

Price hikes, crime fad or political football? What caused a spike in store robberies for cigarettes in New Zealand: Analysis of news reports (2009-2018)

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Abstract

Purpose – A large increase in robberies of convenience stores in New Zealand (NZ) in 2016 and 2017 was anecdotally attributed to persistent and substantial increases in excise tax on tobacco products. This study aims to explore the validity of that claim by examining the characteristics of the robberies through the lens of online news coverage.

Design/methodology/approach – Google, Bing and main online NZ news outlets were searched for news reports between 2009 and 2018 of tobacco-related store robberies. Content analysis was used to extract characteristics such as date of robbery, type of store, items targeted or stolen and demographic profile of offenders. The prevalence of reported robberies by socioeconomic level of the surrounding community was assessed using nearest primary school decile rating. Descriptive statistics and statistical analysis were used to discuss trends and key findings in the data.

Findings – Reports on 572 robberies were unevenly distributed across the years with a large increase in 2016 and 2017, followed by a substantial decrease in 2018. Local community convenience stores were primarily hit – more so in lower socioeconomic communities. Robberies occurred nationwide and disproportionately so during colder months in lower socioeconomic communities. Many robberies were aggravated resulting in serious injury to shopkeepers. Tobacco and cash were predominantly targeted.

Social implications – The large increase in robberies that occurred in 2016–2017 likely resulted from tax-driven tobacco price hikes combined with reduced duty-free tobacco coming into NZ with travellers. Installation of security in stores, news fatigue and other explanations are potential reasons for the 2018 decrease in reported robberies despite tobacco prices increasing. Frequent robberies of local stores, many including violence, should be a public health concern as destruction of community well-being can be a determinant of other health problems. The negative consequences for communities, particularly lower socioeconomic communities, need to be factored into the cost benefit analysis of raising the tax on tobacco.

Originality/value – This study provides much needed detail on the negative health and social consequences of tobacco-related store robberies.

Keywords Tobacco, Tax, Robbery, Cigarettes, Community health, Black market

Paper type Research paper

Introduction

An estimated 7 million people die from smoking-related deaths globally per annum ([World Health Organisation, 2020](#)). Taxing tobacco, one of many strategies prescribed in the World Health Organization Framework Convention on Tobacco Control, is lauded as the single most effective solution to reduce tobacco smoking ([Blakely et al., 2016](#)). Proponents of taxation claim that it is the quickest and most effective trigger to encourage smokers to quit smoking and to prevent young people from taking up smoking ([Cleghorn et al., 2018](#); [Hawkins et al., 2018](#); [World Health Organisation, 2015](#)). In many countries with advanced

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tobacco control programmes, smoking is disproportionately concentrated among low-income groups (Dutra *et al.*, 2019). The regressive effects of tobacco price hikes are known to exacerbate financial insecurity among socioeconomically disadvantaged people who cannot, or who do not want to, quit (Liu, 2018). For this minority, taxing tobacco can become a driver of smoking by increasing stress associated with financial insecurity (Kendzor *et al.*, 2017).

Some proponents of tobacco taxation argue that a tobacco tax is progressive (Hoek *et al.*, 2020). They acknowledge that financial hardship among the poor will be exacerbated, but they claim net positive effects will occur because overall, a greater number of people will stop smoking (Wilson *et al.*, 2018). This utilitarian rationalisation ignores the lack of effect for, and the harm done to, minority or marginalised groups (Glover *et al.*, 2020), a “dark logic” contrary to public health ethics (Bonell *et al.*, 2015).

An additional and unintended consequence of taxing tobacco is the consequent rise in demand for cheaper tobacco. Trade in illicit tobacco that is stolen or smuggled across borders will increase and demand for homegrown tobacco may increase, although little public health research has focussed on these sources of tobacco. Illicit trade may expose people to criminal-related harms, such as violence-related injury and death, property damage, criminal convictions, fines and imprisonment.

To minimise this inconvenient consequence for public health, advocates for an excise tax on tobacco dismiss tales of a black market and tobacco robberies as a fearmongering strategy the tobacco industry uses to reduce support for tobacco tax rises (Gallagher *et al.*, 2019; Ross *et al.*, 2017).

Tobacco taxes have also been questioned as to their effectiveness in reducing adult smoking as evidence that tobacco taxes reduce adult smoking is relatively sparse (Wamamili and Garrow, 2017). Anti-smoking attitudes are said to be more effective in reducing smoking, particularly among younger people (Callison and Kaestner, 2012).

History of tobacco tax increases in New Zealand

Similar to many other countries, New Zealand (NZ) has run a comprehensive tobacco control programme that has escalated in intensity and breadth since 1963, when it banned tobacco product advertising on television. The United States Surgeon General’s report on the risk of smoking tobacco to health a year later (1964) encouraged what has become a continuous anti-smoking campaign.

Interventions to encourage quitting and to prevent smoking initiation and exposure to second-hand smoke have included mass media campaigns (1963 onwards), public advertising bans (1973) and health warnings on cigarette packets (1974). In the 1980s, the NZ Government initiated a tobacco control programme that saw increased and repeated use of taxes on tobacco (1984), environmental bans on smoking (1987), free cessation counselling (from 2000) and from 2006 heavily subsidised or free cessation medications. In 2014, NZ customs reduced the allocation of tobacco allowed to be brought into the country by travellers, from 200 cigarettes to 50 (or 50 gms). At regular intervals over the years, restrictions on tobacco product trade and use are extended, regulations governing trade are made more burdensome and punishments for breaches are increased in severity. For example, health warnings on packs was supplemented with plain packaging in 2018 (Salmond *et al.*, 2011; Trainor, 2021).

