A MULTI-DISCIPLINARY STUDY INTO THE DRIVERS OF SMOKING CESSATION IN AUSTRALIA

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Credits: R. Davis (picture p.30), World Health Organization (pictures p.50, 53, 55, 58)

Preface

Smoking is one of the main risk factors for health. Tobacco consumption contributes to a variety of non-communicable diseases, including cancer, heart disease, stroke, chronic respiratory diseases, and diabetes. The WHO (2019) estimates that tobacco consumption is the leading cause of death for smokers; about one in every two smokers dies from smoking-related causes every year. Approximately eight million people a year die from diseases associated with smoking. In response to this, over the past four decades, numerous countries have introduced successful tobacco control policies, which have resulted in longer and healthier lives for their population. Since 2000, Australia, United Kingdom, Sweden and Canada have reduced their smoking prevalence by more than 40%, while Colombia, Norway, and Iceland have done so by more than 50%. Despite this, smoking persists, even in those countries where policies have been implemented, and especially among more disadvantaged social groups. Moreover, smoking reduction policies in other countries have hitherto not been as successful. Indeed, smoking rates in Egypt, Oman, Morocco, and Croatia have steadily increased from 2000 onwards.

The relatively long history of smoking cessation policies allows for a better understanding of what works, what does not, why, and how. Today, policy-makers seeking to further reduce the morbidity and mortality associated with tobacco smoking can learn from the experiences of countries that have succeeded in reducing smoking. However, the social, cultural, and regulatory complexity of smoking habits prevents any straightforward replication of successful policies within a different context, a different country, and a different period. Simply put, no law exists in a vacuum; rather, manifold factors simultaneously determine the success or otherwise of any policy. Yet, sound scientific research and reasoning do allow for the construction and verification of hypotheses and theories about how to replicate cessation elsewhere. Above all, the development of this knowledge will be of particular value for those nations that do not have successful histories of tobacco control; these are very often developing nations in which the vast majority of the world's smokers currently reside (World Health Organization, 2019).

Australia constitutes an ideal case-study through which to achieve this aim. This is because Australia is recognized as a leading country in tobacco control worldwide, due to its long history of tobacco control policies having lowered smoking prevalence over the years. This success was achieved via the combination of strict anti-tobacco regulations and strong social sensitization through enduring anti-smoking campaigns. At the same time, Australia represents a paradoxical situation, insofar as people have easier access to nicotine through traditional tobacco products than they do via the use of Electronic Nicotine Delivery Systems (ENDS), despite the latter being significantly less harmful to health than the former. These features, combined with the abundance of empirical studies on the country, allow for a sound and comprehensive policy analysis.

Adopting a rational approach to the analysis of policy experiences is critical for providing concrete guidance on how to reduce smoking. In this respect, policy-makers have to walk a delicate line that involves carrying out careful study prior to the enactment of new laws, alongside displaying evidence-based regulatory flexibility in implementing and enforcing these laws. The potential consequences from cutting funding to anti-smoking media campaigns, banning certain products, or increasing taxes, should be weighed

carefully to best serve the public interest for both current citizens and future generations. In the field of smoking policy, too often positions become polarized along ideological lines instead of being based on empirical evidence. Ordinarily, there is the argument between, on the one hand, the abstinence approach—from those who want nicotine to be completely banned because of the damage smoking poses to health—and, on the other, the harm reduction approach—from those who recognize the fact that some people still smoke despite all the adopted measures. The need to move beyond ideological positions and adopt a more pragmatic approach is particularly pertinent with respect to ENDS, which lie at the core of the present study.

