed a switch in consumer behaviour to the less expensive "budget brands" as the prices went up. Some groups though suggested that the excise increases were effective for keeping ex-smokers from starting again, although this was not absolute, and at least one person shared their own experience of being smoke-free for 10 years and then starting again due to a personal traumatic experience. The price had not prevented this relapse, and they were now a regular smoker again.

> *"For me, being a born again smoker – I am ashamed of it, but … that is my vent… that is what I have chosen at the end of the day."*

Views as to whether the higher prices were effective at stopping new smokers from starting were variable. The discussion suggested that while it may prevent very young children from starting to smoke (as it was more difficult to access ~$30 compared to ~$10 for someone school-age), older youth who were earning their own income may just accept that the higher price was simply the price. Some also felt that the pressures facing young people would cause them to seek relief through the use of tobacco products irrespective of their price.

> *"I am finding that the teenagers tend to be a lot more stressed out than the teenagers 10 years ago…there is so much stress going on – social media, parents hardly home because they are working…"*

Overall, while there was dissatisfaction voiced about the reasons for, as well as the application and the effectiveness of, the excise, it did seem that the majority of focus group members would smoke more if it were not for the high price. In a few groups, but not all, a member also indicated that the price did not have any impacts on their smoking behaviour. The reasons given for this were that they could afford the price, or that they were only a "social smoker" who did not often purchase cigarettes.

Unintended consequences of the excise

All focus groups were asked to comment on whether there had been any unintended impacts of the tobacco excise.

8.1.3 Financial hardship

All of the groups believed that the excise was unfairly impacting lower socio-economic groups, or racially discriminated against minority groups, more so than affluent groups who could afford the price increases. Across the six focus groups, people consistently expressed concern that the excise was harming the most vulnerable members of the community.

Many community members reported that there had been occasions when they had needed to choose between tobacco products and other essential expenses, such as food, rent, utilities and petrol. Most reported that they had dealt with these situations by limiting purchases of other essential items, for example, purchasing cheaper food, or only filling their car half up with petrol, so that they had enough money to buy the amount of tobacco products they "needed".

> *"I'm just super broke; not saving, not buying the things I need – petrol, food that is healthy."*

One older woman reported that when she had exhausted all her savings, she had taken money from her children to buy her cigarettes:

> *"When I'm stressed, I want that fix. When you need your fix, I'm embarrassed to say, that I've taken money off my kids".*

Concern was also expressed across the groups about the impact that people prioritising spending on tobacco products would have on young children, who would miss out on getting adequate food, clothing and so on.

> *"People that are potentially vulnerable or that is their life choice, they are suffering. Because that is their habit their family is suffering as well."*

Other community members noted that the increasing price of tobacco products had been a source of conflict in families, particularly when some family members took advantage of others to "scab" cigarettes on a regular basis.

> *"We are not well off and smokes are our priority, but then it causes conflict within my family because 'you've been smoking my smokes all day' – I can't even afford to feed my habit and you are scabbing mine'…I hate [it] when I hear them fighting over smokes."*

In addition to financial hardship, Māori and Pacific community members in particular also felt that the stigma of smoking left them more vulnerable to being judged harshly for other things, such as their capacity to be capable and loving parents. As such, they felt that they were being doubly punished by the excise.

> *"Rich white men aren't affected by the tax or the stigma of smoking… it reaches further for our Māori communities… in the sense that we are the only ones under the microscope, it's not just that "oh you're a smoker" but it becomes "you're a bad mum" or "you're a bad parent".*

8.1.4 Robberies

All focus groups referred to the increase in robberies of dairies and petrol stations as an ongoing and growing concern directly related to the excise increases.

> *"Obviously at the moment the prices are going through the roof and therefore people are obviously robbing dairies because they can make a good profit on the sales of cigarettes and that will just get worse."*

One focus group also discussed the perception of a link between the excise increases and a rise in home burglaries, however, they also believed that people addicted to methamphetamine were perhaps largely behind this.

8.1.5 Access to illicit tobacco market

There was a level of awareness across the groups of the ability to access cheaper cigarettes through the 'black market'. Participants presumed this was as a result of the aforementioned robberies of dairies and convenience stores, rather than organised illicit imported tobacco products.

While there was widespread knowledge of this trade, actual experiences of and access to the "black market" was found to be predominantly reported by members of the Māori-specific focus groups. In both the general Māori population focus group and the younger Māori women focus group, participants all noted an ability to easily access illegally traded tobacco or cigarettes.

> *"It's very easy."*
>
> *"Literally yesterday, a woman on the street who I thought was asking me for money, was actually trying to sell me smokes. She opened her bag and I just saw cartons of ciggies in there."*

The most common ways people reported being able to access black market tobacco products was via Facebook pages set up for that purpose, as well as via people on the street, or through family or friends. Generally, the price was at least $5 cheaper, but there were also reports of packets being sold for $10.

8.1.6 Other unintended consequences

Focus group participants also suggested that the high price of cigarettes might lead to the use of other drugs, particularly synthetics or alcohol. There were also many anecdotes shared about homegrown tobacco use, although this did not seem popular or widespread. Two younger smokers also shared stories of their friends beginning to import cigarettes from overseas.

Some ex-smokers also discussed the amount of weight they had gained since quitting cigarettes, a public health concern also highlighted by a number of stakeholders.

Effectiveness of other tobacco control strategies

An important component of the focus group discussions was to explore the views of community members about the most effective ways for the government to reduce the harm associated with smoking in the community.

8.1.7 E-cigarettes and vaping

E-cigarettes and vaping were discussed by all groups. The views were very mixed, with some viewing vaping as a less harmful alternative to smoking, whilst others were more wary about claims that they were safer. Participants who had used, or who had tried, e-cigarettes, also reported mixed experiences.

Group members with more positive attitudes towards vaping credited it with helping them to reduce their smoking or to quit all together, with some participants still vaping, while others reported that they had stopped vaping too.

- Those who had tried vaping also felt that there had been a considerable positive financial impact associated with them switching from tobacco to vaping. For example, one person talked about previously spending $100 a week on cigarettes, and now spending that much over a month on vaping.
- Some younger focus group members also believed that vaping had become more attractive to young people because it came in different and nice-smelling flavours, and suggested that the cheaper cost was a secondary benefit.

"Vaping is healthier, you know what you're getting; whereas in cigarettes there are so many different ingredients."

"[Young people] love it because they don't have to have a lighter, they don't have to worry about burning stuff."

While some people enjoyed vaping and believed it was a good way to reduce or quit smoking, others expressed less positive views.

- Some believed it was ineffective and suggested that vaping did not give the same "hit" as smoking, and did not have the same "reward" element that smoking offered. The availability of products was also questioned, with some participants indicating that they were not readily available.

"I tried it but it just wasn't for me."

"It is a lot cheaper, but then you had to find the resource…places that sold them…it is just not as accessible as cigarettes."

The safety of vaping was also called into question by many, with a degree of suspicion expressed by some as to whether vaping was actually safer than smoking, with some believing that it was actually more dangerous.

"A lot of people are misinformed, because it is very new…. It can blow up in your face, you can get popcorn lungs… it is about the education."

Overall, the views around the effectiveness of vaping as a smoking cessation strategy were mixed across the focus groups except for the group of young Māori women who all agreed that vaping was a way to reduce or quit smoking. Two of the participants in this group even talked about their mothers who had quit smoking through the use of a vape.

8.1.8 Advertising / media campaigns

Most groups were able to identify some mass advertising or marketing campaigns aimed at raising awareness about the need to stop smoking. These, however they were generally not perceived to be very effective. Some of the key reasons identified by the groups included, a lack of diversity in the mass media campaigns which reduced engagement with the messages, and that the people fronting the campaigns were generally not considered to be impactful for young people.

The focus groups with participants under the age of 25, also identified that very little tobacco control messaging was received via social media channels. They also suggested that "no young people are watching television anymore, so smoke-free campaigns there are a waste of money".

8.1.9 Access to nicotine replacement therapy

People talked about their experiences with health professions who had promoted stop smoking messages to them, but felt these were largely ineffective because they felt the health professional was just wanting to "tick a box". Participants talked about being provided with a brochure to read and a prescription for nicotine replacement therapy, without even being asked if they were interested in quitting.

Some younger group members were also surprised to hear that the nicotine patches and other nicotine replacement therapies were subsidised if they had a medical prescription. These members suggested that the price of these (without the subsidy) were too expensive and they had been deterred from using these for this reason. They also said that many young people they knew could not afford the price of visiting a doctor, which would also restrict their access to these subsidised products.

8.1.10 Smoking cessation programmes and support

The awareness of smoking cessation programmes was generally low across all groups, with no one in the younger focus groups (mixed community aged 18 – 24 and Māori women aged 18 – 24) having any awareness of the stop smoking programmes potentially available to them. Those that had heard about the programmes did not believe that they were very effective, with some who had experienced the incentive programmes believing that they could be "gamed".

All groups discussed the need for increased, more personally tailored, support for those people attempting to quit smoking. The attributes identified across the focus groups as being the most important for these support programmes were that they were affordable ("free") and accessible to the people that they were targeting. They believed the programmes needed to acknowledge smoking as an addiction, and treat it as such.

> *"Before offering people a solution, you need to find out the need. If you know that, you can identify solutions. It could be that someone has a mental health problem, and it could be a comfort thing for them."*

> *"You need Māori working with Māori… and that is where it gets frustrating, Māori are getting chucked in the same basket with Pacific and everyone else and it is not gonna work."*

Many focus group participants also felt there was too much "victim-blaming" in the current approach and that short-term support services (such as 4 weeks) were not ever going to be effective. Good support was described as "holistic", with participants believing that it should provide people with solutions and supports that do not leave them feeling bad about themselves. It should also acknowledge that it is difficult to make a difference with individuals and that the focus needs to be on the whole household.

> *"It is not just the fact that they have an addiction, it is the fact that they have no money for food, no money for power or rent."*

Many groups talked about the need to build a relationship of trust between the person offering support and the smoker. It was also critically important that the person offering the service was "relatable" and could feel empathy for the challenges that the smoker faced, not just in respect of trying to quit smoking, but also the other pressures they experienced such as poverty, racial discrimination, and/or a lack of advanced formal education. Most important, the support person was felt should be someone who had previously given up smoking themselves, with groups suggesting that "real people who would share their story" should be recruited into these health promotion and smoking cessation roles.

> *"I wouldn't take advice from someone who has never smoked."*

Other types of tailored support models discussed across more than one group included: AA-type group supports; smoking cessation programmes in the workplace; and support groups for mums of new babies.

8.1.11 Education and support for smokers in schools

There was a widespread view across the younger members of the focus groups, that schools could play a bigger role in educating youth about the impact of tobacco use, as well as the provision of support for those youth who had already started using tobacco and may be addicted.

> *"Give funding for programmes to schools to help young people stop smoking."*

Many believed there was very little to nothing effective in schools' current approach to smoking, which was largely based around punishment for students who were "caught smoking".

8.1.12 Reducing access to tobacco and cigarettes

Many groups cited the ease with which tobacco and cigarettes can be accessed as being problematic, and suggested that if they were harder to access then they would most likely be used less. Ideas to restrict access included:

- Removal from dairies and supermarkets
- Having availability only at liquor stores, or "R18 shops"
- Only being available at chemists upon presentation of a prescription
- Raising the age of purchase to 21, and
- Restricting the time of day that tobacco products could be sold.

Support for these supply type control measures was generally greater amongst ex-smokers than current smokers.

Groups also identified and discussed an approach whereby tobacco use/smoking was treated similarly to heroin or narcotic painkiller addictions where methadone is prescribed to keep addicts clean.

A young ex-smoker noted:

> *"I think I would have quit much earlier if I would have had to go through my doctor, it would be embarrassing to have to ask your doctor or chemist and tell them you are addicted to smoking."*

8.1.13 'Smokefree' community events

In both the younger focus groups, as well as the Pacific focus group, the concept of smokefree community events were discussed favourably. These were seen as opportunities for families and communities to go out, have fun, and importantly, have some respite from the daily stresses from which many people sought refuge through smoking.

9 Conclusions and recommendations

Key findings

EY employed a best practice mixed methods design to evaluate the tobacco excise increases as a contributor to Smokefree 2025. Insights from the literature review and secondary data analysis were complemented by and tested against primary data collected from key stakeholders and community members.

The key findings presented below are orientated around each of the evaluation questions. References to relevant academic publications and data sources can be found throughout the body of this report.

Do people quit, attempt to quit, reduce the amount they smoke, or change their smoking behaviour in other ways because of the price of tobacco?

Observed changes in tobacco consumption:

- Nine years into the policy of increasing tobacco excise by CPI+10% annually, smoking rates have decreased across all demographic groups, including age groups, ethnicities, genders and deprivation quintiles.
- The proportion of the adult population using tobacco products daily in New Zealand has decreased, from 18.3% in 2006/07 to 13.8% in 2016/17. For 15-17 year olds, the decline has been more pronounced, from 13.7% in 2006/07 to 3.2% in 2016/17.
- The gap in smoking rates for Māori and Pacific compared with other ethnic groups, however remains significant, with daily smoking prevalence rates among Māori 2.7 times higher than in non-Māori.
- The most rapid rates of decrease have been in Asian and European/Other groups, while progress for Māori and Pacific has been slower, meaning that the relative disparity between the two groups has increased as non-Māori have benefitted more from tobacco control interventions than Māori.
- In general, smoking rates for men and women are similar, however Māori women still experience a significant burden, with 36% of this group classed as daily smokers, compared to 29% of Māori men, and 13% of women overall.
- When looking at the average number of cigarettes consumed per day by adult daily smokers, there has been a statistically significant reduction amongst all ethnic groups, with higher rates of reduction observed for Pacific and Asian populations.
- Smoking rates have decreased across all age groups, with a particularly large decline in the proportion of youth who have ever smoked, or who are daily smokers. This is a significant achievement for the tobacco control programme.
- On a per-capita basis, tobacco sales (in volumes) have fallen 44% since 2004, from 1103 to 623 cigarettes worth of tobacco per person per year – with the annual rate of reduction clearly accelerating from 2010.

Relationships between price and tobacco use:

- There is strong evidence both international and from within New Zealand that demonstrates changes in consumer behaviour as a result of the tax increases –reducing uptake, cutting down consumption and increasing quit attempts, with spikes in quit attempts around January each year in New Zealand.
- International evidence suggests that lower-income populations in high-income countries respond more strongly to tobacco taxation than higher income people. However, very few studies examine effects across ethnic groups.
- While New Zealand data show variable year-on-year price elasticity of demand for tobacco at a total population level, ranging between -0.37 and -1.24 from 2010 to 2016, there appears to be no evidence of reducing price elasticity over the period of analysis. Similar observations in respect of the price elasticity of daily smoking prevalence were also made.
- Excluding the 2011 outlier (owing to a one off RYO tobacco tax excise increase of 25.4% to align prices with cigarettes), the average price elasticity of demand for the total population is -0.5. This is consistent with The New Zealand Treasury tax modelling assumption and in keeping with findings from authoritative international research of general price elasticity of demand for tobacco products in developed countries of -0.4.
- There is currently insufficient data to provide a robust estimate of the price elasticity of demand at a more granular level – for example by ethnicity, deprivation or age.
- Price elasticity of daily prevalence is estimated to be -0.34 over the period of analysis. This is broadly comparable with assumptions employed by the New Zealand

Treasury of-0.25 and BODE3 of -0.2. However, given the limitations of available data and volatility of price elasticities of smoking prevalence within the period of analysis, the analysis is inconclusive as to whether price elasticity varies significantly between ethnicities and deprivation levels.