In addition to adjustments to ensure consumer prices keep pace with inflation, raising the price of tobacco via taxes changed from an occasional strategy (dating back to 1879 in NZ [Douglas, 1995]) to an annual programme. Imposing excise tax on tobacco has not been without its critics. In 2001, the NZ Treasury rejected the use of “corrective” taxes on tobacco products (Tax Working Group, 2018). From 1999 to 2008, the government suspended

tobacco excise tax hikes. A change of Government ushered in a sustained programme of annual 10% tobacco excise tax increases from 2010 (Cobiac *et al.*, 2015) until 2020. In addition, the duty on loose tobacco was raised by 25% in 2010 to stem the consumer shift from manufactured to loose tobacco because of a tax differential (Ernst and Young, 2018). By 2018, NZ had the highest level of tobacco excise tax in absolute terms and in relation to gross domestic product per capita in the Organization for Economic Cooperation and Development (TDB Advisory, 2018).

Trends in convenience store robberies in New Zealand

In 2016, the NZ media began to report with increasing frequency that dairies, the colloquial term for small local general stores, and petrol stations were being robbed for tobacco products. Tobacco product sales for dairies are a critical product accounting for about 50% of their weekly revenue (Marsh *et al.*, 2013; Witt *et al.*, 2018). Controversy ensued when some politicians and commentators claimed that the high price of tobacco was the cause (Newstalk ZB, 2016; Otago Daily Times, 2018; Taxpayers Union, 2017). Tobacco control commentators (for example, Norman cited in Hāpai te Hauora, 2018) said the assertion that the robberies had anything to do with taxing tobacco was a tobacco industry ploy to subvert the Smokefree 2025 campaign (promoting a goal for NZ to reach a smoking prevalence of 5% or below by the year 2025). Proponents of the tobacco excise tax defended it saying that if stores were being robbed for tobacco, they should simply stop selling tobacco (Newshub, 2017).

A high volume of news items and opinion pieces about the prevalence and cause of the tobacco-related robberies continued for over a year. Concern over the violent attacks on shop owners increased. Because of a lack of reliable information on the phenomenon, in 2018 the NZ Government commissioned an evaluation of the effects of the tobacco excise increases, including unintended negative consequences (Ernst and Young, 2018). No conclusions regarding the robberies were produced due to a lack of longitudinal data on tobacco-related crime in NZ.

One source of longitudinal data that could provide some insight into the potential link between tobacco price increases and tobacco-targeted robberies and the likely trajectory of such crime are news reports. The present study sought to determine the nature and characteristics of the robberies of convenience stores for tobacco products as reported in the NZ online news media during the period between 2009 and 2018. This research aimed to determine how widespread the robberies were, who was conducting them and if the apparent increase was likely to be related to the increased prices in tobacco products.

Methodology

The study design is underpinned by a critical public health perspective (Green, 2006). Critical public health encourages review of public policies especially when there are unexpected negative consequences and societal costs. The public's experience of the consequences of policy is valued even if it raises questions about public health policy. In the case of tax on tobacco, the literature has predominantly focussed associating tax with decreased smoking. There has been some acknowledgement of a relationship between increased price because of taxes on the black market in tobacco and the crime associated with that. Very little attention has been paid to the aggravated robberies of stores for tobacco, which is the focus of our paper. Thus, we chose an exploratory method. We developed a database of NZ online media reports of convenience store robberies in which tobacco was a target or stolen item between 2009 and 2018 and extracted data using a content analysis method.

The search engines Google and Bing were used to systematically search for NZ online news articles of interest, using 20 keywords such as tobacco, cigarette, burglary, robbery, dairy, shop and store. Eighteen NZ news media websites were also searched using these keywords

including national sites: the *New Zealand Herald*, *Stuff*, *Sunday Star Times*, *TVNZ*, *Radio New Zealand* and *Newshub* and *Scoop*; regional focused sites: the *Dominion Post*, *Otago Daily Times*, *Christchurch Press*, *Hawke's Bay Today*, *SunLive*, *Kapiti Independent News*, *Gisborne Herald* and *Times-Age*; and ethnic-focussed sites: *Māori TV*, *Indian Newslink* and *Indian Weekender*. The New Zealand Police website was also searched as they post “news”.

Individual search results were excluded if they were blogs, social media posts, opinion pieces, letters to the editor or editorials. News articles were excluded if they reported robberies in non-store settings (e.g. residential area, car, bank, pub or club), if they did not have any new information about a robbery already in the data set or if the target or stolen items were not mentioned, and no information given was suggestive of tobacco being the likely target.

Articles to be analysed were assigned a unique identifier and a record was created in an Excel file. The articles were read and coded independently by a research assistant and a senior researcher. Their coding was compared. Differences were discussed until a consensus was reached. If a consensus could not be reached, the opinion of a third researcher was sought. The coding labelled article content as follows: name of store, date of robbery, date of article, store location (e.g. address, suburb, city and region), store type, target items, value of stolen items, injury or damage sustained and gender and indicative age of the offender(s). Data were entered into Excel. A senior researcher checked every tenth record for accuracy. If errors were found checking would have proceeded to progressively more records, e.g. every fifth and then every third until no errors were identified, but this was not required. Qualitative terms used in the articles, for example, to describe demographic information of offenders, were categorised and counted. The NZ Police database of robberies was obtained with a view to validating media reports. It was searched for unreported robberies and previously found robberies, but insufficient information was recorded. For example, the NZ Police database did not include what was stolen.