VII. Analysis and Findings

The identification of the historical drivers of smoking cessation in Australia

Carlotta Carbone, Alberto Aziani and Serena Favarin

Starting from these premises, the current study aims to identify the historical drivers of smoking cessation in Australia, specifically by understanding the effectiveness of their smoking cessation policies and investigating the potential role of ANDS in smoking reduction and cessation. The performed analysis combines insights, theories, and empirical evidence from social sciences, economics, and health sciences. This permits the analysis of smoking cessation through a range of lenses, which, in turn, enables us to provide more comprehensive results and policy recommendations. To achieve this aim, the study adopts a conceptual framework, which looks at drivers and barriers of smoking cessation at different levels: macro-level (e.g., policies, anti-smoking campaigns), meso-level (e.g., neighborhood, school), micro-level (e.g., family, friends), and individual (e.g., beliefs, personal preferences). Effectively, the trend analysis of selected drivers allows for the exploration of their impact on smoking cessation over time. Then, the structured literature review, based on the extensive availability of sound empirical studies, summarizes extant empirical evidence on the most effective historical drivers of smoking cessation in Australia. Finally, the media coverage analysis provides insights into the role of the media smoking-related issues over the years.

A. Conceptual framework

The literature is now concordant that smoking cessation is simultaneously affected by manifold factors (drivers and barriers) at different levels from the genome of the smokers up to the structure of the society of which she/he is part of. Between the end of the 1990s and the beginning of 2000s, greater attention began to be paid to the role of the social environment in influencing health-related behaviors, including in regards to smoking (Poland, 2006). New research strands started to focus on the social representation of smoking among youths and their smoking identities (e.g., Lloyd et al., 1997; Michell & Amos, 1997), the relationship between gender and social disadvantage in explaining smoking patterns (e.g., Graham, 1993), and smoking among specific populations, such as old people (e.g., Parry et al., 2002), pregnant women (e.g., Pickett et al., 2002) and the homeless (e.g., Connor et al., 2002). These studies marked nothing less than a theoretical paradigm shift, insofar as smoking was no longer conceived merely as a health behavior, but, rather, also as a "collective social practice" emerging out of "the intersection of social structure (norms, resources, policy, institutional practices that organize society), and agency (individual action, volition and sense of identity)" (Poland, 2006, p. 60). In particular, a special issue of the journal *Addiction* in 2003 elucidated the determinants of smoking among youths, taking into account these aforesaid social forces within a broader framework of multi-level factors: macro (e.g., policies, social acceptability of smoking), meso (e.g., school, neighborhood, and workplace), and micro (e.g., family, friends, peers). Social-psychological theories (e.g., health belief model) have highlighted how such dimensions also interact with individual-level factors. Indeed, the use of tobacco is profoundly influenced

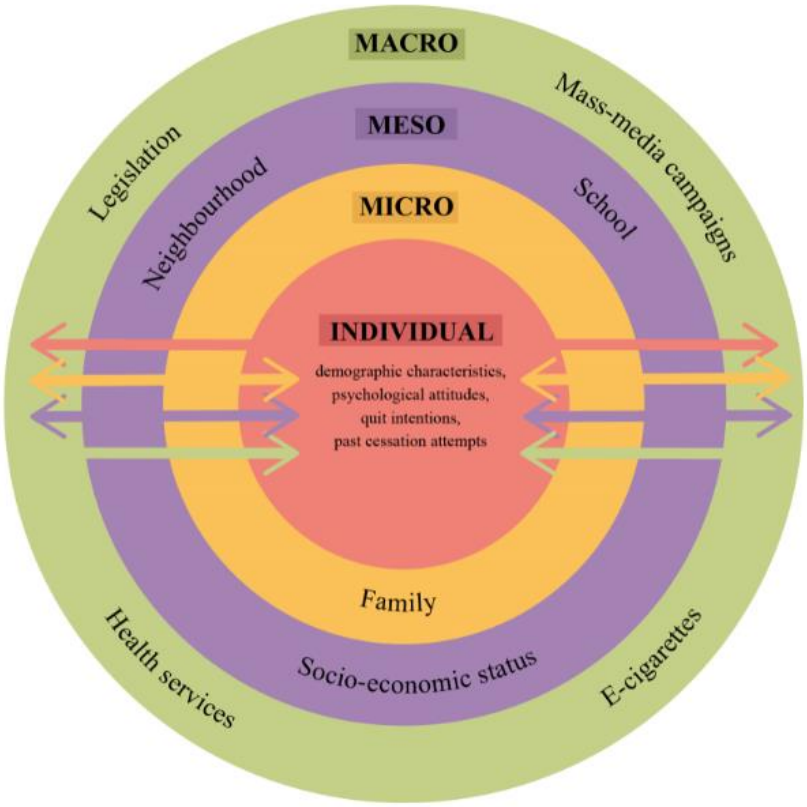
by perceptions and attitudes towards smoking and one's capacity to quit (e.g., Mao et al., 2009; Reisi et al., 2014; Strecher et al., 1985).