- Focus group members' views on the effectiveness of the excise were mixed, with all groups acknowledging that many smokers would rather pay for the increase than go without. Some groups suggested that the excise increases were effective for keeping ex-smokers from starting again, although this was not absolute and examples were shared of people becoming regular smokers again despite the price increases.
- Views as to whether the higher prices were effective at stopping new smokers from starting were variable among focus group members. The discussions suggested that while it may prevent very young children from starting to smoke, older youth who were earning their own income may just accept that the higher price is simply the price.
- Some focus group members also felt that the pressures facing young people would cause them to seek relief through tobacco products irrespective of the cost.
- Overall, it did seem that the majority of focus group members would smoke more if it were not for the high price. Meanwhile, a minority of participants indicated that the price did not have any impact on their smoking behaviour because they could afford it or they were only social smokers.
- In the 12 months prior to the community survey, 31% of smokers had quit or not smoked again, 40% had reduced, tried to reduce or quit smoking, while the remaining 29% had not tried to reduce or quit smoking.
- The rate of smokers who had never tried to change their behaviour was twice as high among those from a Māori (9%) or Pacific (8%) background as from a European/Other (3%) or Asian (3%) background.
- Many smokers responding to the community survey identified the tobacco excise as having changed their smoking behaviours. For example, in the 12 months prior to the survey, 47% of people who had tried to reduce or quit smoking, and 21% of those who had actually quit, cited the increase in the price of cigarettes and/or tobacco as a reason for their change in behaviour.
- In New Zealand, tobacco excise increases were found to affect different community groups in different ways. For example, Pacific households that smokewere found to be twice as likely as Māori households to have stopped purchasing tobacco because of the price rises over the past two years, while Māori households were more likely to seek out cheaper brands, find other places to purchase tobacco products, or switch to roll your own in response to the price increases.
- The most common reason for people changing their smoking behavior was to improve their health. Saving money or being prompted to by the price increase were also common reasons for changing smoking behaviour.
- Of the Māori respondents who had changed their smoking behavior in the 12 months prior to the survey, 44% reported that it was due to the increased price of cigarettes and/or tobacco, while only 23% of those with a Pacific background reported that the price had prompted changes to their behavior.
- The increased price of tobacco was a greater prompt for those aged 45 years and over either trying to or successfully quitting than for those in younger age groups. Suggesting that non-price factors may be a significant driver for the considerable reduction in smoking prevalence amongst youth.
- It is difficult to illustrate the comparative effect of the most recent tax increases on the smoking population, as the latest publicly available data was typically 2016.

Impact on equity:

- Equity impacts are a key consideration for policymakers contemplating tobacco control measures.
- Tobacco excise is generally accepted as being a regressive tax, as smoking prevalence is

generally higher among low-income groups. As such, the World Health Organisation recommends tobacco taxation increases as a pro-equity approach when accompanied by adequate smoking cessation support for low-income groups.

- Research has found tobacco excise increases to be progressive – on the basis that lower-income populations respond more strongly to tobacco taxation, the savings/avoided costs from quitting/not taking up smoking would be of most benefit to low-income groups and the health benefits from excise increases accrue mostly to low-income households.
  - Despite this, all focus groups believed that the excise was unfairly affecting those from a lower socio-economic background, or racially discriminating against minority groups, more so than against affluent groups.
  - When looking at daily smoking prevalence by deprivation quintile, more deprived populations appear to have much higher rates of smoking in each year of analysis (2006/07 to 2016/17) - suggesting that tobacco control interventions targeted towards deprived groups are required to achieve equitable outcomes.
  - When stratified by school decile, there are also large differences in the proportion of students who have ever smoked or are daily smokers, with much higher rates (up to 7 times higher prevalence) in more deprived areas.
  - On average, 7% of monthly expenditure was spent on tobacco and/or cigarettes by households that consume tobacco.
  - Households that consume tobacco tend to have lower incomes than households that don't, which suggests that although the total household expenditure was found to be roughly the same regardless of whether tobacco products are purchased, lower income households that continue to purchase tobacco may face greater immediate budgetary challenges. In the long-term, evidence suggest this cost is likely to be outweighed by avoided health system cost and productivity gains.

Non-cigarette nicotine use:

- There is international evidence that e-cigarettes are a useful tool for smoking cessation, and, as such, they may have contributed to the decline in smoking prevalence observed over from 2006 to 2016, however this potential contribution cannot be quantified with current data.
- The proportion of the population (both youth and adults) using alternative forms of nicotine (primarily e-cigarettes) has increased dramatically since 2011.
- Latest publicly available data show that more than half of smokers and recent quitters have used an e-cigarette, and the proportion of youth who have tried vaping is 29% (compared with 18% for tobacco).
- Of the current smokers responding to the community survey, 25% reporting that they were using e-cigarettes, while 46% had tried them but were not currently using the products.
- The most common reason provided by respondents for using e-cigarettes was the understanding that they were less harmful than cigarettes and/or tobacco (57%).
- The lower cost (48%) of e-cigarettes, as well as their ability to help respondents quit (47%) or reduce smoking (41%), were also common reasons cited for usage.
- Among those who had tried to quit or reduce their smoking in the 12 months prior to the community survey, 28% had started using e-cigarettes instead. In comparison, 18% of those who had actually stopped smoking in the 12 months prior to the survey reported that it was because they had switched to e-cigarettes.
- People from European/Other backgrounds who responded to the community survey were more likely to use nicotine replacement products such as e-cigarettes or NRT.

Attitudes towards smoking and the tobacco excise:

- Stakeholders and community members noted shifts in community attitudes towards smoking in recent times with most indicating that smoking had become less socially acceptable, while some noted that non-smokers appeared to have become more empowered to express their disapproval of smoking.
- Many smokers reported that they continued to smoke as a way to help manage stress and/or deal with personal issues, despite it no longer being considered cool. Young Māori took a different view of smoking, indicating that it was still considered cool in their community.
- Stakeholders felt that the excise had directly or indirectly contributed to a range of unintended consequences including: financial hardship; the use of illicit drugs over tobacco; psychological harm; social exclusion; and safety and security issues.
- In addition to financial hardships, Māori and Pacific community members in particular talked about the stigma of smoking which they felt left them more vulnerable to being judged harshly by others.
- Overall, while there was dissatisfaction voiced about the reasons for, as well as the application and the effectiveness of, the excise, it did seem that the majority of focus group members would smoke more if it were not for the high price. Meanwhile, a minority of participants indicated that the price did not have any impact on their smoking behaviour because they could afford it or they were only social smokers.
- Although concerned about the hardships associated with the excise, stakeholders were generally supportive of the excise as long as there were adequate and appropriate support services in place to protect community members from experiencing further hardships, financially, socially or emotionally.

Have people changed their perceptions of the affordability of tobacco?

- Of the households that reported purchasing tobacco products in the community survey, the majority (62%) reported that they had noticed a price rise in the years prior to the survey.
- It should be noted, however, that tobacco products are just one of many household purchases that have increased in price over time. To some extent, the price rises to expenses other than tobacco may mean that a price rise to tobacco products is just seen as one of multiple growing financial pressures for households buying tobacco.
- Stakeholders and community members both indicated that the reduction in affordability had dissuaded quitters from starting to smoke again, reducing the amount people smoked and increasing quitting attempts. At the same time, smoking was also regarded as addictive, and 15% smokers responding to the community survey indicated they would never stop.

Have people changed their household spending in any way to buy tobacco?

Observed changes in household spending on tobacco:

- In response to the rising price of tobacco, in the two years prior to the community survey some respondents reported as having modified their behaviours to enable them to keep smoking, such as purchasing budget brands, going without or spending less on food and groceries, utilities and so on.
- Some focus group participants noted the increasing price of tobacco products had been a source of conflict in families, particularly when some family members took advantage of others to "scab" cigarettes on a regular basis.
- Around half (47%) of smoking households responded to the price rise by purchasing fewer products, while many smoking households tried to mitigate the price increases by using strategies such as purchasing cheaper brands (49%).
- All focus groups discussed a switch in consumer behaviour to the less expensive "budget brands" as the prices went up.
- A higher proportion of lower income households purchased tobacco products than higher income households. They were also more likely to go without or spend less on food and groceries, utilities, and other essential expenses in order to continue to purchasing tobacco products.
- In the 12 months prior to the community survey 10% reported going without something that they needed. Going without was twice as likely to occur in Māori households than European/Other households.
- Focus group members also openly talked about reducing their expenditure on other purchases such as food and clothing so that they could afford to buy tobacco products.
- Many focus group members reported that there had been occasions when they had needed to choose between tobacco products and other essential expenses, such as food, rent, utilities and petrol. Most reported that they had dealt with these situations by limiting purchases of other essential items, for example, purchasing cheaper food, or only filling their car half up with petrol, so that they had enough money to buy the amount of tobacco products they "needed".
- Concern was also expressed across the groups about the impact that people prioritising spending on tobacco products would have on young children, who would miss getting adequate food, clothing and education and so on.

Household spending on non-cigarette nicotine:

- E-cigarettes and vaping products appeared to be used by some smokers to supplement their cigarette and/or tobacco use, and to help them reduce smoking, rather than it being something that respondents wanted to switch to, or to use in an effort to help them stop smoking all together.
- Among current smokers, 25% were currently using e-cigarettes, while 46% had tried them but were not currently using the products. For those who had previously smoked, but since quit tobacco, 12% were currently using e-cigarettes and 23% had tried them but were not currently using the products.
- As noted earlier, among those who had tried to quit or reduce their smoking in the 12 months prior to the survey, 28% had started using e-cigarettes instead. In comparison, 18% of those who had actually stopped smoking in the 12 months prior to the survey reported that it was because they had switched to e-cigarettes.
- The lower cost (48%) of e-cigarettes, as well as their ability to help respondents quit (47%) or reduce smoking (41%), were also common reasons cited for usage.

- Those who had tried vaping also felt that there had been a considerable positive financial impact associated with them switching from tobacco to vaping. For example, one person talked about previously spending $100 a week on cigarettes, and now spending that much over a month on vaping.

Are past impacts likely to hold in the future, with further price increases?

- Over half (55%) of current smokers indicated that they would be likely to quit smoking in the future.
- 61% of Pacific households reported that they were definitely or probably likely to stop smoking in the future, compared to 56% of Māori households and 52% of European households.
- When asked about the impact of the two future price rises, 60% of current smokers reported that they would buy less cigarettes in the future.
- People from a European/Other background tended to be more likely to say that they would buy less tobacco products (64%) than respondents from other main ethnic groups, particularly Pacific (45%).
- Only 15% of current smokers indicated that they probably or definitely would not stop smoking in the future.
- Those who are unlikely to quit smoking are most likely to be in households earning less than $50,000 per annum (61%), to be within the Auckland region (43%), are living alone (36%) and/or don't have children (72%).
- Among the relatively small proportion who indicated that they would definitely or probably not stop smoking in the future, most indicated that they would not be influenced by the future price rises, with 78% indicating that they would buy more or about the same amount of cigarettes in the future if the price increased.
- The weight of evidence shows that short to medium term increases to the excise are likely to continue to be effective at encouraging people to change their smoking behaviour. However, the extent to which smokers will continue to quit into the longer term is unclear, especially as those remaining smokers are more likely to be those who have a strong addiction, are less motivated to stop and inherently have more complex confounding factors to address.
- The excise has stimulated changes in behavior, but the reasons why people smoke are different. The evaluation has identified that further investment in holistic wrap-around services that focus on minimising harm for individuals and families are required to reduce the prevalence of smoking to Smokefree 2025 levels. Price alone will not be enough.

Has the tobacco industry implemented pricing and other market strategies to minimise the impact of the tax increases? What are these strategies and what impact have they had?

- Industry representatives reported that the bulk of their research and development expenditure is aimed at "heat not burn" product development, claiming that they are a safer option than combustible tobacco.
- Stakeholders identified a number of "strategies" used by the tobacco industry to negate the impact of the excise, including: the introduction of budget brands; differential pricing; providing rebates to retailers; and using 'stalling tactics', with several stakeholders calling for a greater focus of controls on the supply side.
- Providing support to these claims, research has shown that tobacco companies in New Zealand respond to tax increases by "under-shifting" - subsidising their cheaper brands to keep heavy smoking affordable – this pattern is seen internationally as well.
- Supply data shows clear annual patterns of tobacco sales, with spikes in November/December and lows in the middle of the year, indicating stockpiling of tobacco prior to excise increases, thereby likely diluting the price rise impact on consumers.
- Many community members believed that the increase occurred twice a year, suggesting that tobacco company pricing strategies meant that the increase in retail price was spread across the year rather than being included all at once from 1 January when the excise increase is applied by the government.

What is industry's likely future response?

- There is no evidence to suggest that, in the absence of further tobacco control interventions, the tobacco industry will materially shift from recent behaviours observed and reported in New Zealand.

Are the tax increases resulting in an increase in illicit trade? If so, what is the size of this problem and what is the likely future trajectory?

- There was an awareness across the focus groups that cheaper cigarettes could be accessed through the "black market", although many thought that this might have been due to tobacco illegally obtained in New Zealand, rather than smuggled products.
- Experience and use of the "black market" was not widespread among the focus group participants and was predominantly among Māori participants. Those who had used the "black market' reported that the price was generally at least $5 cheaper per pack, although there was also reports of packets being sold for $10.
- Māori and Pacific survey respondents who were struggling to afford essential items were slightly more likely to use "alternate sources" for tobacco than other groups, although it was unclear as to why this was the case and whether it is a response to tobacco price increases.
- Despite these observations, there is no specific evidence from published studies or available data that the illicit tobacco market in New Zealand has grown significantly in the last decade.
- There is also little independent, peer-reviewed international research that demonstrates a causative relationship

between higher cigarette prices and increase in illicit tobacco market activity.

- The experience of Customs NZ of increasing commercial-sized interceptions of smuggled tobacco is an indicator that illicit trade is possibly increasing, but there is insufficient data at this time to determine the size of the market or its relationship to tobacco excise increases.
- When compared internationally, New Zealand is a low-risk jurisdiction for significant illegal tobacco activity. Research from New Zealand has found that, rather than encouraging illicit tobacco, excise taxes have forced industry to concentrate on producing cheaper cigarettes, which directly compete with illicit tobacco.
- The absence of reliable estimates of illicit tobacco importation and use represents a significant gap in New Zealand's tobacco control information and, when combined with a lack of internal evidence, precludes the ability to determine the likely trajectory.

Are the tax increases resulting in an increase in robberies? If so, what is the size of this problem and what is the likely future trajectory?

- There is no reliable source of longitudinal data that reports tobacco-related crime in New Zealand. The New Zealand Police have only recently begun collecting data on the targeted product in robberies/burglaries, and this information is not yet publicly available.
- This is a major gap in data on a highly topical issue for policymakers, which limits the ability of this evaluation to comment on whether tobacco taxes are linked to increasing robberies in New Zealand.
- The absence of relevant available historical data precludes the ability to determine the likely trajectory.
- Irrespective of evidence of causal relationships, robberies are understandably a major concern for retailers and there is a common perception that the relationship exists.

What are the expected costs and benefits of future price increases, across the various different impacts?

- The weight of evidence shows that increasing the price of tobacco continues to be the single most effective tool for reducing tobacco use.
- Continued reduction in tobacco consumption and daily smoking prevalence are expected to follow future price increases for both the total population and target demographics, resulting in lower health system costs, improved health outcomes, improved productivity and reduced financial burden for those successful in their quit attempts.
- Without the introduction of further complementary initiatives that take a holistic approach, support harm reduction strategies and counter tobacco industry actions that minimise the impact of the tax increases, though, further price increases are likely to contribute to financial burden, health inequities, social exclusion and associated psychological harm for vulnerable individuals, households and communities.
- The BODE3 model is a general model of the entire New Zealand population (on the 2011 census with accompanying age, gender, ethnic and deprivation groups) with expected births, mortality, disease burden and health system costs modelled.
- This model was applied to a number of tobacco control "endgame" strategies in a 2017 paper, including CPI+10% tobacco excise increases continuing until 2025. This scenario resulted in achievement of the 5% Smokefree goal in 2053 for Māori and 2032 for non-Māori. This approach was also associated with the gain of 53,200 Quality-Adjusted Life Years (QALYs) and health system savings of $1.08 billion, compared with no increases from 2011.
- However, the model is somewhat optimistic in that predictions of patterns from 2011 to 2018 have overestimated the decline in daily smoking for Māori (~25% predicted in 2017 vs 33% in reality), but has closely mirrored reality for non-Māori (12% modelled vs 11.8% in NZHS data).
- The group has also compared multiple tobacco excise increase strategies and existing smoking cessation services to no tax increases. They found that continued 10% increases was predicted to reduce daily smoking prevalence to 8.7% in 2025, compared to 9.9% without any increases from 2011 onwards. No scenario with excise increases and smoking cessation support alone was predicted to lead to achievement of the Smokefree 2025 goal.