The socioeconomic decile band for the nearest state school (with priority given to a primary school, then secondary school) was used as an indicative measure of the socioeconomic level of the community where each robbery occurred. Local average household income, occupation, educational qualifications, parents receiving government income support and household crowding in the area are used to decide decile ratings. Across the population, state schools are divided into one of ten decile bands from 1 (poorest 10%) to 10 (highest socioeconomic 10%). The store address was confirmed using Google Maps. This was entered into *Education Counts* online “find a school” tool filtered by “state” schools only. The nearest state school was determined using the Google Maps (as the crow flies) “measure distance” function. A search of education.govt.nz school decile data was conducted to identify the rating for the nearest school. The proportion of Māori (the indigenous people) and Pacific Island students at each school was calculated from the *Education Counts* school population data.

An electronic database of the data is available from Zenodo: [10.5281/zenodo.5081307](https://zenodo.org/record/5081307).

Data analysis

Media reports were categorised by city and region and then separated into regions. All descriptive statistics were generated using Excel. The data were entered into SPSS v24 to compare the frequency of robberies by month for the period 2009 to 2018. These data were dichotomised into cooler (May to October) and warmer (November to April) months in the South Hemisphere and compared using a t-test.

Results

Our search yielded a total of 5,500 articles. Just over 5,000 articles were excluded for the following reasons: there were 3,148 duplicates; 839 reported on robberies occurring in other settings not relevant to our focus; 637 provided no new information; 295 articles were detected again; 84 had no details about target items, and the link no longer worked for eight articles.

After excluded articles were removed, a total of 489 articles reporting on 572 unique robberies remained. The day of robbery was missing for eight robberies, and those robberies were excluded from analyses requiring the day.

When robberies happen

There was a large increase in the number of robberies targeting tobacco products reported in the media in 2016 and 2017 (Table 1). In 2018, the number of robberies reported reduced by more than half. Reports of robberies were significantly more frequent during the colder months of the year (May to October) than during the warmer months (November to April) ($p = 0.014$, 95% CI) (Figure 1). Almost two-thirds of robberies occurred in the colder months ($n = 368$, 65%) and a third ($n = 201$, 35%) occurred in the warmer months. The highest number of robberies were recorded in August ($n = 91$).

Slightly more robberies reportedly occurred on Saturday, Sunday and Monday ($n = 288$, 51%) compared to Tuesday to Friday ($n = 276$, 49%) ($p = 0.01192$, 95% CI) (Figure 2).

Types of stores robbed

For the ten-year period of the study, retail stores robbed (Table 2) were mostly dairies (57.9%), followed by petrol stations (22.6%), liquor stores (9.1%), other types of convenience stores (5.1%), supermarket/grocery stores (2.3%), tobacconists or discount tobacco stores (0.7%) and other retailers (2.4%), which included discount stores, lotto retailers and diners.

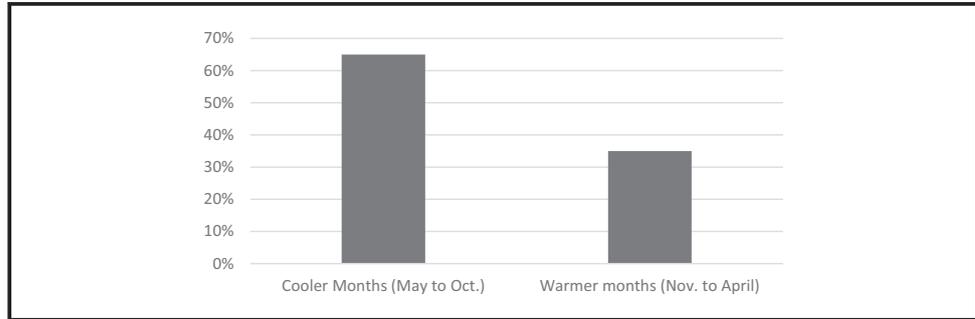
Items targeted or stolen

Of the total number of reported targeted items ($n = 924$), tobacco products ($n = 428$, 46.3%) and cash ($n = 398$, 43%) were the primary target items (Figure 3). Other items targeted included food or drink, alcohol and electronics ($n = 70$, 7.6%). There were a total of 16 (1.7%) other items (for example, phone cards, iTunes cards and petrol vouchers) and 12 (1.3%) reports with unspecified target items. A small number of these reports described foiled robbery attempts that matched the characteristics of tobacco-related robberies in other respects but because the robbers did not succeed at taking anything, target items were not mentioned. For example, one report described the robbers as three men wearing backpacks. Backpacks were used in a number of robberies to carry away the tobacco. Some of these reports were also talked about as

Table 1 Robberies by month and year (2009–2018)

Month	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
January	0	0	1	2	1	1	3	5	18	5	36
February	0	0	0	2	2	2	1	2	8	4	21
March	0	0	1	2	2	1	1	5	23	9	44
April	0	0	0	3	1	5	3	4	16	8	40
May	0	1	0	2	1	12	2	10	39	6	73
June	0	0	2	2	2	1	3	10	13	13	46
July	0	0	2	1	3	2	5	20	17	10	60
August	0	2	1	1	4	9	11	27	31	5	91
September	0	0	0	1	2	8	7	15	23	11	67
October	0	0	1	3	4	3	0	13	5	2	31
November	1	0	0	1	1	1	3	5	6	6	24
December	1	0	1	3	0	5	2	18	0	6	36
Missing								2	1		3
Total	2	3	9	23	23	50	41	136	200	85	572

Figure 1 Robberies in cooler and warmer months (2009–2018)



being potentially linked to other tobacco-related robberies occurring the same day by the same robbers.