Based on this international literature, the present study proposes a conceptual framework based on the analysis of drivers and barriers of smoking cessation at different level connected to each other (see Figure 54 below). Smoking cessation is influenced by different drivers and barriers that interact together at the macro, meso, micro and individual level.

- **Macro level**. Tobacco control policies may contribute towards reducing the tobacco consumption acting on the opportunity cost of such behavior; in particular, by diminishing tobacco products' attractiveness, reducing the opportunities for smoking, and by making them less affordable. Over time, such policies contribute to de-normalizing smoking, which, in turn, prevents youths from taking up smoking.
- **Meso level**. Moving from social embeddedness theory (Granovetter, 1973, 1985), the social and cultural contexts in which smokers are embedded notably influence their smoking behaviors. For example, being enrolled in schools with high smoking rates or belonging to social groups where smoking is generally socially accepted (e.g., indigenous communities) makes it harder to quit. Vice versa, living in socio-economically advantaged neighborhoods and in bigger cities, where smoking infers more pejorative connotations and cessation services are more readily accessible, facilitates quitting.
- **Micro level**. The micro level encompasses interpersonal relationships and ties at the individual level such as parent-child, siblings, and friends. For instance, the family may act both as a barrier and driver of smoking cessation, depending on cultural factors and smoking habits. Smokers whose parents smoke at home are less likely to stop smoking, while, conversely, those who receive emotional and informative support to quit and live in smoke-free homes are more likely to stop smoking.
- **Individual level**. Genetic, psychological, cognitive, attitudinal, and behavioral factors can affect people's intention to quit smoking, their attempts to quit, and smoking cessation. For example, self-confidence in one's own capacity to quit and negative thoughts about smoking (e.g., concerns related to the deleterious health consequences of secondhand smoke on family members) can also motivate smokers to quit.

The complexity of the interconnections between these aforesaid factors testifies to the difficulty of identifying single drivers as being responsible for smoking cessation—at the individual level—and reduction in smoking prevalence—at the societal level. Rather, changes in smoking prevalence are influenced by a combination of these different factors interacting in conjunction with one another. While all these factors are recognized as relevant by the international literature, with specific respect to Australia, some factors emerge as more crucial than others.