Additional evaluation insights

- While 68% of people agreed or strongly agreed that the Smokefree 2025 initiative was a good one for New Zealanders, smokers' opinions on Smokefree 2025 were polarised, with the proportion supporting it similar to the proportion opposing it.
- There was a generally low level of awareness among focus group participants as to what Smokefree 2025 was about, with most acknowledging that they hadn't heard of it before. It was generally agreed, however, that it was an important goal for government to have.
- Most focus group participants however questioned whether Smokefree 2025 was a realistic goal given that smoking is a personal choice, and, highly addictive. Some also questioned whether smoking was the right focus for the government given the wider community issues, and specifically called out alcohol as having the ability to cause significant harm.
- Most focus group participants were familiar with the tobacco excise increases, but did not understand how they worked. There was also widespread suspicion among focus groups as to the motivation of the excise.
- Stakeholders acknowledged that people smoked for different reasons, that tobacco products were highly addictive, and that people required different levels and types of support. Stakeholders familiar with different approaches identified programmes that took a holistic, harm reduction approach as being the most successful with vulnerable individuals, families and communities.
- Smoking cessation programmes considered to be the least effective are those that: focused on the harms of smoking, as opposed to wellbeing; limited their focus to being about quitting, rather than understanding the needs smoking met; and were perceived as culturally inappropriate and inaccessible.
- Awareness of smoking cessation programmes was generally low among focus group participants, with many feeling that they were largely ineffective, and should be more personally tailored. Concerns were also raised about the approach of some health professionals who promoted stop smoking messages, but didn't check to see if their "patient" was interested in quitting.
- Many stakeholders raised concerns about the perceived imbalance between the revenue raised by the tobacco excise increases and the subsequent resourcing of tobacco control initiatives, including tobacco cessation and harm minimisation services, with the majority recognising an urgent need for a greater investment.
- Stakeholders working directly with Māori and Pacific communities indicated that too few resources were being allocated to address the social problems that generally accompany poverty and disadvantage.

Concluding comments and recommendations

The weight of evidence shows that increasing the price of tobacco continues to be the single most effective tool for reducing tobacco use.

Nine years into the policy of increasing tobacco excise by CPI+10% annually, smoking rates in New Zealand have decreased across all demographics, including all age groups, ethnicities, genders and deprivation quintiles.

In particular, there has been a large decline in the proportion of youth who have ever smoked, or who are daily smokers.

While this is a significant achievement for the tobacco control programme, significant inequities remain for Māori and Pacific communities, necessitating a tailored approach for these vulnerable populations.

Potentially diluting the impact of the tobacco excise increases, research has shown that tobacco companies in New Zealand respond to tax increases by "under-shifting" – or subsidising their cheaper brands to keep heavy smoking affordable.

Further to this, supply data show clear annual patterns of tobacco sales, with spikes in November/December, and lows in the middle of the year – indicating stockpiling of tobacco prior to excise increases, thereby further diluting the impacts price rises.

Across the various community and key stakeholder groups, people consistently expressed concern that the excise is harming the most vulnerable members of the community. Many community members reported that there had been occasions when they had needed to choose between tobacco products and other essential expenses, such as food (or healthy food), rent, utilities and petrol.

There was a divergence in views across the various community and key stakeholder groups as to the point at which the positive impacts of the excise were outweighed by the negative impacts, which include financial burden, psychological harm and social exclusion for more vulnerable community members and their families.

Concern was expressed that a "tipping point" had been reached, and the excise had little impact on people with the least resources to reduce or stop their smoking. They also acknowledged that the excise was not intended to operate on its own, and that it was critical for tailored support services to be implemented to complement the intended influence of the tobacco excise increases.

There appears to be no compelling evidence of reducing average price elasticity for the total population over the period of analysis (2010 to 2016). However, it is difficult to illustrate the comparative effect of the most recent tax increases (2017 and 2018) on the smoking population, as the latest publicly available data was typically 2016 and in some cases, data available did not pre-date 2010.

Evidence shows that multiple tobacco control interventions aimed at reducing supply, demand and exposure work synergistically. The weight of evidence is that the excise tax increases are an essential part of a package of interventions needed to reduce tobacco consumption and daily smoking prevalence.

Achieving Smokefree 2025 will be challenging and without increased attention on further complementary tobacco control interventions, funded through a greater degree of hypothecation, the government are likely to fall short of this target by a wide margin - for Māori and Pacific populations in particular.

Recommendations

Based on the evaluation findings, six key recommendations have been made:

Recommendation 1:

It is recommended that the government continue with the scheduled increases in tobacco excise beyond 2020, as price maintains its position as the single most effective tool for reducing tobacco use.

In order to achieve Smokefree 2025, it is recommended that further complementary interventions (as detailed below) be implemented to:

- Monitor the impact and effectiveness of the tobacco excise policy on a "real time" basis.
- Counter tobacco industry actions that seek to minimise the impact of the tax increases.
- Provide tailored wraparound support and messaging to vulnerable populations.

Recommendation 2:

Given the negative impacts of the tobacco excise increases acknowledged during the evaluation, it is recommended that the government closely monitor the impacts of the final two scheduled increases to inform future policy development, with a focus on vulnerable populations as well as actions taken by the tobacco industry.

In order to address a number of key gaps in available data it is recommended that the Ministry work with appropriate agencies to:

In order to address a number of key gaps in available data it is recommended that the Ministry work with appropriate agencies to:

- Collect area-level real price data (rather than national RRPs) – in order to:
  - Better understand and combat tobacco industry practices to differentially shift the price increases associated with tobacco excise onto "premium" brands
  - Understand the relationship between area-level deprivation and tobacco pricing.
- Centralise the collection of tobacco retailing activities, potentially through a tobacco licensing scheme – this precludes would allow analysis of tobacco availability and geospatial distribution - especially with regards to proximity to priority populations such as outlets near schools, hospitals and marae.
- Utilise existing community surveys to collect more comprehensive, "real time" information from the community about the impact of the excise, including the impact on behaviours, perceptions and quitting attempts.
- Monitor New Zealand Police data that reports tobacco-related crime in New Zealand to understand whether tobacco taxes are driving increased robberies and assaults at the retail level.
- Initiate an illicit tobacco importation and use monitoring programme, including surveying smokers on their willingness to engage in the illicit tobacco market - this could be done through existing surveys such as the New Zealand Smoking Monitor.

Recommendation 3:

It is recommended that the Ministry work with appropriate agencies to implement comprehensive tobacco control programmes in tandem with, and beyond the scheduled increases (post 2020), targeted at reducing the appeal of tobacco products.

In order to counter activities designed to dilute the impact of the excise increases it is recommended that the Ministry work with appropriate agencies to:

- Implement minimum pricing strategies for tobacco products.
- Reduce allowable nicotine levels in tobacco.
- Remove additives and innovations from tobacco products that may enhance their appeal or addictiveness.

Recommendation 4:

It is recommended that the Ministry acts quickly to regulate the emerging 'nicotine alternatives' industry.

In order to protect New Zealanders from misinformation regarding health effects and poor quality in this growing industry, it is recommended that the Ministry acts to ensure minimum standards, in particular the quality, safety, availability, pricing and messaging associated with different products such as e-cigarettes.

Recommendation 5:

It is recommended that the Ministry broaden its reach by increasing the relevance of messaging to better target vulnerable communities, such as those consulted during this evaluation.

In order to build on the communication campaign success already achieved by the Ministry, it is recommended that consideration continue to be given to:

- Ensuring diversity (specifically age) and relevance of messaging to vulnerable groups around harm.
- The different social media channel options that may be particularly relevant to vulnerable youth.
- Working with the Ministry of Education to enhance existing programmes and encourage schools to adopt proactive education-based approaches to discourage students from consuming tobacco related products while also consumption encouraging them to engage in healthier activities, and develop alternative coping / stress-reduction strategies.
- Strengthening school cessation support, particularly in low decile schools and other vulnerable populations.

Recommendation 6:

It is recommended that the Ministry employ a range of holistic and harm reduction strategies in order to address individuals, families and populations that require a greater level of support to stop smoking, while exploring tobacco control initiatives that focus on supply.

In order to best support vulnerable New Zealanders in their endeavours to reduce or stop smoking, as well as to better manage other aspects of their lives that may be exacerbating their smoking behaviours, including the social determinants of smoking (e.g. poverty), it is recommended that the Ministry use a greater degree of hypothecation to:

- Take a more holistic approach, working with people to understand their lived experience, the reasons why they smoke, their hopes and aspirations and what they need in order to live the lives they wish to lead.
- These approaches can be more sustainable as they may help people to develop alternative coping mechanisms when confronted with challenging situations.
- Implementation of harm reduction approaches, with people supported to transition:
  - To different behaviours such as smoking less regularly, smoking away from other members of the family, not smoking in enclosed spaces, and so on.
  - From smoking tobacco to safer alternatives such as e-cigarettes. Caution should be used in how these alternatives are presented though, emphasising that they are a safer option than combustible tobacco, but not yet proven to be safe in the long term.
- Focus tobacco control initiatives on supply as opposed to demand, for example:
  - Reduce the number of retailers selling tobacco
  - Restrict the sale of tobacco near schools, churches and other community organisations
  - Explore increases to the legal age of supply.

Appendices

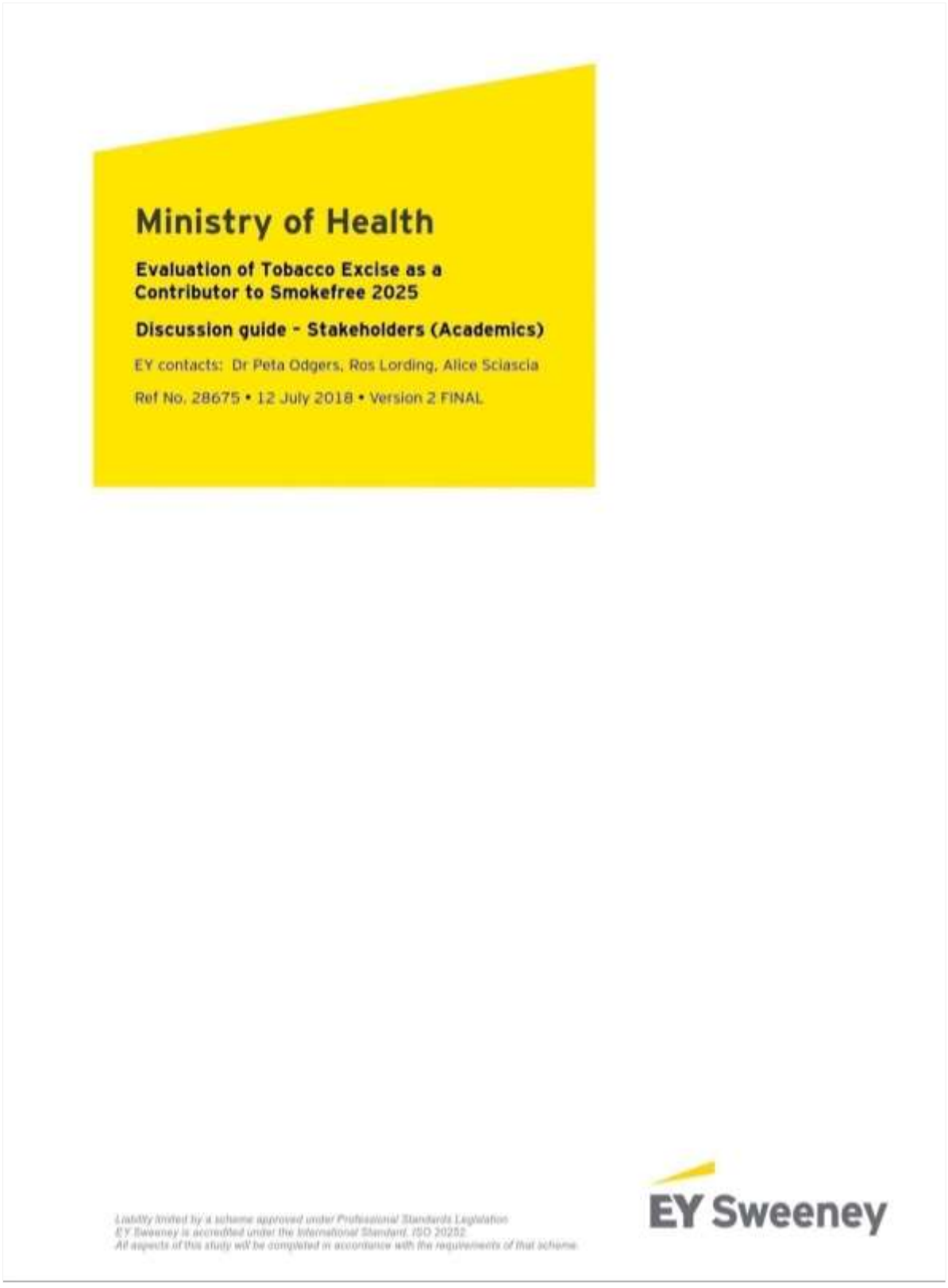
A	Stakeholder consultation sample
B	Discussion guides
C	Online survey
D	Quantitative sample structure
E	Summary of New Zealand tobacco control
F	Interaction models

Appendix A: Stakeholder consultation sample

A total of eighteen one-on-one and small group consultations were completed with representatives of these stakeholder groups.

List of organisations participating in evaluation
Government stakeholders
Ministry of Health
Ministry of Social Development
New Zealand Customs Service
New Zealand Police
Treasury
Community organisations
Counties Manukau District Health Board
Hāpai te Hauora – Māori Public Health organisation, who among other things hold a national service contract for Tobacco Control Advocacy
Mental Health Foundation
Tui Ora – Taranaki Stop Smoking Service
Turuki Health Care - one of three providers in the Kotahitanga Whānau Ora Collective, Turuki Health Care helps to bring a range of health and social services to the people of South Auckland
Public health practitioners
Dr Chris Bullen, University of Auckland
Dr Marewa Glover
Prof Hayden McRobbie, The Dragon Institute
College of Public Health Medicine
Industry and retail organisations
Imperial Tobacco
New Zealand Association of Convenience Stores
Consumer organisation
Taxpayers' Association

Appendix B: Discussion guides



Ministry of Health

Evaluation of Tobacco Excise as a Contributor to Smokefree 2025

Discussion guide - Stakeholders (Academics)

EY contacts: Dr Peta Odgers, Ros Lording, Alice Sciascia

Ref No. 28675 • 12 July 2018 • Version 2 FINAL

EY Sweeney

The objectives

The purpose of the evaluation is to inform the extent to which the tobacco excise increases have contributed to Smokefree 2025, the impact it has had in changing people's behavious and perceptions, as well as what the unintended consequences of the excise have been, with a specific focus on Māori, Pacific, and young people as well as low income groups.

The specific objectives are to determine...