Injuries or damage reported in robberies

Media reports contained details of 100 (24%) unique incidences of physical injury being inflicted (Figure 4). Physical injuries ranged from minor scratches to a fractured eye socket and a broken jaw. Negative psychological injuries were mentioned more frequently, accounting for 31% of the total number ($n = 413$) of injuries or damage reported. Over 20% (22.5%) were specific to negative mental health consequences for store workers, such as problematic changes to sleeping habits, feeling haunted by memories of being attacked and or threatened and having flashbacks to the attack. One report stated that the victim could not shake the memory of the attacker grabbing them by the neck and holding a hammer to their head. Damage to the retailer's property or fittings was mentioned almost as often as physical injuries ($n = 98$, 24%) and stolen vehicles were reportedly used in association with a robbery 86 times (21%). Vehicles were used in ram-raid style robberies and as getaway vehicles.

Robberies by region

The frequency of the robberies across the regions of NZ is shown in Figure 5. The highest number of reported robberies occurred in NZ's largest supercity of Auckland (97), followed by the regional areas of the Waikato (97), which includes the city of Hamilton and

Figure 2 Robbery by day of week (2009–2018)

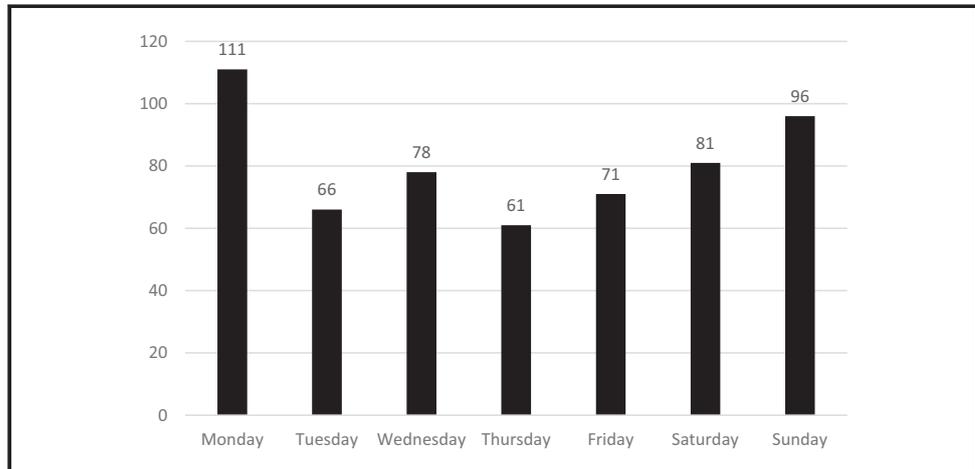


Table 2 Reported robberies by type of store from 2009 to 2018

Type of store	Year of robbery										Total	(%)
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
Dairy	2	2	8	16	15	30	22	74	108	54	331	57.9
Petrol	0	0	0	1	1	12	10	34	57	14	129	22.6
Liquor	0	0	0	1	3	5	7	9	18	9	52	9.1
Convenience store	0	0	1	1	3	1	1	9	8	5	29	5.1
Supermarket/grocery	0	1	0	3	0	1	0	4	3	1	13	2.3
Tobacconist/discount tobacco store	0	0	0	0	0	1	0	3	0	0	4	0.7
Other	0	0	0	1	1	0	1	3	6	2	14	2.4

Canterbury (96), which includes the city of Christchurch. The lowest number of robbery reports was for the regions of Gisborne and the West Coast, with only five robberies reported during the period from 2009 to 2018.

Robberies by community socioeconomic level

The number of reported robberies was significantly higher in the five lowest socioeconomic areas as indicated by the nearest state school's decile rating, compared to the five higher socioeconomic areas ($p \leq 0.01$, 95% CI) (illustrated in [Figure 6](#)).

Age and sex of offenders

Of the total number of reported times some demographic information about offenders was indicated ($n = 432$), "men" or "man" were the most frequent terms used (see [Figure 7](#)). Other terms used less frequently (between 9 and 42 times) included: young men, boys, women, young women/girls and teens.