Figure 54. Conceptual framework



B. Trend analysis on selected drivers

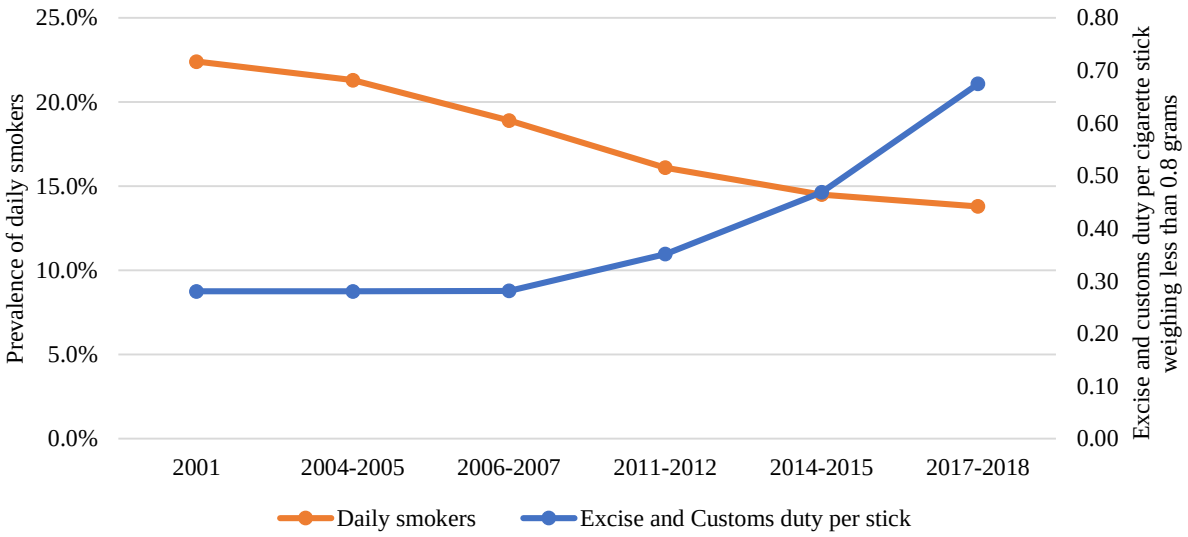
The goal of the trend analysis was to combine data on smoking prevalence and smoking cessation with major drivers that may have influenced the smoking habits of Australians over the years. As such, this analysis presents a summary of the main drivers of smoking cessation and their connection to the smoking habits of Australians. This section primarily provides an overview of drivers at the macro level, because of the plenitude of data at this level of aggregation. By focusing on media contents and academic literature, the drivers considered in this section will also be analyzed in-depth in the next sections, which also investigate meso, micro and individual dynamics related to smoking prevalence and cessation.

1. Taxation and prices

Taxation is one of the most effective strategies used by governments to reduce smoking rates (National Center for Chronic Disease Prevention and Health Promotion (US), 2014; World Health Organization, 2019). The evidence shows that increases in the price of tobacco products are particularly effective in terms of stimulating cessation, reducing consumption, avoiding any replacement, and preventing people from taking up smoking (Bader et al., 2011; Callison & Kaestner, 2014; Lynch & Bonnie, 1994; Sharbaugh et al., 2018; Tabuchi et al., 2017). In 2018, the tax share of the retail price of the most popular brand of cigarettes in Australia was 77.5% (World Health Organization, 2019). There are only a few countries in the world that levy higher taxes than Australia does.

Over the years, the prevalence of daily smokers and the excise and customs duties per cigarette stick have registered opposite trends in Australia. Excise and custom duties have exponentially increased (+141%), whereas the prevalence of daily smokers aged 18 years or older decreased between 2001 and 2017-2018 (-38%) (Figure 55). This lends support to the importance of taxation in reducing smoking prevalence in the country. Moreover, according to 2013 and 2016 NDSHS carried out by the AIHW, the primary reason cited by Australians for attempting to change their smoking behaviors was that cigarettes were too expensive.

Figure 55. Prevalence of daily smokers aged 18 years or older and excise and customs duty per cigarette stick, 2001-2018 (available estimates)



Note: when the survey data represent a two-year period (e.g., 2004-2005), the average of the excise and customs duties in those two years has been calculated (e.g., average between the 2004 value and the 2005 value of excise). Rate expressed in 2012 AUD and adjusted by the CPI.