The impact of the tobacco excise in changing people's behaviours and perceptions	▸ Explore changes in smoking behaviours -quitting, reducing consumption, substitution, changed household spend ▸ The perceptions of affordability following increases in tobacco excise ▸ Consider whether past changes in behavior will continue with future increases
Impact of tobacco excise as a regressive tax	▸ Consider the impact of the tax excise increases on equity given that the prevalence of smoking is generally higher among low income groups
Other unintended social consequences	▸ Determine unintended societal consequences of increasing the tobacco excise such as increased robberies and illicit trade ▸ Explore the likely future trajectory of these consequences with further increases in tobacco excise
Tobacco industry response	▸ Identify past and possible future strategies to be employed by the tobacco industry in response to increases in the tobacco excise ▸ Determine the impact of these strategies
Cost and benefits of further excise increases	▸ Better understand / quantify the expected benefits and costs of future excise increases on previously assessed impacts

EY Sweeney

Discussion overview (45-60 mins)

The following discussion guide provides an overview of the areas that will be covered in this study. It is not intended to be a prescriptive list of questions. The sessions will be free-flowing and the moderator will pursue issues/reactions/thoughts as they arise, while ensuring all of the key areas are covered off.

The broad flow of the groups can be summarised as follows...

1. Introduction	
2. Background	**5 minutes**
3. Roles and responsibility of organisation	**5 minutes**
4. Effectiveness of the excise	**25 minutes**
5. Doing things differently	**15 minutes**
6. Conclusion	**10 minutes**

EY Sweeney

Discussion guide

1. Introduction (2 mins)

OBJ: To introduce the client to the purpose of the interview and to gain their consent to proceed

- Topic... EY has been asked to undertake an evaluation of the tobacco excise as a contributor to Smokefree 2025. As your organisation is either directly or indirectly involved with or impacted by the tobacco excise in some way, we are keen to understand, from your perspective what's working, what's not working so well, and where there may be some opportunities for things to be done differently in relation to the excise.

  The findings from the evaluation will be used by the Ministry of Health to help inform the future direction of policies that use price as a lever to reduce harm from tobacco.
- Seek consent to recording
- Remind of confidentiality and code of conduct

2. Background (5 mins)

OBJ: To develop an understanding of the respondent's background and role

- Can you please start by confirming for us what, if any, affiliations you have with or funding you may receive from tobacco companies
- Respondent introduction... could please start by telling us a little bit about yourself:
  - Your name
  - What your background is
  - Your areas of expertise

3. Role and responsibilities of your organisation (5 mins)

OBJ: To better understand the role and responsibilities of the organisation in the community, in particular, their role in relation to the excise / smoking / health / treatment, and what their general position is in relation to the tobacco excise

- Can you please tell us a little bit about your involvement in tobacco research
  - Do you have a team of researchers you predominantly work with
  - What has been the focus of your / your team's work over the years
  - How has this been used, by whom and in what way
    (Probe: policy, strategic, treatment / service delivery, evaluation, etc)
  - What have been your key challenges over the past few years
    - How have you and the team managed these challenges

EY Sweeney

- Who, if anyone, have you worked with on these challenges and what has been their role

- What, if any, expectations do you feel are placed on you or your team in relation to what you do

  (PROBE: Prevalence, excise, healthcare, prevention, management, evaluation, control, etc)

  - Do you feel these expectations are realistic
    - If so, are they met
    - If not, why is that
  - What do you consider to be you / your team's biggest contribution

    (Probe: Why and how used)

4. Effectiveness of the excise

(25 mins)

OBJ: To understand how effective or ineffective the tobacco excise increases have been to contributing to Smokefree 2025

- Let's talk a little bit about Smokefree 2025. What is your understanding of this initiative

  (Interviewer Note:
  - protecting children from exposure to tobacco marketing and promotion
  - reducing the supply of, and demand for tobacco
  - providing the best possible support for quitting).

  - What do you think is it trying to achieve and why
  - Do you think what Smokefree 2025 is trying to achieve is a logical goal
  - What are your concerns, if any, about Smokefree 2025

    (Probe: why are they of concern, for whom, in what setting)
    - What impact do you think this is having
    - (Probe: Individual, family, community, Maori, Pacific, Youth, low income earners, government, Smokefree 2025)
    - What do you think needs to be / could be changed

- From your perspective, how is smoking generally perceived by different groups within the community

  (Probe: accepted / not accepted, considered as a status symbol, helps people feel as though they belong, expected, etc)

  - What changes and trends have you seen over time

- What is your position in relation to the tobacco excise

  - What do you think is it trying to achieve (intended impact)

    (Probe: goals, measures of success, primary targets, etc)

EY Sweeney

- How have you seen the excise play out … that is, what impact, if any, do you think it is having
  (Probe: financial, health, social, etc)
- What, if any, differences have you observed among people from different backgrounds, ages, circumstances
  (Probe: Māori, Pacific, young people and low income groups)
- What do you think this means / how do you think this translates into changes in behaviours, health, attitudes, perceptions, and so on

- Based on what you understand, to what extent do you feel that the excise is working
  - Why (Probe: with whom, in what way and in what situations)
  - Why not (Probe: with whom, in what way and in what situations)
  - What are your / your team's thoughts on the appropriateness and relevance of the excise
    - Why do you think it is / isn't needed

- In what way do you think the tobacco excise has been influencing the prevalence of smoking or the smoking behaviours of New Zealanders
  (Probe: with whom (Māori, Pacific, young people and low income groups))
  - Why do you think this is
  - Are there any groups within your community where you don't think the excise is having the intended effect
    (Probe: which group(s) / why)

- What other strategies do you think could be used to help reduce the prevalence of smoking among members of your community
  (Probe: different strategies for different groups (Māori, Pacific, young people and low income groups))
  - Do you think there is a general desire among New Zealanders to improve their health outcomes by reducing smoking
    (Probe: Why)
  - If so, what strategies are they using to do this
  - How adequate are these other strategies
  - What alternate strategies are needed

- As you may know, there are two more scheduled 10% increases in the Customs Act. One is on the 1st January 2019 and the second is on 1st January 2020. In what way, if any, do you think these increases will influence the behaviours or perceptions of the people your group / organisation supports
  (Probe: what changes and why)

EY Sweeney

- What do you think the impact will be on individuals from different backgrounds and in different circumstances
  (Probe: Māori, Pacific, young people and low income groups)
- In general, what impact, if any, do you think affordability has had on influencing these changes
- Thinking about the excise within the context of Smokefree 2025, is there anything that you think might work better or could be done differently
  (Probe: what, why, with which groups within the community)

If receiving funding from tobacco industry

- What has been the impact, if any, of the excise on your research program
  (Probe: funding, resources, skill sets, focus, role, etc)
- How have you and the team managed this

5. Doing things differently (15 mins)

OBJ: Understand what changes organisations might like to see

- What are some, if any, of the unintended consequences of the tobacco excise
  - Community impact: Crime, illegal importation, grow your own ...
  - Household impact: reduced budgets, inequity, poorer nutrition, instability ...
  - Perceptions of smoking: inequity, changes in attitudes / status
  - What, if any, unintended consequences have there been for people of...
    - Māori decent
    - Pacific islander decent
    - Young people
    - Low income earners
  - Do you think any of this is likely to change in the future
    (Probe: what will change, why, when)

- How do you think these unintended consequences should be managed
  (Probe: inequity, changes in the way different groups perceive smoking, changes to the perceived status of smoking in the community)
  - What research, if any, are you and your team engaged with which may help to minimise these impacts, or provide insights into alternative approaches / strategies

- Based on the research you have undertaken, what do you think the future benefits and cost of further excise increases will be on
  - Individuals, communities

EY Sweeney

- Government
- Smokefree 2025
- Māori, Pacific Islanders, Young people, people on low incomes

▶ From your perspective, what do you think the key challenges are to the success of the tobacco excise and Smokefree 2025
- How do these present themselves
- What are the strategies that are used to manage these
- What could be done differently

▶ Where do you think there may be opportunities to do things differently
- Community culture
- Health
- Smokefree 2025

▶ How do you think the Treaty of Waitangi relates to the Government's role in improving the health and wellbeing of New Zealanders

▶ What role, if any, do you think government should have in doing this

(Probe: Why)
- What role, if any, can or should the work you and your team play in improving the health of New Zealanders

  (Probe: What would be needed in order for this to happen)

6. Conclusion (5 mins)

OBJ: To obtain overall impressions of the tobacco excise

▶ We are coming to the end of the interview, but before we finish I was wondering if you might be able to help us ....

▶ Two important components of the evaluation relate to:
- Conducting a literature review about the impact of excises in other countries, as well as alternative strategies that governments may have used to help reduce the health impacts of tobacco, and
- Conducting a survey of community members from a range of backgrounds and circumstances, including young people, those from a Māori or Pacific Island backgrounds, different socio-economic areas and so on.

We were therefore wondering if you have any suggestions in relation to literature we should consider, or strategies for how to best engage with members the community

EY Sweeney

- And finally, is there anything else you would like to add about your experiences with the tobacco excise, Smokefree 2025, or the overall goal to reduce tobacco consumption

THANK AND CLOSE

Ministry of Health

Evaluation of Tobacco Excise as a Contributor to Smokefree 2025

Discussion guide - Stakeholders (Community Groups)

EY contacts: Dr Peta Odgers, Ros Lording, Alice Sciascia

Ref No. 28675 • 12 July 2018 • Version 2 FINAL

EY Sweeney

The objectives

The purpose of the evaluation is to inform the extent to which the tobacco excise increases have contributed to Smokefree 2025, the impact it has had in changing people's behavious and perceptions, as well as what the unintended consequences of the excise have been, with a specific focus on Māori, Pacific, and young people as well as low income groups.

The specific objectives are to determine...

The impact of the tobacco excise in changing people's behaviours and perceptions	▸ Explore changes in smoking behaviours -quitting, reducing consumption, substitution, changed household spend ▸ The perceptions of affordability following increases in tobacco excise ▸ Consider whether past changes in behavior will continue with future increases
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Cost and benefits of further excise increases	▸ Better understand / quantify the expected benefits and costs of future excise increases on previously assessed impacts

EY Sweeney

Discussion overview (45-60 mins)

The following discussion guide provides an overview of the areas that will be covered in this study. It is not intended to be a prescriptive list of questions. The sessions will be free-flowing and the moderator will pursue issues/reactions/thoughts as they arise, while ensuring all of the key areas are covered off.

The broad flow of the groups can be summarised as follows...

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2. Background	**5 minutes**
3. Roles and responsibility of organisation	**5 minutes**
4. Effectiveness of the excise	**25 minutes**
5. Doing things differently	**15 minutes**
6. Conclusion	**10 minutes**

EY Sweeney

Discussion guide

1. Introduction (2 mins)

OBJ: To introduce the client to the purpose of the interview and to gain their consent to proceed

- Topic... EY has been asked to undertake an evaluation of the tobacco excise as a contributor to Smokefree 2025. As your organisation is either directly or indirectly involved with or impacted by the tobacco excise in some way, we are keen to understand, from your perspective what's working, what's not working so well, and where there may be some opportunities for things to be done differently in relation to the excise.

  The findings from the evaluation will be used by the Ministry of Health to help inform the future direction of policies that use price as a lever to reduce harm from tobacco.
- Seek consent to recording
- Remind of confidentiality and code of conduct

2. Background (5 mins)

OBJ: To develop an understanding of the respondent's background and role

- Can you please start by confirming for us what, if any, affiliations you have with or funding you may receive from tobacco companies
- Respondent introduction... to start with, it would be great if you could please start by telling us a little bit about yourself:
  - Your name
  - What your background is
  - Your areas of expertise

3. Role and responsibilities of your organisation (5 mins)

OBJ: To better understand the role and responsibilities of the organisation in the community, in particular, their role in relation to the excise / smoking / health / treatment, and what their general position is in relation to the tobacco excise

- What is the primary role of your group / organisation
  - Who are the people you primarily support
  - What types of support do you offer
  - How is this support received by individuals as well as the broader community
  - As an group / organisation, what are your key challenges
    - How does your group / organisation manage these challenges
    - Who, if anyone, does your organisation work with when challenges arise

EY Sweeney

- What is their role

- What are the community's expectations of your group / organisation

  NOTE: Community = Government, other organisations, primary clients, broader community

  (PROBE: Tobacco, excise, healthcare, prevention, management, policing, control, etc)

  - Do you feel these expectations are realistic
    - If so, are they met
    - If not, why is that
  - What is it that your group / organisation does that works really well and why
  - What doesn't work so well and why
    - What other support, if any, would be useful
    - What could be done better / differently

4. Effectiveness of the excise (25 mins)

OBJ: To understand how effective or ineffective the tobacco excise increases have been to contributing to Smokefree 2025

- Let's talk a little bit about Smokefree 2025. What is your understanding of this initiative

  (Interviewer Note:
  - protecting children from exposure to tobacco marketing and promotion
  - reducing the supply of, and demand for tobacco
  - providing the best possible support for quitting).

  - What do you think is it trying to achieve and why
  - What are your concerns, if any, about Smokefree 2025

    (Probe: why are they of concern, for whom, in what setting)
    - What impact do you think this is having on the people you are working with / supporting
    - (Probe: Individual, family, community, government, Smokefree 2025)
    - What do you think needs to be / could be changed

- How is smoking generally perceived by the people your group / organisation supports

  (Probe: accepted / not accepted, considered as a status symbol, helps people feel as though they belong, expected, etc)

  - What changes and trends have you seen over time

- What is your group's / organisation's position in relation to the tobacco excise
  - What do you think is it trying to achieve (intended impact)
  - What impact, if any, is it having on the people your group / organisation supports

    (Probe: financial, health, social, etc)

EY Sweeney

- What, if any, differences have you observed among people from different backgrounds, ages, circumstances
  (Probe: Māori, Pacific, young people and low income groups)
- How is this impacting / affecting you / your organisation / group
  (Probe: resources, requests for support, etc)

- Based on what you understand, to what extent do you feel that the excise is working
  - Why (Probe: with whom, in what way and in what situations)
  - Why not (Probe: with whom, in what way and in what situations)
  - What are your / your organisation's thoughts on the appropriateness and relevance of the excise
    - Why do you think it is / isn't needed

- In what way do you think the tobacco excise has been influencing the prevalence of smoking or the smoking behaviours of New Zealanders
  (Probe: with whom (Māori, Pacific, young people and low income groups))
  - Why do you think this is
  - Are there any groups within your community where you don't think the excise is having the intended effect
    (Probe: which group(s) / why)

- What other strategies do you think could be used to help reduce the prevalence of smoking among members of your community
  (Probe: different strategies for different groups (Māori, Pacific, young people and low income groups))
  - Do members of your community want to see action to reduce smoking
    (Probe: Why)
  - If so, what strategies are they using to do this and what role, if any, is your group / organisation playing in this

- As you may know, there are two more scheduled 10% increases in the Customs Act. One is on the 1st January 2019 and the second is on 1st January 2020. In what way, if any, do you think these increases will influence the behaviours or perceptions of the people your group / organisation supports
  (Probe: what changes and why)
  - What do you think the impact will be on individuals from different backgrounds and in different circumstances
    (Probe: Māori, Pacific, young people and low income groups)
  - In general, what impact, if any, do you think affordability has influenced changes

EY Sweeney

- Thinking about the excise within the context of Smokefree 2025, is there anything that you think might work better or could be done differently
  (Probe: what, why, with which groups within the community)

- What has been the impact, if any, of the excise on your organisation
  (Probe: change in resources, skill sets, focus, role, etc)
  - What strategies, if any has your organisation implemented to manage the impact of the excise on your organisation
  - What was the purpose of the strategy or strategies that you implemented
  - What has been the positive and maybe not so positive impact of the strategies
    (Probe: with whom and why?)
  - Will you continue them into the future
    (Probe: with whom and why?)