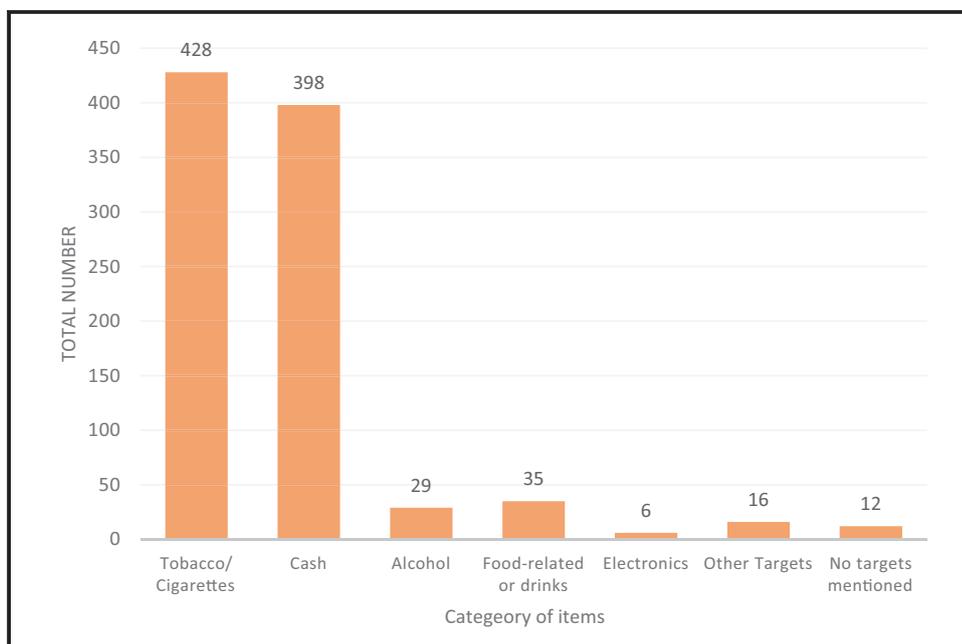
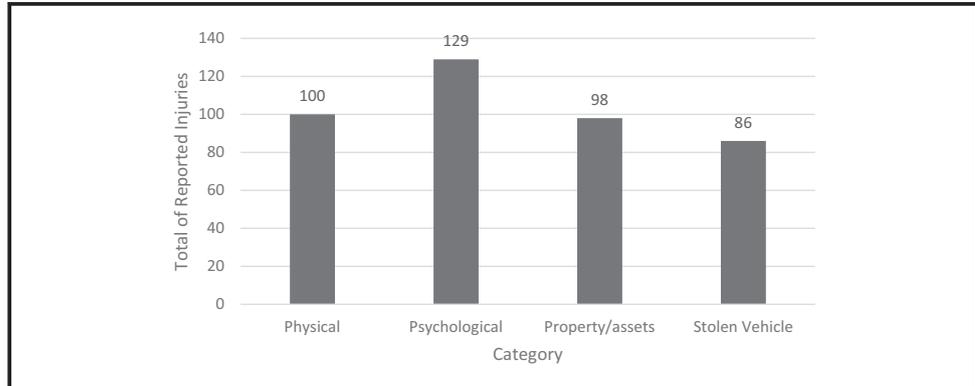
Figure 3 Items targeted in robberies (2009–2018)*

Figure 4 Injuries incurred in robberies (2009–2018)



Discussion

Media reports of robberies of retail stores for tobacco products suggest a large increase in robberies occurred in NZ over 2016-2017. The simplest explanation is that as licit tobacco became increasingly unaffordable, demand for blackmarket tobacco increased. This led to an increase in store robberies to obtain tobacco for personal use or to supply the black market.

By 2018, annual increases in tobacco excise taxes over the previous decade had raised the price of cigarettes in NZ to the highest in the world, relative to income. For example, a person on the minimum wage would need to work at least a quarter of a year to cover the cost of their cigarettes (Thomas, 2018). In 2016, the excise duty per cigarette was almost 67 cents (US 42c) and a pack of 20 average brand cigarettes cost \$23 (US\$15.32). By December 2018, the same pack cost \$27.65 (US\$18.42) and by March 2019 the price had reached \$30 (US\$19.98).

Meanwhile, other sources of cheaper licit tobacco were being eroded. In 2014, the government reduced the duty-free allowance from 200 cigarettes to 50 cigarettes or 50 grams of tobacco. At the same time, the gift concession (amount of tobacco allowed to be sent from overseas tax-free or the amount someone was allowed to bring into the country as a gift) was removed (NZ Customs Service, 2021). In 2016, the government also signalled that from 2019 the allowance for growing tobacco for personal use would reduce from 15 kilograms to 5 kilograms per year (KPMG, 2019).

Figure 5 Reported robberies by region (2009–2018)

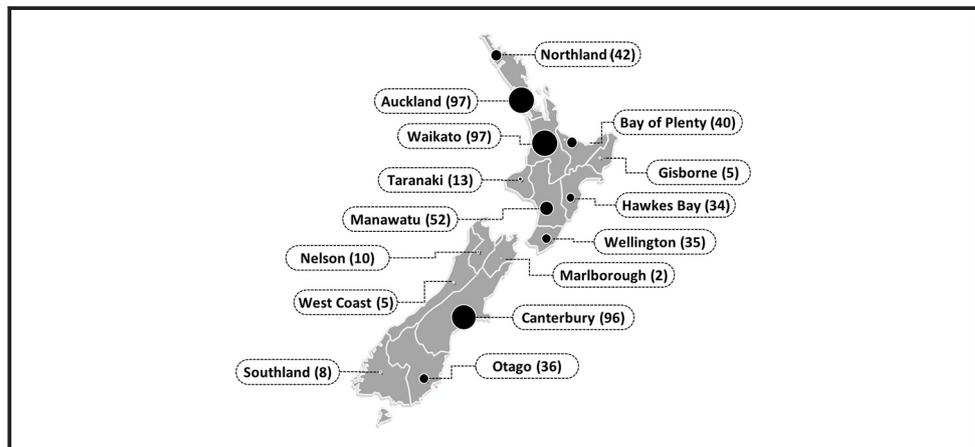
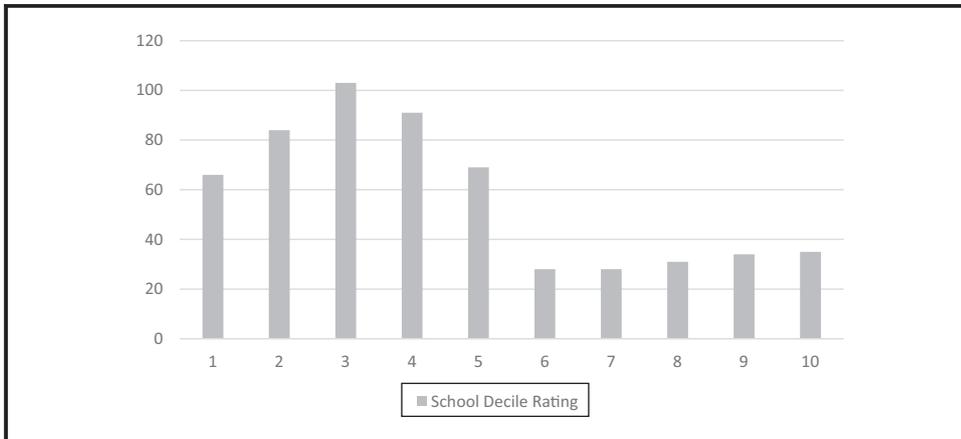