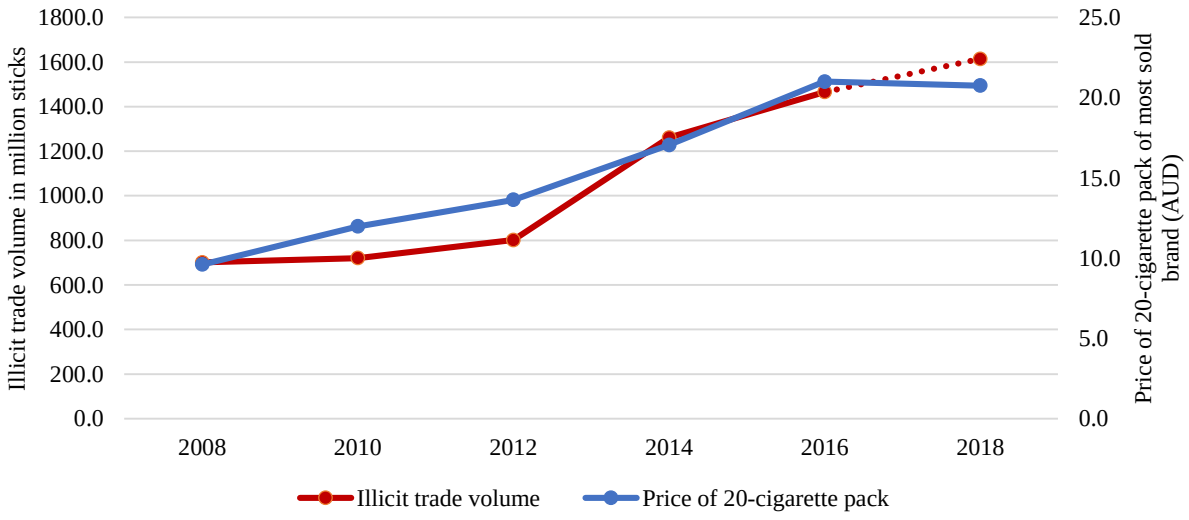
Source: authors' elaboration of ABS data on daily smoking prevalence and Australian Taxation Office, Australian Department of Immigration and Border Protection and ABS data on duties, retrieved from Scollo & Bayly (2019b, fig. Figure 13.2.2).

The high price of legal products may induce consumers to switch to illicit tobacco products, which are significantly cheaper than legally manufactured tobacco. In fact, the retail price of illicit tobacco is generally half (or less) of the legal price (Geis, 2005; M. Winstanley, 2008). Indeed, by bypassing the government, tobacco growers and retailers also create considerable savings for end users. This, effect may be strongest among socio-economically disadvantaged groups (Licht et al., 2011). Illicit tobacco products enable low-income groups to continue their habit even if they have scant resources. Socio-economically disadvantaged Australians spend, on average, the largest share of their incomes on tobacco. Indeed, the differences in smoking prevalence among socio-economic areas testify to this: Australians who belong to the first quintile of socio-economic areas (more disadvantaged areas) smoke, on average, more than those who belong to the other fourth quintiles, with an overall smoking prevalence of 17.7% in 2016—last

available year.[90] Similarly, people belonging to the second quintile smoke, on average, more than those from advantaged backgrounds. The same relationship holds across all income brackets. Accordingly, Australians who are either unable to work or unemployed also had a higher rate of daily smoking prevalence compared to those classified as having a different labor force status. In 2016, 30.1% of people unable to work and 22.8% of unemployed people were daily smokers in Australia. Lower income groups may maintain their consumption habits by switching to illicit tobacco products. At the same time, illicit tobacco is of especial interest to potential smugglers, insofar as taxes often account for a large share of the final retail price, thus making it a highly profitable product to smuggle (Merriman et al., 2000).

Indeed, Figure 56 the trends in prices and illicit trade volumes have followed similar patterns between 2008 to 2018 (Figure 57). In a recent study conducted at the European level, Prieger et al. (2019) showed that, in countries in which there is a limited market for e-cigarettes, tobacco tax increases were more likely to lead smokers to switch to illegal cigarettes. Moreover, the authors found that, in countries where the market for e-cigarettes had significantly expanded in recent years, tax increases did not lead to an increase in the consumption of illicit cigarettes, as a result of the wide availability of e-cigarettes, which serve as substitutes for both illicit and licit cigarettes. Due to the lack of data, it was not possible to empirically test whether this was also the case in Australia; however, it is hypothesized that a further expansion of the e-cigarette market in Australia might reduce the market in the illicit consumption of tobacco.

Figure 56. Price of a 20-cigarette pack of the most sold brand (AUD) and illicit trade volume in million sticks, 2008-2018 (available estimates)



Note: illicit trade volume in 2018 is an Euromonitor International forecast (dotted line).

Source: authors' elaboration of World Health Organization (2020) and Euromonitor International (2018) data.