5. Doing things differently (15 mins)

OBJ: Understand what changes organisations might like to see

- What are some, if any, of the unintended consequences of the tobacco excise
  - Community impact: Crime, illegal importation, grow your own ...
  - Household impact: reduced budgets, inequity, poorer nutrition, instability ...
  - Perceptions of smoking: inequity, changes in attitudes / status
  - Do you think any of this is likely to change in the future
    (Probe: what will change, why, when)

- How do you think these unintended consequences should be managed
  (Probe: inequity, changes in the way different groups perceive smoking, changes to the perceived status of smoking in the community)
  - What are the things being done by your group / organisation to minimise these impacts on the people you support

- From your perspective, what do you think the future benefits and cost of further excise increases would be
  - To individuals
  - To community
  - To government
  - To Smokefree 2025
- From your perspective, what do you think the key challenges are to the success of the tobacco excise and Smokefree 2025

EY Sweeney

- How do these present themselves
- What are the strategies that are used to manage these
- What could be done differently

- Where do you think there may be opportunities to do things differently
  - Community culture
  - Health
  - Smokefree 2025

- How do you think the Treaty of Waitangi relates to the Government's role, if any, in trying to improve the health and wellbeing of New Zealanders
- What role, if any, do you think government should have in doing this
  (Probe: Why)
  - What about your group / organisation ... what role or new role if any should you have
    (Probe: What would be needed in order to do this)

6. Conclusion (5 mins)

OBJ: To obtain overall impressions of the tobacco excise

- We are coming to the end of the interview, but before we finish I was wondering if you might be able to help us ....

- Two important components of the evaluation relate to:
  - Conducting a literature review about the impact of excises in other countries, as well as alternative strategies that governments may have used to help reduce the health impacts of tobacco, and
  - Conducting a survey of community members from a range of backgrounds and circumstances, including young people, those from a Māori or Pacific Island backgrounds, different socio-economic areas and so on.

  We were therefore wondering if you have any suggestions in relation to the literature we should consider, or strategies for how we might best engage with members the community

- And finally, is there anything else you would like to add about your experiences with the tobacco excise, Smokefree 2025, or the overall goal to reduce tobacco consumption?

THANK AND CLOSE

Ministry of Health

Evaluation of Tobacco Excise as a Contributor to Smokefree 2025

Discussion guide – Corporate Stakeholders

EY contacts: Dr Peta Odgers, Ros Lording, Alice Sciascia

Ref No. 28675 • 12 July 2018 • Version 2 FINAL

EY Sweeney

The objectives

The purpose of the evaluation is to inform the extent to which the tobacco excise increases have contributed to Smokefree 2025, the impact it has had in changing people's behavious and perceptions, as well as what the unintended consequences of the excise have been, with a specific focus on Māori, Pacific, and young people as well as low income groups.

The specific objectives are to determine...

The impact of the tobacco excise in changing people's behaviours and perceptions	▸ Explore changes in smoking behaviours -quitting, reducing consumption, substitution, changed household spend ▸ The perceptions of affordability following increases in tobacco excise ▸ Consider whether past changes in behavior will continue with future increases
Impact of tobacco excise as a regressive tax	▸ Consider the impact of the tax excise increases on equity given that the prevalence of smoking is generally higher among low income groups
Other unintended social consequences	▸ Determine unintended societal consequences of increasing the tobacco excise such as increased robberies and illicit trade ▸ Explore the likely future trajectory of these consequences with further increases in tobacco excise
Tobacco industry response	▸ Identify past and possible future strategies to be employed by the tobacco industry in response to increases in the tobacco excise ▸ Determine the impact of these strategies
Cost and benefits of further excise increases	▸ Better understand / quantify the expected benefits and costs of future excise increases on previously assessed impacts

EY Sweeney

Discussion overview (45-60 mins)

The following discussion guide provides an overview of the areas that will be covered in this study. It is not intended to be a prescriptive list of questions. The sessions will be free-flowing and the moderator will pursue issues/reactions/thoughts as they arise, while ensuring all of the key areas are covered off.

The broad flow of the groups can be summarised as follows...

1. Introduction	
2. Background	**5 minutes**
3. Roles and responsibility of organisation	**5 minutes**
4. Effectiveness of the excise	**25 minutes**
5. Doing things differently	**15 minutes**
6. Conclusion	**10 minutes**

EY Sweeney

Discussion guide

1. Introduction (2 mins)

OBJ: To introduce the client to the purpose of the interview and to gain their consent to proceed

- Topic... EY has been asked to undertake an evaluation of the tobacco excise as a contributor to Smokefree 2025. As your organisation is either directly or indirectly involved with or impacted by the tobacco excise in some way, we are keen to understand, from your perspective what's working, what's not working so well, and where there may be some opportunities for things to be done differently in relation to the excise.

  The findings from the evaluation will be used by the Ministry of Health to help inform the future direction of policies that use price as a lever to reduce harm from tobacco.
- Seek consent to recording
- Remind of confidentiality and code of conduct

2. Background (5 mins)

OBJ: To develop an understanding of the respondent's background and role

- Can you please start by confirming for us what, if any, affiliations you have with or funding you may receive from tobacco companies
- Respondent introduction... to start with, it would be great if you could please start by telling us a little bit about yourself:
  - Your name
  - What your background is
  - What your role and responsibilities are within your organisations
  - How long you have worked in your current role

3. Role and responsibilities of your organisation (5 mins)

OBJ: To better understand the role and responsibilities of the organisation in the community, in particular, their role in relation to the excise / smoking / health / treatment, and what their general position is in relation to the tobacco excise

- What is the primary role of your organisation
  - Who are your primary "clients / customers"
  - How do you support these groups
  - How do you support / contribute to the broader community

EY Sweeney

- As an organisation, what are your key challenges
  - How does your organisation manage these challenges
  - Who, if anyone, does your organisation work with when challenges arise
  - What is their role

- What are the community's expectations of your organisation

  NOTE: Community = Government, other organisations, primary clients, broader community

  (PROBE: Tobacco, excise, healthcare, prevention, management, policing, control, etc)
  - Do you feel these expectations are realistic
    - If so, are they met
    - If not, why is that
  - What is it that your organisation does that works really well and why
  - What doesn't work so well and why

- What are your organisation's obligations
  - How are these different to what is expected of you
  - What is the capacity, capability and support like to help your organisation meet their obligations
    - What other support, if any, could be useful
    - What could be done better / differently

4. Effectiveness of the excise (25 mins)

OBJ: To understand how effective or ineffective the tobacco excise increases have been to contributing to Smokefree 2025

- Let's talk a little bit about Smokefree 2025. What is your understanding of this initiative

  (Interviewer Note:
  - protecting children from exposure to tobacco marketing and promotion
  - reducing the supply of, and demand for tobacco
  - providing the best possible support for quitting).
  - What do you think is it trying to achieve and why
  - What are your concerns, if any, about Smokefree 2025

    (Probe: why are they of concern)
    - What impact do you think this is having
    - (Probe: Individual, family, community, government, Smokefree 2025)
    - What do you think needs to be / could be changed

- What is your organisation's position in relation to the tobacco excise

EY Sweeney

- What is it trying to achieve from your perspective as an organisation (intended impact)
  (Probe: goals, measures of success, primary targets, etc)
- How is this impacting or affecting you as an organisation

- Based on what you understand, to what extent do you feel that the excise is working
  - Why (Probe: with whom, in what way and in what situations)
  - Why not (Probe: with whom, in what way and in what situations)
- What are your / your organisation's thoughts on the appropriateness and relevance of the excise
  - Why do you think it is / isn't needed

- In what way do you think the tobacco excise has been influencing the prevalence of smoking or the smoking behaviours of New Zealanders
  (Probe: with whom and why)

- As you may know, there are two more scheduled 10% increases in the Customs Act. One is on the 1st January 2019 and the second is on 1st January 2020. In what way, if any, do you think these increases will lead to changes in people's behaviours or perceptions
  (Probe: what changes and why)
- More broadly, what impact, if any, do you think the excise has had on individuals
- What, if any, differences have you observed among people from different backgrounds, ages, circumstances
  (Probe: Māori, Pacific, young people and low income groups)
- What impact, if any, do you think affordability has had on influencing these changes
- Are there any groups within the community where you don't think the excise is having the intended effect
  (Probe: which group(s) / why)
- Thinking about the excise within the context of Smokefree 2025, is there anything that you think might work better or could be done differently
  (Probe: what, why, with which groups within the community)

- What has been the impact, if any, of the excise on your organisation
  (Probe: change in resources, skill sets, focus, role, etc)
- What strategies, if any has your organisation implemented to manage the impact of the excise on your organisation
- What was the purpose of the strategy or strategies that you implemented
- What has been the positive and maybe not so positive impact of the strategies
  (Probe: with whom and why?)
- Will you continue them into the future
  (Probe: with whom and why?)

EY Sweeney

5. Doing things differently

(15 mins)

OBJ: Understand what changes organisations might like to see

- What are some, if any, of the unintended consequences of the tobacco excise
  - Community impact: Crime, illegal importation, grow your own ...
  - Household impact: reduced budgets, inequity, poorer nutrition, instability ...
  - Perceptions of smoking: inequity, changes in attitudes / status)
  - Do you think any of this is likely to change in the future
    (Probe: what will change, why, when)
- How do you think these unintended consequences should be managed
  (Probe: inequity, changes in the way different groups perceive smoking, changes to the perceived status of smoking in the community)
  - What should / could be done by your organisation / government / broader community
- From your perspective, what do you think the future benefits and cost of further excise increases would be
  - To individuals
  - To community
  - To government
  - To Smokefree 2025
- From your perspective, what do you think the key challenges are to the success of the tobacco excise and Smokefree 2025
  - How do these present themselves
  - What are the strategies that are used to manage these
  - What could be done differently
- Where do you think there may be opportunities to do things differently
  - Community culture
  - Health
  - Smokefree 2025

EY Sweeney

- How do these present themselves
- What are the strategies that are used to manage these
- What could be done differently

- Where do you think there may be opportunities to do things differently
  - Community culture
  - Health
  - Smokefree 2025

- How do you think the Treaty of Waitangi relates to the Government's role, if any, in trying to improve the health and wellbeing of New Zealanders
- What role, if any, do you think government should have in doing this
  (Probe: Why)
  - What about your group / organisation ... what role or new role if any should you have
    (Probe: What would be needed in order to do this)

6. Conclusion (5 mins)

OBJ: To obtain overall impressions of the tobacco excise

- We are coming to the end of the interview, but before we finish I was wondering if you might be able to help us ....

- Two important components of the evaluation relate to:
  - Conducting a literature review about the impact of excises in other countries, as well as alternative strategies that governments may have used to help reduce the health impacts of tobacco, and
  - Conducting a survey of community members from a range of backgrounds and circumstances, including young people, those from a Māori or Pacific Island backgrounds, different socio-economic areas and so on.

  We were therefore wondering if you have any suggestions in relation to the literature we should consider, or strategies for how we might best engage with members the community

- And finally, is there anything else you would like to add about your experiences with the tobacco excise, Smokefree 2025, or the overall goal to reduce tobacco consumption?

THANK AND CLOSE

Ministry of Health

Evaluation of Tobacco Excise as a Contributor to Smokefree 2025

Discussion guide – Community member focus group

EY contacts: Dr Peta Odgers, Ros Lording, Alice Sciascia

Ref No. 28675 • 27 August 2018 • Version 2 FINAL

EY Sweeney

EY Sweeney

The objectives

The purpose of the evaluation is to inform the extent to which the tobacco excise increases have contributed to Smokefree 2025, the impact it has had in changing people's behaviours and perceptions, as well as what the unintended consequences of the excise have been, with a specific focus on Māori, Pacific, and young people as well as low income groups.

The specific objectives are to determine...

The impact of the tobacco excise in changing people's behaviours and perceptions	▸ Explore changes in smoking behaviours -quitting, reducing consumption, substitution, changed household spend ▸ The perceptions of affordability following increases in tobacco excise ▸ Consider whether past changes in behaviour will continue with future increases
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Tobacco industry response	▸ Identify past and possible future strategies to be employed by the tobacco industry in response to increases in the tobacco excise ▸ Determine the impact of these strategies
Cost and benefits of further excise increases	▸ Better understand / quantify the expected benefits and costs of future excise increases on previously assessed impacts

EY Sweeney

Discussion overview (90 mins)

The following discussion guide provides an overview of the areas that will be covered in this study. It is not intended to be a prescriptive list of questions. The sessions will be free-flowing and the moderator will pursue issues/reactions/thoughts as they arise, while ensuring all of the key areas are covered off.

The broad flow of the groups can be summarised as follows...

1. Introduction	**10 minutes**
2. Attitudes towards Smokefree 2025	**10 minutes**
3. Attitudes towards tobacco control approaches	**15 minutes**
4. Attitudes towards the excise	**15 minutes**
5. Impacts of the excise	**35 minutes**
6. Conclusion	**5 minutes**

EY Sweeney

Discussion guide

1. Introduction (10 mins)

OBJ: To introduce participants the purpose of the group discussion and to gain their consent to proceed

For Māori groups, co-facilitator may open with brief karakia (prayer) and brief mihi (welcome).

- Topic... The tobacco excise as a contributor to Smokefree 2025.
  - The New Zealand Government has a long term goal of preventing young people from taking up smoking and encouraging existing smokers to quit
  - One of the ways the Government is trying to reduce smoking in the community is through annual increases on the tax on tobacco
  - The Ministry of Health has asked EY to conduct an evaluation of the tobacco excise as a contributor to Smokefree 2025
    - As part of this process, we want to understand the views of community members from different age groups and background, including current and ex-smokers
    - This group discussion will explore your thoughts about the excise, the impact it has had on you and what the Government needs to do, from your perspective, to reduce the harm from smoking
  - The findings from the evaluation will be used by the Ministry of Health to help inform the future direction of policies that use price as a lever to reduce harm from tobacco.
- **About the group...** 90 minute group discussion
  - Participation is voluntary, discussion is confidential
  - No right or wrong answers, we're interested in your honest opinions, views and experiences
  - We hope that you will feel free to share your thoughts openly and would like to assure you that you will not be judged - we are interested in your thoughts and are committed to being able to share the insights we gain from these groups with the Ministry to help guide their future decision
- **Viewing and recording...** Gain verbal consent to proceed
- **Respondent introduction...**
  - All: Name, tell us something about yourself (or your family), where you come from
  - Smokers: If you feel comfortable sharing, please tell us a little about your smoking history (eg how long, current smoking behaviour, attempts at quitting etc)
  - Ex-smokers: If you feel comfortable sharing, please tell a little about your smoking history (eg, how long since quitting, for how long and how often etc)
  - Non-smokers: If you feel comfortable sharing, do you have close family members or friends who smoke
- *Māori participants may wish to open with their pepeha (introduction, process of establishing identity and whakapapa / genealogy connections)*

EY Sweeney

2. Attitudes towards Smokefree 2025

(10 mins)

OBJ: To assess knowledge and understanding of government smokefree priorities and responsibilities for achieving smokefree goal

- So, before today, who had heard of Smokefree 2025
  - For those of you who had heard of it, what is your understanding of this goal

(Interviewer Note:
  - To reduce the prevalence of daily smoked tobacco use to less than 5%, and as close as possible to 0%, by December 2025.
  - The goal applies to all population groups in Aotearoa New Zealand.)

For those of you who haven't heard of it:

As previously mentioned, the New Zealand Government has a long term goal of preventing young people from taking up smoking and encouraging existing smokers to quit.

In 2011, the Government adopted the Smokefree 2025 goal for New Zealand in response to the recommendations of a landmark Parliamentary inquiry by the Māori Affairs select committee.

- What do you think of this goal
  - What, if anything, have you heard other people say about the goal
  - Do you think this is a good goal
  - Can it be achieved
- What if anything worries you about this goal and why
- How important do you think it is for the Smokefree 2025 goal to be achieved
  - *If it is important*:
    - What things do you think are or will have a positive impact on achieving this goal
    - What else needs to happen in order to help this goal be achieved
  - *If it isn't important*:
    - Why is that
    - If you were Prime Minister, who would your health goal or goals be for young New Zealanders / members of your community / Māori / all New Zealanders
- So, is this a good thing for the government to be involved in … the health of New Zealanders and trying to encourage people to stop smoking or not take it up in the first place
- Who else, if anyone, should be responsible for helping to reduce the prevalence and take up of smoking in the community
  - (Probes: role of governments, health services, tobacco manufacturers, tobacco retailers, individuals and communities, iwi, hapū, whānau, etc)

EY Sweeney

3. Attitudes towards tobacco control approaches

(15 mins)

OBJ: To explore perceptions of tobacco control approaches, including perceived effectiveness of approaches

We've talked about the roles and responsibilities of various organisations and individuals in reducing the prevalence of smoking and working towards the goal of a smokefree New Zealand. What we'd now like to do is talk with you about some different ways to help prevent people from smoking, as well as ways to help people to stop smoking.