Figure 6 Reported robberies by nearest state school decile rating

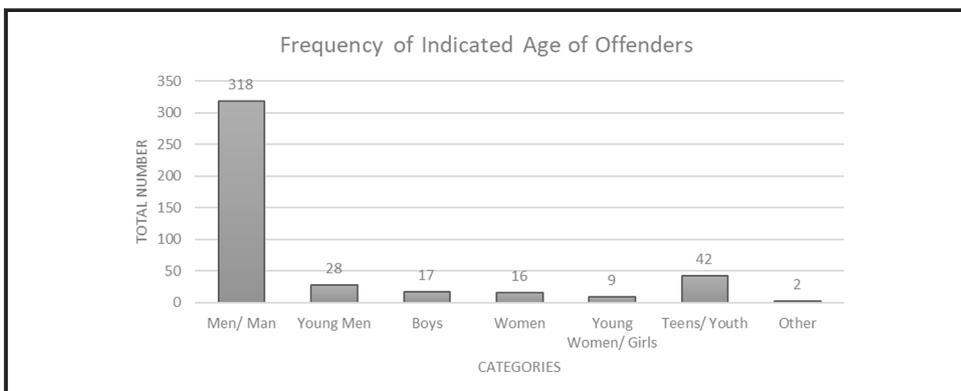


Our analysis of media reports suggests that robberies were more likely to occur during winter. This finding supports the proposition that the high price of tobacco products is associated with the increase in robberies. The cost of living increases during winter; for example, heating costs take a greater proportion of household income. Demand for food parcels and government assistance to buy food is also known to increase in winter (Salvation Army, 2018). In NZ, smoking prevalence is disproportionately higher among people living in the most deprived neighbourhoods. Specifically, according to Ministry of Health (2020) data, smoking prevalence rates are 25.9% in quintile 5 and 16.5% in quintile 4, compared with a smoking prevalence of just 6% among quintile 1 – the least deprived neighbourhood residential areas.

Reduced disposable income during winter could increase demand for blackmarket tobacco. A contrary explanation is that robberies, particularly property theft, increase during winter due to increased hours of darkness, though Linning *et al.* (2017) acknowledge necessity could be a real determinant of higher thefts committed in winter.

Some tobacco control advocates, who lobbied for the exorbitant tobacco prices, dismissed the reports of tobacco-related robberies, saying they were fabricated tobacco industry tales (Norman cited in Hāpai te Hauora, 2018). The claim was that the tobacco industry overestimates the size of the illicit tobacco market to, in this case, destabilise tobacco control's goal for NZ to reach a smoking prevalence of 5% or below by 2025 (Hāpai te Hauora, 2018).

Figure 7 Reported gender and age of offenders (2009–2018)



The continuous increase in media stories – including personal testimony, video footage of robberies in action, photographs of injured retailers and convictions of offenders – was strong proof the robberies were happening. In retrospect, the phenomenon had all the features of a moral panic (Goode and Ben-Yehuda, 1994). There was a heightened level of *concern* about the robberies between May 2016 and September 2017 (when media reports dramatically reduced to pre-May 2016 levels). The intensity of the focus on the robberies during this time was *disproportional* to the reaction to similar robberies outside of that period. Goode and Ben-Yehuda (1994) call this *volatility* – that is, moral panics erupt, but typically are short-lived. The other two features that were evident were that there was an increased expression of *hostility* towards the offenders, and the topic gained *prominence* by moving from stories in local newspapers to filmed reports on national television. There was a *consensus* of sorts that a problem existed, and there was heated debate about the possible causes and solutions.

Media reports of robberies abruptly reduced from October 2017, whereas the price of tobacco products continued to rise. This raises questions about the association of tobacco prices to the robberies. However, there are several reasons why robberies may have decreased. Firstly, in response to retailer and community concerns about their safety the Government financed or subsidised the installation of sirens and fog cannons (McKay, 2019; Smith, 2019) in dairies and liquor stores classified as high-risk targets (Clent and Forbes, 2020). Secondly, increased priority was given for crime prevention officers to work with young offenders. Thirdly, the NZ Police were tasked with educating retailers about changes they could make to deter robbers, such as rearranging shop fittings so customers would be more visible to the shop attendant and removing signs from the windows to make the inside of the store more visible from the outside. Fourthly, some dairy owners stopped selling tobacco (Auckland District Health Board, 2018), but this is unlikely to account for the significant drop off. Previous research found that few dairy owners were interested in stopping the sale of tobacco (Paynter *et al.*, 2016; Witt *et al.*, 2018).