- To start with let's talk about trying to **prevent** young people from smoking. What is your understanding of ...
  - What the **Government** is:
    - *Currently doing* to prevent young people from smoking
    - What else, if anything, do you think the Government *could do* to help prevent young people from smoking

    (Probe: mass media campaigns, school-based education, age restrictions on tobacco products, plain packaging/graphic images, minimum price setting, reducing availability from retail outlets, marketing/promotion restrictions, smoking bans/smokefree environments, etc)
  - What are **communities**:
    - Currently doing, if anything, to prevent young people from smoking
    - What, if anything, do you think communities (including iwi, hapū and whānau) could do to help prevent young people from smoking

    (Probes: education and warnings, etc)
- What about people who are **currently smoking** ...
  - What is the **Government**:
    - Currently doing, if anything, to encourage existing smokers to quit
    - What, if anything, do you think the Government could do

    (Probes: pricing including minimum price setting, plain packaging/graphic images, smoking cessation services, nicotine replacement therapy, medications, e-cigarettes/vaping, reducing availability from retail outlets, smoking bans/smokefree environments, support services, etc
  - What are communities (including iwi, hapū and whānau):
    - Currently doing, if anything, to encourage existing smokers to quit
    - What, if anything, do you think communities could do to encourage existing smokers to quit

    (Probes: make house and car smokefree, offer practical or social support, encouraging community organisations/local marae to be smokefree, etc)
- Thinking about the ideas that we have talked about, which do you think would be the ...
  - Most effective / least effective
- Can you think of anything else that might help to prevent and reduce smoking in the community

EY Sweeney

(Probe: availability, affordability, appeal, alternatives to tobacco, social aspects, etc)

4. Attitudes towards the excise (15 mins)

OBJ: To explore perceptions of the tobacco excise including its purpose and contribution to Smokefree 2025

As we've discussed, one of the ways the Government is trying to reduce smoking in the community is through an annual increases in the tax on tobacco.

- What do you know about the tobacco excise
- What is it applied to (prompt: combustible tobacco products, e-cigarettes, nicotine and non-nicotine vaping liquids, grow your own tobacco)
- How much is it
- When is it applied

  (Interviewer note: The excise increase now occurs annually on 1 January. New Zealand is nearing the end of a series of 10% excise increases on tobacco that began in 2010 and are scheduled to end in January 2020)
- From your perspective, what is the tobacco excise trying to achieve

  (Probe: reduced smoking prevalence and consumption, cost-savings in health system, revenue raising, etc)
- What do you think of the tobacco excise
  - Is it a good thing
    - What are the positives, and why
  - What are the not so positive things
  - What are your biggest concerns, and why

5. Impacts of the excise (35 mins)

OBJ: To understand the impacts of the tobacco excise increases on the smoking and spending behaviours of individuals and communities, including unintended consequences

Smokers:

Planning to quit

- Thinking about your current smoking, can you raise your hand if you:
  - Have reduced the amount that you smoke or have stopped smoking in the last few months
    - What was the main reason for you doing this
    - And how is it going for you
  - Okay now please raise your hand if you are thinking about reducing the amount you smoke or stopping altogether
    - How's this going for you

EY Sweeney

- So for those of you who have, are thinking about or trying to stop smoking or reduce the amount you smoke … or if you know someone who is
  - What are you doing or have you done, or are you planning to do differently to help you achieve your goal
    (Probes: go out less, hang out with a different group of friends, ban myself from smoking inside / in the car, use e-cigarettes/vaping, do more exercise, avoid going to places where I can buy cigarettes, get help from the quit line, etc)
  - *If not raised*…Has anyone thought about …
    - Using smoking replacement products (eg e-cigarettes, Nicotine Replacement Therapy/NRT, nicotine gum, patches, lozenges, vaping products)
- How much of an influence do you think the price increases of tobacco products have influenced your decision to stop or reduce smoking
  - Is this the same for other people that you may know who have decided to stop or reduce the amount that they smoke
  - Have you, or anyone you know, tried different strategies to minimise the impact of the price, such as growing your own tobacco or using a cheaper brand
    (Probe: Buying cigarettes from other places (e.g., online, through friends, switching from tailor made to rolling your own)
  - How easy, or difficult, have you found it to reduce or stop smoking
    - Why is that
    - What, if anything, could you or someone else do to make things easier for you

Not planning to quit

- So for those of you not planning to change your smoking behaviours, are you able to share with us why
  (Probe: enjoy smoking, too hard to stop, family/friends all smoke, don't care about my health
  - Do you think there anything that might influence your decision either now or into the future
    (Probes: further price increases, first-hand impacts of harms of smoking, etc)

Ask all smokers

- From your experience, what has been the main impact, or impacts, of the tobacco excise on you, your family or friends
  - Has the excise impacted your smoking in any way
    (Probe: the amount you smoke, how often you smoke, what you smoke, where you buy your tobacco, etc)
  - Has the excise impacted your other spending any way
    (Probe: household expenditure, savings, going out, etc)
  - Have you ever had to choose between smoking and going without something you needed or wanted

EY Sweeney

- Based on your experience, how do you think the excise has impacted other people
  (Probe: changes in their spending patterns, not being able to pay bills, reducing spending on household needs, etc).
- More broadly, what impact, if any, do you think the excise has had on the broader community
  - What changes, if any, have you seen among people from different backgrounds, age groups, and so on and the way that they engage with cigarettes and tobacco
    (Probes: Māori, Pacific, young people and low income groups)
    (Probe: Number of people smoking, where they smoke, use of alternate products, where they buy their tobacco from, etc)
  - To what extent do you think the price increases of tobacco products have influenced these changes
  - What do people think about smoking today
    - Is this different to how it used to be

Ex-smokers:

- Before quitting smoking, what would you say was the main impact, or impacts, of the tobacco excise on you
  - Did the excise impact your smoking in any way
    (Probe: the amount you smoked, how often you smoked, what you smoked, where you bought your tobacco, etc)
  - Did the excise impacted your other spending any way
    (Probe: household expenditure, savings, going out, etc)
  - Did you ever need to choose between smoking and going without something you needed or wanted
- What were your main motivations for quitting smoking
  (Probe: Health benefits, role modelling, affordability of products, etc)
  - To what extent did the tobacco excise influence this decision
- Thinking about the broader community, what influence do you think the tobacco excise has had on the number of people smoking in New Zealand, or even how much people are smoking
  - What role, if any, has it had in preventing young people from taking up smoking
    (Probe: specific groups, people living in certain areas)
  - What role, if any, has it had in encouraging smokers to quit
    (Probe: specific groups, people living in certain areas)

Non-smokers:

- What influence do you think the tobacco excise has had on the number of people smoking in New Zealand, or even how much people are smoking

EY Sweeney

- What role, if any, has it had in preventing young people from taking up smoking
  (Probe: specific groups, people living in certain areas)
- What role, if any, has it had in encouraging smokers to quit
  (Probe: specific groups, people living in certain areas)

- Thinking about someone you may know that has been impacted in some way by the excise
  - What differences or changes have you noticed in the last could of years
    (Probes: Māori, Pacific, young people and low income groups)

All groups:

- Before today, did you know that there were going to be two more 10% increases in the tobacco excise? One is on the 1st January 2019, and one on the 1st January 2020.
  - What are your thoughts about this
  - What impact, if any, do you think these additional increases will have on people
    (Probe: changes to how / what / how often smoke, spending, where purchase tobacco, use e-cigarettes, etc)
  - In what way, if any, do you think these increases will lead to changes in people's behaviours or attitudes towards smoking
    (Probe: what changes and why)
- Sometimes we can all do things that are well intentioned and don't always work out so well. It's the same for government. Well intentioned policies, like excises, can sometime have unintended outcomes. Can you think of any unintended consequences that have come about because of the tobacco excise
  (**Individual impacts**: not saving as much, going without things that they need, becoming isolated from friends who can afford to smoke, etc)
  (**Household impacts**: reduced budgets for food, poorer nutrition, not being able to pay bills, having to go without, etc)
  (**Community impacts**: robberies, illegal importation, black market sales, more people growing their own, etc)
- Has the excise unintentionally made things unequal between people who don't have much money and those who do
- Has the excise changed people's attitudes towards smoking in any way
  (Probe: status of smoking)
- Do you think any of these unintended outcomes are likely to change in the future
  (Probe: what will change, why)
  - Do you think these should be managed in some way, and if so, how
    (Probe: inequity, changes in the way different groups perceive smoking, changes to the perceived status of smoking in the community)
    - What should or could be done by the Government
    - What could be done by the general community
    - What can people like us do

EY Sweeney

▶ Overall, to what extent to do you think that increasing the price of cigarettes and tobacco products will have a long term benefit on the health of all New Zealanders	
6. Conclusion OBJ: To obtain overall impressions of the tobacco excise ▶ So, thinking back over our discussion today, what advice would you give to the government about improving the health of all New Zealanders through the use of a tobacco excise ▶ And finally, is there anything else you would like to add about the tobacco excise, Smokefree 2025, or the overall goal to reduce tobacco consumption in New Zealand	(5 mins)

THANK AND CLOSE

[FOR MĀORI GROUPS, CO-FACILITATOR MAY CLOSE WITH BRIEF KARAKIA (PRAYER)]

Appendix C: Online survey

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Evaluation of the tobacco excise survey

We are conducting a survey about health and lifestyle issues.

The survey will take about 15 minutes to complete and is completely confidential and anonymous.

How To Complete The Survey...

[IF COMPUTER] Use your mouse to "Click on" the relevant circles or boxes to mark your selection with a black dot or a tick. Some questions require you to type in your answers.
[IF TABLET/MOBILE] Select the relevant circles or boxes to mark your selection with a black dot or a tick. Some questions require you to type in your answers.

You may close the survey down and re-enter at the point you left off using the link emailed to you.

Once you have answered all questions on a page you will need to select the "Next" Button to proceed to the next screen.

When you have finished answering all of the questions, please must select the "Submit" button at the end of the survey.

We hope you enjoy the survey!

Please press **NEXT** to continue.

For access to the EY Sweeney Privacy Policy, click here ("https://eysweeney.com.au/privacy-policy"). For any technical problems with this survey please send an e-mail by selecting on the link that appears at the bottom of each page.

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SECTION ONE: SCREENER

S1.	Do you identify as…? **Please select one response only.** ***PROGRAMMER NOTE: CHECK QUOTAS***	Male O 1 Female O 2 Other O 3
S2.	To which age group do you belong? **Please select one response only.** ***PROGRAMMER NOTE: CHECK QUOTAS***	Under 16 years **(Close)** O 01 16 to 17 years O 02 18 to 24 years O 03 25 to 29 years O 04 30 to 34 years O 05 35 to 39 years O 06 40 to 44 years O 07 45 to 49 years O 08 50 to 54 years O 09 55 to 59 years O 10 60 to 64 years O 11 65 to 69 years O 12 70 years and over O 13
S3.	Where do you live? **Begin typing your suburb or town in the box below, and then select your location and postcode from the dropdown.** **(If your location does not appear on screen, please type "Other")**	[ ] Other location in New Zealand (please specify) O 97 Other location outside New Zealand **(Close)** O 99
S4A.	Which ethnic groups do you belong to…? **Please select all that apply.**	New Zealand European ☐ 01 Māori ☐ 02 Samoan ☐ 03 Cook Island Māori ☐ 04 Tongan ☐ 05 Niuean ☐ 06 Chinese ☐ 07 Indian ☐ 08 Other **(please specify)** ☐ 09

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PROGRAMMER NOTE: **IF MORE THAN ONE RESPONSE AT S4A. IF ONE RESPONSE AT S4A, AUTOCODE AS MAIN ETHNICITY**

S4B.	Which of the following ethnic groups do you identify with the most **Please select one response only.** ***PROGRAMMER NOTE: CHECK QUOTAS***	New Zealand European O 01 Māori O 02 Samoan O 03 Cook Island Māori O 04 Tongan O 05 Niuean O 06 Chinese O 07 Indian O 08 ***PROGRAMMER NOTE:*** Response from SA4_9 O 09
S5.	Over the past 12 months, what was the total income your household earned from all sources before tax? *This includes money from wages, MSD benefits and investments etc. from all members of your household* **Please select one response only.** ***PROGRAMMER NOTE: CHECK QUOTAS – REFUSED AS FALLS***	Less than $40,001 O 01 $40,001 - $70,000 O 02 $70,001 - $100,000 O 03 More than $100,000 O 04 Prefer not to say O 98
S6.	Which of the following best describes your household? **Please select one response only.**	Living alone O 01 Shared household **without children** (e.g. friends, flatmates, siblings only) O 02 Single parent **with children** O 03 Couple **without children** O 04 Couple **with children** O 05 Multiple family household **without children** (e.g. grandparents and grandchildren, aunts/uncles and nieces/nephews) O 06 Multiple family household **with children** (e.g. grandparents and grandchildren, aunts/uncles and nieces/nephews) O 07

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SECTION TWO: CURRENT SPEND

PROGRAMMER NOTE: **ASK ALL**

Q1. Are you responsible, or jointly responsible for paying the following bills and expenses in your household…
Please select all that apply per column.

PROGRAMMER NOTE: RANDOMISE ORDER – Code 9 follows code 8		**Yes – solely responsible for paying**	**Yes – jointly responsible for paying**	**No – someone else pays**	**Not applicable**
1.	**Living…** including rent or mortgage, home and contents insurance, house repairs, council rates etc.	O 1	O 2	O 3	O 99
2.	**Utilities…** water, electricity, gas, mobile phone, home phone, internet, pay television	O 1	O 2	O 3	O 99
3.	**Personal…** savings, clothing, shopping, entertainment, gifts, school costs	O 1	O 2	O 3	O 99
4.	**Transport…** public transport, petrol, car registration, car insurance, car repairs, car parking, car loan	O 1	O 2	O 3	O 99
5.	**Food and groceries (excluding alcohol and cigarettes)…** supermarket, the green grocer, fruit and vegetable shops or markets, or farmers' markets	O 1	O 2	O 3	O 99
6.	**Take-away (excluding alcohol and cigarettes)…** food and drinks bought anywhere else, for example, at a dairy, petrol station, takeaway outlet, foodcourt, restaurant, café or pub	O 1	O 2	O 3	O 99
7.	**Alcoholic beverages…** regardless of where you purchased	O 1	O 2	O 3	O 99
8.	**Cigarettes and tobacco products (excludes smoking replacement products)…** regardless of where you purchased	O 1	O 2	O 3	O 99
9.	**Smoking replacement products…** E-cigarettes, vaping products, Nicotine Replacement Therapy (NRT) e.g. nicotine gum, patches and lozenges	O 1	O 2	O 3	O 99
10.	**Medical (excluding smoking replacement products)…** medicine, doctor, dentist	O 1	O 2	O 3	O 99

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PROGRAMMER NOTE: **ASK IF NOT "NOT APPLICABLE" AT Q1**

Q2. **In the last month**, approximately how much have you, and/or other members of your household, spent on each of the following categories?

Your best guess is fine.

Please include
- Anything you paid for, whether by cash, EFTPOS, cheque, credit card or any other means.
- Any money you pay for other people in your household and are not reimbursed (e.g. if you pay for someone else's meals)
- Any money paid for you by someone else in your household (e.g. your parents)

Do not include
- Any money paid on your behalf by someone else who does not live with you

Please select an amount for each category.

PROGRAMMER NOTE: RANDOMISE ORDER	**Amount Spent per month**
1. **Living…** including rent or mortgage, home and contents insurance, house repairs, council rates etc.	Drop down for option 1 • Nil ($0) • $1-$250 • $251-$500 • $501-$750 • $751-$1,000 • $1,001-$1,250 • $1,251-$1,500 • $1,501-$1,750 • $1,751-$2,000 • $2,001-$2,250 • $2,251-$2,500 • $2,501-$2,750 • $2,751-$3,000 • Over $3,000 • Not sure (99)
2. **Utilities…** water, electricity, gas, mobile phone, home phone, internet, pay television	Drop down for options 2-10 • Nil ($0) • $1-$20 • $21-$50 • $51-$70 • $71-$100 • $101-$150 • $151-$200 • $201-$400
3. **Personal…** savings, clothing, shopping, entertainment, gifts, school costs	
4. **Transport…** public transport, petrol, car registration, car insurance, car repairs, car parking, car loan	
5. **Food and groceries (excluding alcohol and cigarettes)…** supermarket, the green grocer, fruit and vegetable shops or markets, or farmers' markets	
6. **Take-away (excluding alcohol and cigarettes)…** food and drinks bought anywhere else, for example, at a dairy, petrol station, takeaway outlet, foodcourt, restaurant, café or pub	

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7.	**Alcoholic beverages…** regardless of where you purchased	▸ $401-$600 ▸ $601-$800 ▸ Over $800 ▸ Not sure (99)
8.	**Cigarettes and tobacco products (excluding smoking replacement products)…** regardless of where you purchased	
9.	**Smoking replacement products…** E-cigarettes, vaping products, Nicotine Replacement Therapy (NRT) e.g. nicotine gum, patches and lozenges	
10.	**Medical (excluding smoking replacement products)…** medicine, doctor, dentist	

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PROGRAMMER NOTE: **ASK IF NOT "NOT APPLICABLE" AT Q1**

Q3. **In the last 12 months**, has the price of the following items increased, decreased or stayed the same? **Please select one per column.**

		Increased	Decreased	Stayed the same	Not sure
1.	**Living…** including rent or mortgage, home and contents insurance, house repairs, council rates etc.	O 1	O 2	O 3	O 99
2.	**Utilities…** water, electricity, gas, mobile phone, home phone, internet, pay television	O 1	O 2	O 3	O 99
3.	**Personal…** savings, clothing, shopping, entertainment, gifts, school costs	O 1	O 2	O 3	O 99
4.	**Transport…** public transport, petrol, car registration, car insurance, car repairs, car parking, car loan	O 1	O 2	O 3	O 99
5.	**Food and groceries (excluding alcohol and cigarettes)…** supermarket, the green grocer, fruit and vegetable shops or markets, or farmers' markets	O 1	O 2	O 3	O 99
6.	**Take-away (excluding alcohol and cigarettes)…** food and drinks bought anywhere else, for example, at a dairy, petrol station, takeaway outlet, foodcourt, restaurant, café or pub	O 1	O 2	O 3	O 99
7.	**Alcoholic beverages…**	O 1	O 2	O 3	O 99
8.	**Cigarettes and tobacco products (excluding smoking replacement products)…**	O 1	O 2	O 3	O 99
9.	**Smoking replacement products…** E-cigarettes, vaping products, Nicotine Replacement Therapy (NRT) e.g. nicotine gum, patches and lozenges	O 1	O 2	O 3	O 99
10.	**Medical (excluding smoking replacement products)…** medicine, doctor, dentist	O 1	O 2	O 3	O 99

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PROGRAMMER NOTE: **ASK IF Q3_8 = DECREASED (2) / STAYED THE SAME (3)**

Q4.	You mentioned that the price of cigarettes and/or tobacco has decreased or stayed the same in the last 12 months. Is the average price of cigarettes or tobacco more or less expensive now than in 2016? **Please select one response only.**	A lot more expensive O 01 A little more expensive O 02 A little less expensive O 03 A lot less expensive O 04 Stayed the same O 05 Not sure O 99

PROGRAMMER NOTE: **ASK IF Q3_8 (Code 1) OR Q4 = INCREASED A LOT/A LITTLE (CODES 1 OR 2)**

Q5.	Has your household used any of the following strategies to manage the increases in the price of cigarettes and/or tobacco products? **Please select all that apply.** **PROGRAMMER NOTE: RANDOMISE EXCEPT LAST TWO CODES**	Reduced amount / number of cigarettes or tobacco purchased ☐ 01 Purchased smoking replacement products (E-cigarettes, vaping products, Nicotine Replacement Therapy (NRT) e.g. nicotine gum, patches and lozenges) ☐ 02 Stopped buying cigarettes / tobacco ☐ 03 Looked for other places to buy cigarettes / tobacco ☐ 04 Spent **less** on other household items ☐ 05 Spent **more** on other household items ☐ 06 Purchased cheaper brands ☐ 07 Switched from tailor-made to roll your own (rollie) ☐ 08 Other **(please specify)** ☐ 97 None of the above O 98

PROGRAMMER NOTE: **ASK IF SMOKING HOUSEHOLD (Q1_8=1\|2\|3)**

Q6A.	From which of the following places do you or the people you live with get cigarettes and/or tobacco products from? **Please select all that apply.** **PROGRAMMER NOTE: RANDOMISE EXCEPT LAST TWO CODES** **PROGRAMMER NOTE: OTHER ONLINE STORE ALWAYS FOLLOWS ONLINE AUCTION** **PROGRAMMER NOTE: FRIEND OF A FRIEND ALWAYS FOLLOWS FRIENDS OR FAMILY** **PROGRAMMER NOTE: OTHER SUPERMARKET ALWAYS FOLLOWS MAJOR SUPERMARKET**	Friends and/or family 01 A friend of a friend 02 An online auction site (e.g. TradeMe, eBay) 03 Other online sites 04 Dairy 05 Liquor store 06 Service station 07 Major supermarket (e.g. New World, Countdown, PAKn'SAVE, Four Square, SuperValue, FreshChoice) 08 Other supermarket 09 Takeaway shop 10 Tobacconist or vaping shops 11 Grow your own 12 Other (please specify) 97 Not sure 99

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PROGRAMMER NOTE: **ASK IF Q5 = (5) SPENT LESS ON OTHER ITEMS**

Q6. You mentioned that your household has spent less on other items as a result of the increase in the price of cigarette and /or tobacco products.

Which of the following has your household reduced its spending on?

Please select all that apply.

PROGRAMMER NOTE: RANDOMISE EXCEPT LAST TWO CODES

- **Living**... including rent or mortgage, home and contents insurance, house repairs, council rates etc. ☐ 01
- **Utilities**... water, electricity, gas, mobile phone, home phone, internet, pay television ☐ 02
- **Personal**... savings, clothing, shopping, entertainment, gifts, school costs ☐ 03
- **Transport**... public transport, petrol, car registration, car insurance, car repairs, car parking, car loan ☐ 04
- **Food and groceries (excluding alcohol and cigarettes)**... supermarket, the green grocer, fruit and vegetable shops or markets, or farmers' markets ☐ 05
- **Take-away (excluding alcohol and cigarettes)**... food and drinks bought anywhere else, for example, at a dairy, petrol station, takeaway outlet, foodcourt, restaurant, café or pub ☐ 06
- **Alcoholic beverages**... ☐ 07
- **Medical**... medicine, doctor, dentist ☐ 08
- Other **(please specify)** ☐ 97
- None of the above ○ 98

PROGRAMMER NOTE: **ASK IF SMOKING HOUSEHOLD (Q1_8=1|2|3)**

Q7A. In your household, has there ever been a time when someone has had to go without something they needed, or when bills weren't paid, because there wasn't enough money after cigarettes and/or tobacco were purchased?

Please select one response only.

- Yes ○ 01
- No ○ 02
- Not sure ○ 99

PROGRAMMER NOTE: **ASK IF GONE WITHOUT (Q7A=1)**

Q7B. When was the last time that someone in your household went without something they needed, or bills weren't paid, because there wasn't enough money after cigarettes and/or tobacco were purchased?

Please select one response only.

- In the last month ○ 01
- 1 to 3 months ago ○ 02
- 4 to 6 months ago ○ 03
- 7 to 12 months ago ○ 04
- 1 to 2 years ago ○ 05
- 3 to 5 years ago ○ 06
- 6 to 10 years ago ○ 07
- More than 10 years ago ○ 08
- Not sure ○ 99

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SECTION THREE: ATTITUDES

PROGRAMMER NOTE: **ASK ALL**

Q8A. Before today, were you aware that…
Please select one answer for each statement to indicate whether you were aware they did this before today

PROGRAMMER NOTE: RANDOMISE CODES.	Yes, I was aware	No, I was not aware	Not sure
1. The New Zealand Government has set a goal that less than 5% of New Zealanders will be smoking by 2025	O 1	O 2	O 99
2. The price of cigarettes and tobacco will rise by 10% on 1 January next year	O 1	O 2	O 99

PROGRAMMER NOTE: **ASK ALL**

Q8B. To what extent do you disagree or agree with the following statements

Please select one response per row.
[PROGRAMMER NOTE: RANDOMISE ORDER]

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
1. Smokefree 2025 is a good initiative for all New Zealanders	O 01	O 02	O 03	O 04	O 05	O99
2. Smokefree 2025 is a good initiative for people in my community	O 01	O 02	O 03	O 04	O 05	O99

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PROGRAMMER NOTE: **ASK ALL**

Q9. To what extent do you disagree or agree with the following statements about the price of cigarettes and tobacco

Please select one response per row.
[PROGRAMMER NOTE: RANDOMISE ORDER AND SPLIT ACROSS TWO SCREENS]

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
1. Continuing to increase the price of cigarettes and tobacco in the future will encourage more people to quit smoking	O 01	O 02	O 03	O 04	O 05	O99
2. Increasing the price of cigarettes and tobacco is doing more harm than good	O 01	O 02	O 03	O 04	O 05	O99
3. Continuing to raise the price of cigarettes and tobacco in the future will have a long-term benefit to the health of all New Zealanders	O 01	O 02	O 03	O 04	O 05	O99
4. Increasing the price of cigarettes and tobacco has led to more crime	O 01	O 02	O 03	O 04	O 05	O99
5. Hardened smokers will continue to buy cigarettes and tobacco, no matter what the price	O 01	O 02	O 03	O 04	O 05	O99
6. Only those with a high income will be able to afford cigarettes or tobacco if the price continues to increase	O 01	O 02	O 03	O 04	O 05	O99
7. Increasing the price of cigarettes and tobacco has encouraged people to quit smoking in the past	O 01	O 02	O 03	O 04	O 05	O99
8. Increasing the price cigarettes and tobacco has encouraged more people to use e-cigarettes and vaping products	O 01	O 02	O 03	O 04	O 05	O99
9. Continuing to increase the price of cigarettes and tobacco will lead to more crime	O 01	O 02	O 03	O 04	O 05	O99
10. People who want to smoke and can't afford it will quit	O 01	O 02	O 03	O 04	O 05	O99
11. People who want to smoke and can't afford it will buy cigarettes and tobacco illegally	O 01	O 02	O 03	O 04	O 05	O99
12. People who want to smoke and can't afford it will grow their own tobacco	O 01	O 02	O 03	O 04	O 05	O99

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SECTION FOUR: SMOKING BEHAVIOUR

PROGRAMMER NOTE: **ASK ALL**

Q10.	Which of the following statements best describes your situation… ***Please do not include electronic or e-cigarettes.*** **Please select one response only.**	I currently smoke tobacco O 01 I have previously smoked tobacco O 02 I have had a few puffs, but no more O 03 I have never smoked tobacco O 04 Prefer not to say O 99

PROGRAMMER NOTE: **ASK IF CURRENTLY SMOKE Q10=1 OR PREVIOUS SMOKER Q10=2**

Q11.	**[IF Q10=1]** How often do you smoke? **[/] [IF Q10=2]** How often did you used to smoke? **[/]** **Please select one response only.**	Daily / at least once a day O 01 Weekly / at least once a week O 02 Monthly / at least once a month O 03 Less often than once a month O 04 Not sure O 99

PROGRAMMER NOTE: **ASK IF NOT LIVING ALONE (S6)**

Q12.	How many people in your household **[if Q10=1]** other than you **[/]** currently smoke cigarettes or tobacco? **Please type in a number.**	Not sure O 99

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PROGRAMMER NOTE: **ASK IF PREVIOUS SMOKER Q10=2 OR HAD A FEW PUFFS Q10=3**

Q13. How long ago did you stop smoking?

Please select one response only.

In the last month	○ 01
1 to 3 months ago	○ 02
4 to 6 months ago	○ 03
7 to 12 months ago	○ 04
1 to 2 years ago	○ 05
3 to 5 years ago	○ 06
6 to 10 years ago	○ 07
More than 10 years ago	○ 08
Not sure	○ 99

PROGRAMMER NOTE: **ASK IF CURRENT SMOKER Q10=1**

Q14. Have you ever deliberately not smoked cigarettes or tobacco because you were trying to…

Please select all that apply.

Stop smoking	☐ 01
Reduce smoking	☐ 02
Another reason **(please specify)**	☐ 03
None of the above	○ 04
Not sure	○ 99

PROGRAMMER NOTE: **ASK IF ATTEMPT TO STOP/REDUCE (Q14=1|2)**

Q15. How long ago was your most recent attempt to [Q14=1]stop [Q14=1|2]or [Q14=2] reduce[/] your smoking?

Please select one response only.

In the last month	○ 01
1 to 3 months ago	○ 02
4 to 6 months ago	○ 03
7 to 12 months ago	○ 04
1 to 2 years ago	○ 05
3 to 5 years ago	○ 06
6 to 10 years ago	○ 07
More than 10 years ago	○ 08
Not sure	○ 99

PROGRAMMER NOTE: **ASK IF ATTEMPT TO STOP/REDUCE (Q14=1|2) & IN PAST 12 MONTHS (Q15=1|2|3|4)**

Q16. In the last 12 months, how many serious attempts to stop smoking did you make that lasted 24 hours or longer?

Please include any attempt that you are currently making.

(Please type in a number)

Not sure	○ 99

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PROGRAMMER NOTE: **ASK IF ANY QUIT ATTEMPT Q14=1| 2 OR QUIT: Q10=2|3**

[IF QUIT/TRIED Q14=1| 2]
Q17. Which of the following encouraged you to stop or reduce the number of cigarettes or the amount of tobacco you were smoking?

[IF QUITTER Q10=2|3]
Q17. What prompted you to quit smoking?

Please select all that apply.