Fifthly, an increase in sales of significantly cheaper (per week) alternative nicotine products, such as electronic cigarettes and oral nicotine pouches, could have diverted demand for blackmarket tobacco. Daily vaping (of e-cigarettes) among adults (15+) rose from 0.9% in 2015/16 to 3.2% in 2018/19 (Ministry of Health, 2019). Finally, there was an increase in large-scale seizures of smuggled tobacco over 2015-2018, which Customs NZ concluded is an indicator of increasing interest in tobacco among organised criminal groups (Ernst and Young, 2018). An increased supply of smuggled tobacco would have reduced the need to steal tobacco from NZ retailers.

Other explanations for the decline in media reports also exist. Some retailers could have stopped reporting robberies to the police. Some news articles reported that retailers felt the police were not responding to incidents as quickly as they once had, or they only responded to incidents considered severe (Smith, 2019). To illustrate this, one liquor store owner said “we had not bothered to report it to police again. I am sure that’s the case with many other dairy store owners” (Singh, 2018).

A final and very likely contribution to the reduction in reporting was media fatigue. Specifically, these robberies lost their ‘news’ value (Cere *et al.*, 2014) because they were happening so frequently as to become everyday occurrences. We found media reports on 336 robberies in 2016 and 2017, that was an average of 3.2 robberies per week. It is also a possibility that media were pressured (a strategy reported in Thrasher, 2014) to suppress stories about the negative consequences of tobacco tax rises to protect tobacco control’s desire for tax increases to continue.

The abrupt reduction in reporting after the 2017 election, which resulted in a change of Government, fits Goode and Ben-Yehuda’s (1994) theory of moral panic. During the pre-election campaign period, *special interest groups* and *elites* who wanted a change of

Government may have exploited the *grassroots* concern about the increase in tobacco-related robberies to foment a panic. Sensationalising the violence involved in some of the robberies, stigmatising youth as culpable, and blaming the Government's tobacco tax increases may have been an expedient discursive vehicle with which to build a consensus for change (see, for example, [Kaika's \(2003\)](#) analysis of a constructed crisis for political ends). Such a proposition may seem far-fetched, but if any such motivations were behind the frenzy of reporting it is a serious matter for public health, as media coverage of crimes can have the unintended effect of triggering copy-cat incidents, or in the case of the NZ tobacco-related robberies, a crime fad ([Simon, 2007](#)).

Robberies undermine community health

The media reports suggest that dairies were the most targeted type of store robbed for tobacco products. This is not surprising, given that almost half of the adult population who smoke buy their tobacco from a dairy ([Ernst & Young, 2018](#)). In 2018, there were about 4000 dairy-type convenience stores in NZ ([Retail NZ, 2018](#)). By comparison, in 2014 there were over 12,000 liquor stores ([M.E Consulting, 2018](#)), and in 2008 there were over 1000 retail-supported petrol stations ([Polkinghorne, 2016](#)).

Gaining official and legal recognition in 1945, dairies became an essential provider of milk, bread, sweets, cigarettes, newspapers and small amenity items. Often the only general grocery supplier in many neighbourhoods and remote rural areas, the dairy was a place to connect with others and catch up on local news ([Retail NZ, 2018](#)). They have been mostly friendly family-run businesses with an open and low security design – shops parents felt safe sending their young children to on their own for an ice cream. Many generations of New Zealanders have grown up visiting the dairy for a bag of sweets or a pie after school. In NZ, the local dairy was an iconic cultural space. The continued centrality of dairies to community life was recognised during the severest government COVID-19 lockdown measures when only essential businesses, of which dairies were considered to be one, were allowed to stay open ([Harrison, 2020](#)).

The high price of tobacco products has made a pack of cigarettes of similar value to some jewellery ([Wood, 2017](#)) and they carry equivalent risks ([KPMG, 2019](#)). The threat of aggravated robbery is seeing dairies transformed. Visibly the shops are changed by the addition of security grills and bollards. Aggravated robbery has turned some dairies in some areas into a “nuisance property.” Nuisance properties are residential or commercial properties that attract crime and violence, such as, liquor stores, tinny/drug houses, loan lender premises, vacant homes and empty lots. Nuisance properties are disproportionately located in low-income communities ([Subica et al., 2018](#)).

This should be a concern for public health because crime and violence can have long-lasting effects on communities. Residents and/or whole communities may feel vulnerable and unsafe after a robbery, especially a violent robbery. This can be particularly true if there is any suspicion that the offenders were from the community and or that the community benefitted from the robberies ([Subica et al., 2018](#); [Heesemann and Yakubenko, 2019](#)). This can lead to some communities experiencing a breakdown in residents' social ties, residents and businesses leaving the area (i.e. increased residential transience), a degrading of property values in the area and subsequent worsening of neighbourhood deprivation. Wellbeing across numerous health indicators is worse in the most deprived neighbourhoods (Ministry of Health, 2019).

The reported robberies appeared to occur more frequently in low socioeconomic areas compared to higher socioeconomic areas. One reason could be simply that there are more tobacco retail outlets in these areas. Smoking prevalence is higher in these communities and unsurprisingly a higher density of tobacco retail outlets are situated in these communities in NZ ([Marsh et al., 2013](#)) and Australia ([Dalglish et al., 2013](#)). This means however that the negative

consequences of the tobacco robberies will disproportionately impact poorer communities compounding the range of poorer economic and social determinants undermining their wellbeing. This has equity implications for indigenous and other marginalised minority ethnic groups who also have disproportionately high smoking prevalence rates.