PROGRAMMER NOTE: RANDOMISE EXCEPT LAST TWO CODES

I wanted to improve my health	☐ 01
Doctor's / professional advice	☐ 02
Pressure from my family	☐ 03
Pressure from my friends	☐ 04
Increased price of cigarettes / tobacco	☐ 05
Availability of cigarettes / tobacco	☐ 06
Change in personal situation (e.g. had kids)	☐ 07
Started smoking electronic cigarettes / vaping instead	☐ 08
I wanted to save money	☐ 09
Smoking is not allowed at work / school etc.	☐ 10
I didn't like smoking / the taste	☐ 11
Other **(please specify)**	○ 97
Not sure	○ 99

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PROGRAMMER NOTE: **ASK IF CURRENT SMOKER Q10=1**

Q18.	How likely are you to try to stop smoking in the future? **Please select one response only.**	Definitely O 05 Probably O 04 Might or might not O 03 Probably won't O 02 Definitely won't O 01

PROGRAMMER NOTE: **ASK IF CURRENT SMOKER Q10=1**

Q19.	The price of cigarettes and tobacco will increase by at least 10 per cent on 1 January next year (2019) and again the year after (2020). This means that in two years' time, the average price of a pack of 20 cigarettes will be over $30. Looking to the future, do you think you will… **Please select one response only.**	Buy more cigarettes / tobacco products O 01 Buy less cigarettes / tobacco products O 02 Buy about the same O 03

PROGRAMMER NOTE: **ASK ALL**

	Electronic cigarettes, also known as e-cigs, vapes or personal vaporisers are battery powered devices that heat a liquid to release vapour as people inhale from them. The vapour may contain nicotine and may be flavoured.	
Q20.	Have you ever tried or are you currently using electronic cigarettes or personal vaporisers? **Please select one response only.**	Yes, currently using O 01 Yes, tried but not currently using O 02 No O 03 Not sure O 99

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PROGRAMMER NOTE: **ASK IF HAVE USED E-CIG Q20=1|2**

Q21.	[Q20=1] Why do you use electronic cigarettes or personal vaporisers? [Q20=2] Why did you try electronic cigarettes or personal vaporisers? **Please select all that apply.** **PROGRAMMER NOTE: RANDOMISE EXCEPT LAST TWO CODES**	To help quit smoking cigarettes / tobacco ☐ 01 To help reduce the amount of cigarettes / tobacco smoked ☐ 02 To help keep me smokefree ☐ 03 To use where cigarettes / tobacco are not allowed ☐ 04 Cheaper than cigarettes / tobacco ☐ 05 Less harmful to **my health** than cigarettes / tobacco ☐ 06 Less harmful to the health of **other people** than cigarettes / tobacco ☐ 07 For the flavours / taste ☐ 08 Someone recommended them ☐ 09 More accepted socially than cigarettes / tobacco ☐ 10 Smells better than cigarettes / tobacco ☐ 11 Something to hold / keep my hands busy ☐ 12 I was curious about them ☐ 13 I wanted to see what they were like ☐ 14 Other **(please specify)** ○ 97 Not sure ○ 99

PROGRAMMER NOTE: **ASK IF HAVE USED E-CIG Q20=1|2**

Q22.	How likely are you to use electronic cigarettes or personal vaporisers in the future? **Please select one response only.**	Definitely ○ 05 Probably ○ 04 Might or might not ○ 03 Probably won't ○ 02 Definitely won't ○ 01

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SECTION FIVE: CLASSIFICATION

Finally, a few questions to help us classify your answers.

PROGRAMMER NOTE: **ASK ALL**

D1.	Are you currently…? **Please select one statement which best describes your situation.**	Working full time O 01 Working part time O 02 Looking for work O 03 Not looking for work O 04 Volunteer / not employed for pay O 05 Looking after the home / caregiver O 06 Studying full time O 07 Studying part time O 08 Retired O 09

PROGRAMMER NOTE: **ASK ALL**

D2.	Thinking about your financial situation are you…? **Please select one response only.**	Easily able to pay for essentials and any extras that you want O 01 Able to pay for essentials and have some money left over for occasional extras O 02 Able to pay for essentials only and have little or no money left over for anything else O 03 Struggling to afford the essentials O 04 Prefer not to say O 99

PROGRAMMER NOTE: **ASK ALL**

D3.	Finally, we asked you before about the total annual income for your household in the last 12 months. Which of the following categories best reflects your household's income on a weekly basis? *This information is used for research purposes only* **Please select one response only.**	**Less than $190 per week** (less than $10,001 per year) O **01** **$190 - $290 per week** ($10,001-$15,000 per year) O **02** **$290 - $380 per week** ($15,001-$20,000 per year) O **03** **$380 - $480 per week** ($20,001-$25,000 per year) O **04** **$480 - $580 per week** ($25,001-$30,000 per year) O **05** **$580 - $670 per week** ($30,001-$35,000 per year) O **06** **$670 - $770 per week** ($35,001-$40,000 per year) O **07** **$770 - $960 per week** ($40,001-$50,000 per year) O **08** **$960 - $1,150 per week** ($50,001-$60,000 per year) O **09** **$1,150 - $1,350 per week** ($60,001-$70,000 per year) O **10** **$1,350 - $1,920 per week** ($70,001-$100,000 per year) O **11** **$1,920 - $2,880 per week** ($100,001-$150,000 per year) O **12** **$2,880 - $3,850 per week** ($150,001-$200,000 per year) O **13** **$3,850 or more per week** ($200,001 or more per year) O **14** Not sure O 99

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THAT IS THE END OF THE SURVEY – THANK YOU

The study has been conducted on behalf of the Ministry of Health

As a social research company, we comply with the requirements of the Privacy Act. The information you have provided will be used only for research purposes.

Should you need to contact us please email surveys@au.ey.com.

Appendix D: Quantitative sample structure

Table 14: Sample structure – community survey by main ethnicity

		Unweighted count #					Weighted %				
		Total	European + Other	Māori	Pacific	Asian	Total	European + Other	Māori	Pacific	Asian
Total		**1,507**	**715**	**499**	**186**	**107**	**100%**	**67%**	**12%**	**6%**	**14%**
Gender	Male	**555**	327	132	53	43	**49%**	36%	4%	2%	7%
	Female	**947**	387	366	131	63	**51%**	31%	8%	4%	7%
	Other	**5**	1	1	2	1	**0%**	0%	0%	0%	0%
Age (years)	16-24	**287**	111	92	51	33	**18%**	10%	2%	2%	4%
	25-34	**351**	125	140	55	31	**21%**	11%	4%	2%	4%
	35-44	**248**	104	82	42	20	**16%**	10%	2%	1%	3%
	45-54	**251**	121	100	19	11	**16%**	11%	2%	1%	1%
	55-64	**201**	119	58	16	8	**14%**	11%	1%	1%	1%
	65+	**169**	135	27	3	4	**15%**	14%	1%	0%	1%
Ethnicities[1]	European or Other	**897**	715	155	27	0	**72%**	67%	4%	1%	0%
	Māori	**566**	63	499	4	0	**18%**	5%	12%	0%	0%
	Pacific	**223**	5	31	186	1	**8%**	0%	1%	6%	0%
	Asian	**123**	2	5	9	107	**15%**	0%	0%	0%	14%

[1] Respondents identifying with more than one ethnicity are counted under each applicable ethnicity.

Note: Percentages within each ethnicity may not sum to the total row and column due to rounding.

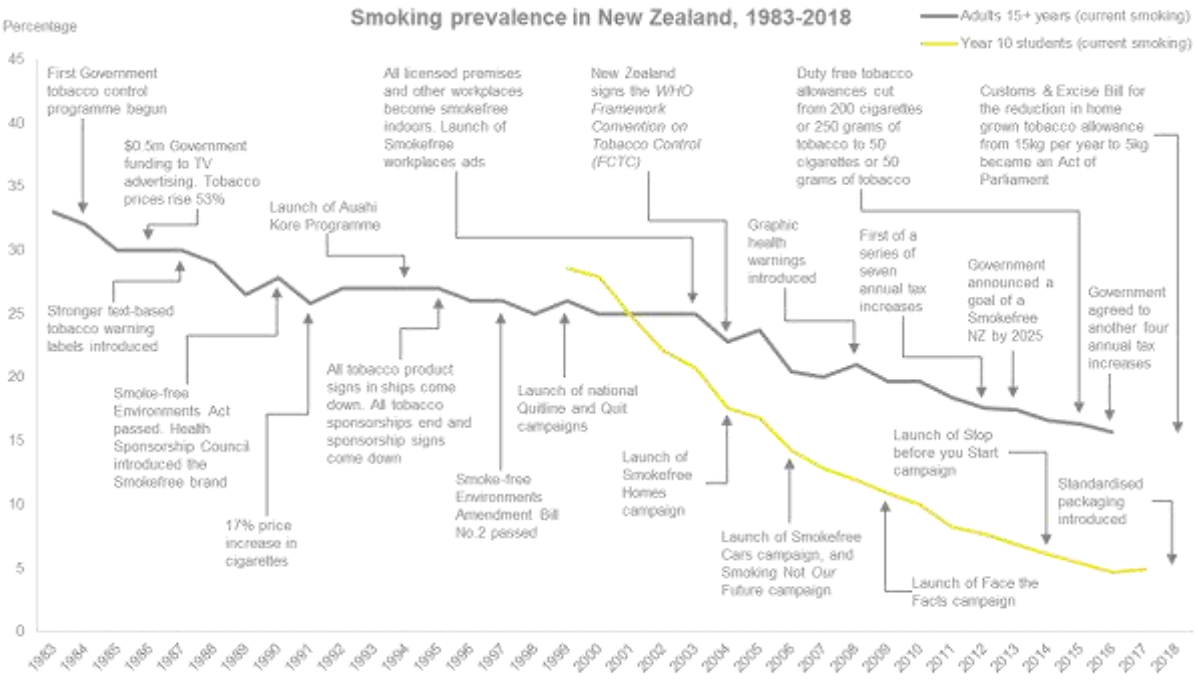
		Unweighted count #					Weighted %				
		Total	**European + Other**	**Māori**	**Pacific**	**Asian**	**Total**	**European + Other**	**Māori**	**Pacific**	**Asian**
Total		**1,507**	**715**	**499**	**186**	**107**	**100%**	**67%**	**12%**	**6%**	**14%**
Region[1]	Auckland	**516**	191	123	132	70	**35%**	18%	3%	4%	10%
	Canterbury – West Coast	**173**	130	27	6	10	**14%**	11%	1%	0%	1%
	Wellington – Wairarapa	**172**	94	44	25	9	**11%**	8%	1%	1%	1%
	Waikato	**156**	74	72	6	4	**9%**	7%	2%	0%	1%
	Taranaki – Manawatu – Whanganui	**107**	60	37	6	4	**7%**	6%	1%	0%	1%
	Otago – Southland	**70**	41	24	5	0	**7%**	6%	1%	0%	0%
	Bay of Plenty	**118**	46	66	2	4	**6%**	4%	1%	0%	0%
	Gisborne – Hawke's Bay	**85**	30	52	1	2	**4%**	3%	1%	0%	0%
	Northland	**80**	29	46	2	3	**4%**	2%	1%	0%	0%
	Nelson – Marlborough – Tasman	**28**	19	7	1	1	**3%**	3%	0%	0%	0%
	Not specified	**2**	1	1	0	0	**0%**	0%	0%	0%	0%
Household Income (per year)[2]	Less than $40,000	**557**	232	227	68	30	**34%**	22%	6%	2%	4%
	$40,000 to $70,000	**336**	155	116	39	26	**22%**	15%	3%	1%	3%
	$70,000 to $100,000	**203**	109	52	24	18	**15%**	10%	1%	1%	3%
	More than $100,0000	**189**	109	44	23	13	**14%**	11%	1%	1%	2%
	Not sure / do not wish to specify	**222**	110	60	32	20	**15%**	10%	1%	1%	3%
Trimmed average yearly income (all sources) ($)		**1285**	605	439	154	87	**$59,164**	$62,098	$45,764	$55,309	$61,607

[1] Regions have been based on the postcode and / or town specified by the respondent. n=2 respondents did not specify their location.

[2] Income has been based on midpoints from question D3 and calculated as a trimmed average which is the average computed after deleting the lowest 5% and highest 5%. Not sure responses have been removed from the calculations.

Note: Percentages within each ethnicity may not sum to the total row and column due to rounding.

Appendix E: Summary of New Zealand smoking prevalence and key tobacco control interventions since 1983



Source: Health Promotion Agency

Appendix F: Interaction models

To consider the combined effect of household composition, demographics and tax increases on expenditure, interaction models were developed.

For the 2006/07 HES, which had the smallest tax increase, there was no significant interaction effects between the tax increases and:

- Ethnicity, but the effect of ethnicity alone was significant with Māori / Pacific people likely to spend less on Tobacco
- Gender, and the effect of gender was not significant
- Age group, but the effect of age group alone was significant with 15-24 year olds likely to spend much less on tobacco than 25-44 year olds and those 45 and over
- Household composition, but the effect of household composition alone was significant with households with couples likely to spend more on tobacco.

For the 2009/10 HES, which had two tax increases, there was no significant interaction effects between the tax increases and:

- Ethnicity, but the effect of both the tax increase and ethnicity were significant with Māori / Pacific people likely to spend less on tobacco than Other people, and all ethnicities likely to spend less on tobacco after the tax increase
- Gender, and the effect of gender was not significant
- Age group, but the effect of both the tax increase and age group were significant with 15-24 year olds likely to spend much less on tobacco than 25-44 year olds and those 45 and over, and all age groups likely to spend less on tobacco after the tax increase
- Household composition, but the effect of both the tax increase and household composition were significant with households with couples likely to spend more on tobacco, and all household types likely to spend less after the tax increase.

For the 2012/13 HES, which had two tax increases, there was no significant interaction effects between the tax increases and:

- Ethnicity, but the effect of both the tax increase and ethnicity were significant with Māori / Pacific people likely to spend less on tobacco than Other people, and all ethnicities likely to spend more after the tax increase (see **Figure 79**).

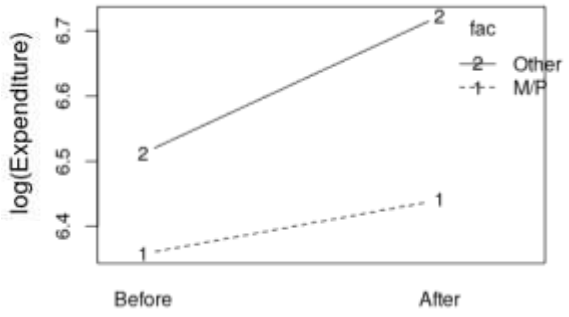


Figure 79: Interaction plot of ethnicity and tax increase on expenditure

- Gender, and the effect of gender was not significant (see **Figure 80**).

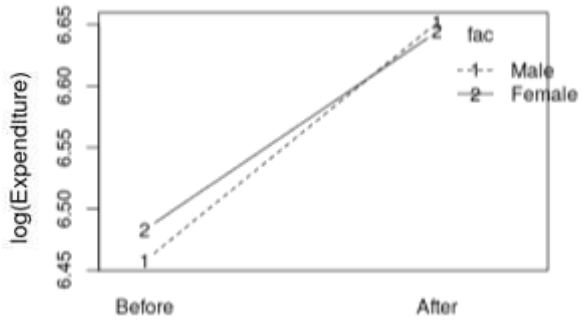


Figure 80: Interaction plot of gender **and tax increase on expenditure**

- Age group, but the effect of both the tax increase and age group were significant with 15-24 year olds likely to spend much less on tobacco than 25-44 year olds and those 45 and over, and all age groups likely to spend more on tobacco after the tax increase (see **Figure 81**)

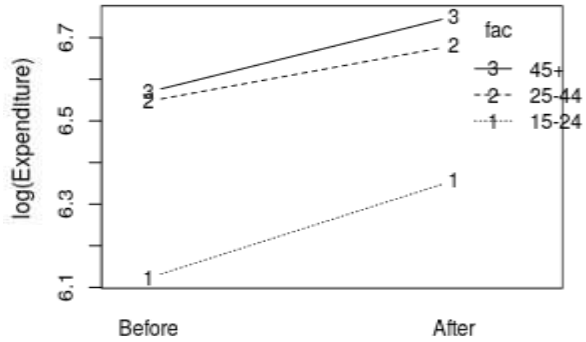


Figure 81: Interaction plot of age group and tax increase on expenditure

- Household composition, but the effect of household composition was not significant (**Figure 82**).

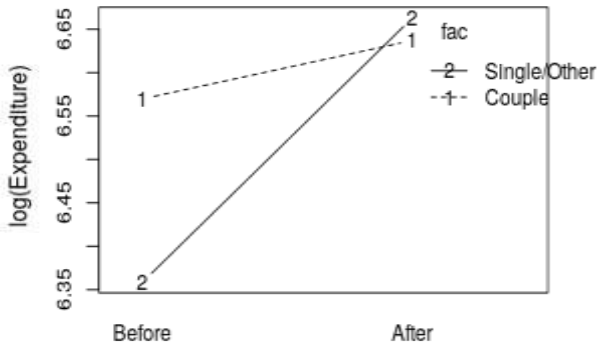


Figure 82: Interaction plot of household composition and tax increase on expenditure

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