Limitations

A strength of this study was the inclusion of all media stories that met our criteria, rather than just a sample. The study was limited by the reliance on online news articles. Link rot (when Web links destruct or disappear with time (Koehler, 2004)) was a potential limitation. News agencies frequently change their policies that determine what stories will be uploaded and which stories will be archived. For instance, stories with greater 'long-tail potential' are more likely to be retained, whereas the 'police blotter' stories might only be reported in local printed papers. Over time whole websites can disappear, change their content or move to a new location making all URL addresses to the previous site redundant. Link rot is a major cause of citation failure (Koehler, 2004; Parker, 2007; Klein *et al.*, 2014).

There can be a difference between online and print media stories. People read electronic media differently than they do print media. Online readers tend to scan and search for items that stand out, such as bullet points and boldface phrases. Therefore, online articles are adjusted for quick readability (Rello *et al.*, 2016) and content of interest to researchers may be lost. Content about the tobacco robberies posted on social media was not included in this study. Thus, we were not able to consider the role that social media posts have on encouraging moral panics (Walsh, 2020), copy-cat crimes or a crime fad. Outside of the database of articles analysed there were reports that some offenders were "bragging" and posting photos of themselves with the tobacco and cash they claimed to have robbed (Sherwood, 2018). Further research could interview people convicted of tobacco robberies to determine their motivations and evaluate them for goodness of fit against our findings.

Although a complete sample, the news stories of the robberies may not be representative of the total number of robberies in which tobacco products were targeted or stolen. In July 2017, a major national television news show reported that Police had noted 1237 such robberies between June 2016 and July 2017 just in South Auckland (Hine, 2017). However, we were unable to match the robberies in our data set with the data we obtained from the Police and thus we agree with the Ernest & Young (2018) report that no reliable source of data existed at that time. To enable governments to respond more rapidly to reduce or prevent crime, especially when significant violence is involved, we recommend that the police note at least the broader categories of items targeted in convenience store robberies.

International and local media have a bias to report the most serious crimes, particularly those that occur in a public place, involve violence, feature shocking visuals and implicate youth (Binnie, 2016; Cere *et al.*, 2014; Riches, 2014). As a result, robberies that did not involve weapons or violence may not have been reported. Additionally, media capacity to investigate and report on crimes is limited, thus news outlets may not have been able to cover multiple robberies occurring on the same day in different parts of a large city.

The lack of consistency in what details were reported, and the vagueness or omission of some information about the location or details of a robbery, limited data analysis in this study. Human coding of qualitative content and data entry could have introduced error, but this was minimised by use of a second coder achieving an acceptable inter-rater reliability score and validating data entry.

Conclusion

Tobacco taxes are rarely used in isolation, limiting assertions of a clear causal relationship between tax increases that are intended to reduce tobacco consumption and any

subsequent decrease in smoking prevalence. Usually, illicit tobacco flows between countries further compounds analysis of the effect of taxing tobacco. NZ's unique ability to limit cross-border supply of illicit tobacco and an advanced tobacco control programme provides a globally unique opportunity to study what happens if tobacco is priced beyond many people's means in the absence of cheaper tobacco.

Proponents of high excise taxes on tobacco products claim that exorbitantly high tobacco prices stimulate quitting among people who smoke and will result in reduced health inequalities. That is not evident in NZ. Although smoking prevalence has reduced, the inequity in smoking prevalence between the least deprived and most deprived groups is widening (Ernst and Young, 2018). Indigenous people with disproportionately higher smoking rates are especially at higher risk of policy-related harm. There are strong ethical and social justice arguments for abandoning attempts to price tobacco beyond the means of the lowest income groups, the groups with disproportionately high smoking prevalence.

This study could not establish if the reported increase in tobacco-related robberies was caused by the tobacco pricing strategy. A range of strategies to reduce access to cheaper tobacco were instigated alongside the tax increases. That robberies apparently dropped off, whereas tobacco prices continued to rise undermines the hypothesised link between tobacco prices and robberies. However, apparent increases in smuggled tobacco, an increased migration from smoking to alternatives such as vaping, increased security measures at point of sale to deter robbers, and the arrest and imprisonment of many offenders could have alleviated the pressure on retail stores as a source of cheaper tobacco. Alternative explanations for the increase in robberies exist, but their occurring as a result of an engineered moral crisis, though possible, seems far-fetched.

Aggravated robberies of community-based stores can have serious negative public and community health effects. The injury to retailers and staff, the increased criminalisation of people drawn into the illicit tobacco trade, including people who have to seek out cheaper tobacco, and other factors need to be considered when assessing the costs versus benefits of ever-increasing the tobacco tax. Although no further tax increases are indicated from 2021, tobacco remains unaffordable for a large proportion of people who continue to smoke. It is hoped that the August 2020 regulation of vaping products, not imposing an excise tax on vaping products, and the mass media campaign encouraging people who smoke to switch to vaping will trigger a rapid reduction in smoking prevalence, especially among the lowest income groups. But, public health authorities need to acknowledge that a minority of people who smoke do not ever want to stop smoking (15% in 2018, according to a Ministry of Health survey (cited in Ernst and Young, 2018)). A harm reduction approach would be better (and ethically superior) to the current utilitarian approach that completely disregards the negative consequences of tobacco control policies for this minority.

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