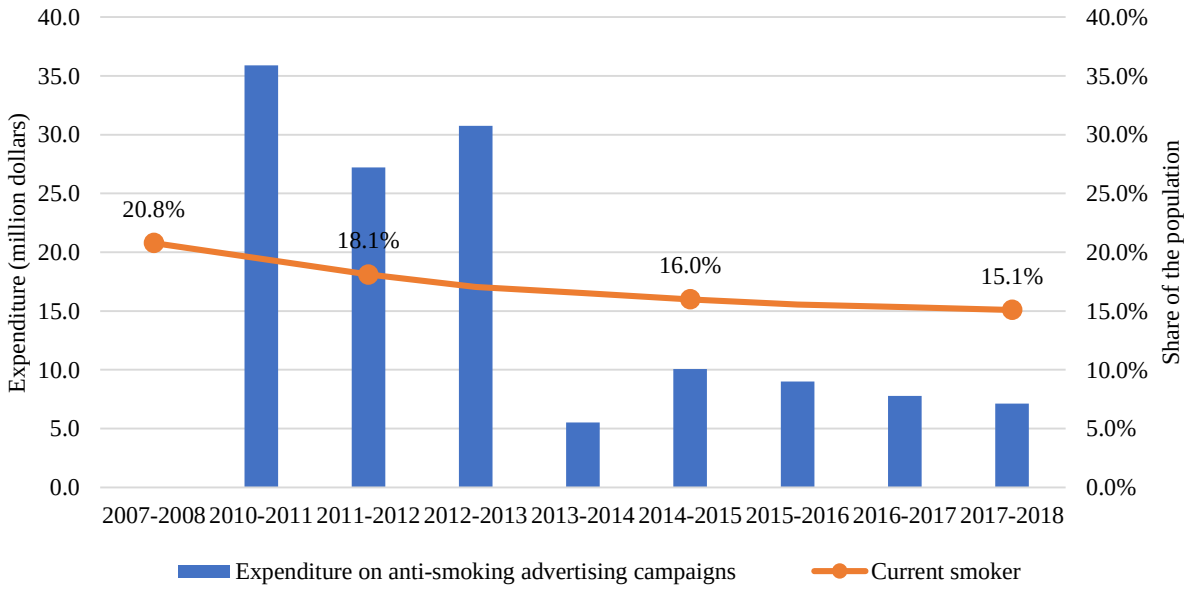
[90] See footnote 81.

2. Anti-smoking campaigns

Anti-smoking campaigns are an important branch of activities within the broader tobacco control framework of the Australian government.[91] A cost-effectiveness analysis carried out by the Australian National Tobacco Campaign (NTC) on one of the anti-smoking media campaigns funded in 1997 by the Australian federal government showed that, based on a total cost of around $9 million, the predicted savings in health care costs would exceed $740 million (Hurley & Matthews, 2008).

Over the years, federal government expenditure on anti-smoking campaigns has decreased in Australia. Annual federal expenditure in 2017-18 was one-fifth of what it was in 2010-11. Between 2010-11 and 2017-18, expenditure has dropped by 80% from about 36 million dollars to about 7 million dollars (from around 20,600 AUD to 2,500 AUD per smoker). The percentage of current smokers aged 18 years or older among the total population registered a 12.9% decrease from 2007-08 to 2011-12, which were years when expenditure on anti-smoking campaigns was still very high, whereas the decrease appears to be less intense from 2014-15 to 2017-2018 (-5.6% in the percentage of adult smokers), when expenditure shriveled markedly (Figure 57). These data suggest that, in the last few years, reductions in expenditure on anti-smoking campaigns may have slowed the decrease in smoking prevalence.

Figure 57. Federal government expenditure on anti-smoking advertising campaigns (million dollars) and prevalence of current smokers aged 18 years or older, 2007/08-2017/18 (available estimates)



Note: federal government expenditure on anti-smoking campaigns was adjusted for inflation to AUD 2018.

Source: authors' elaboration of Australian Government Department of Finance (2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018) data and ABS (2010, 2013, 2015, 2018) data.

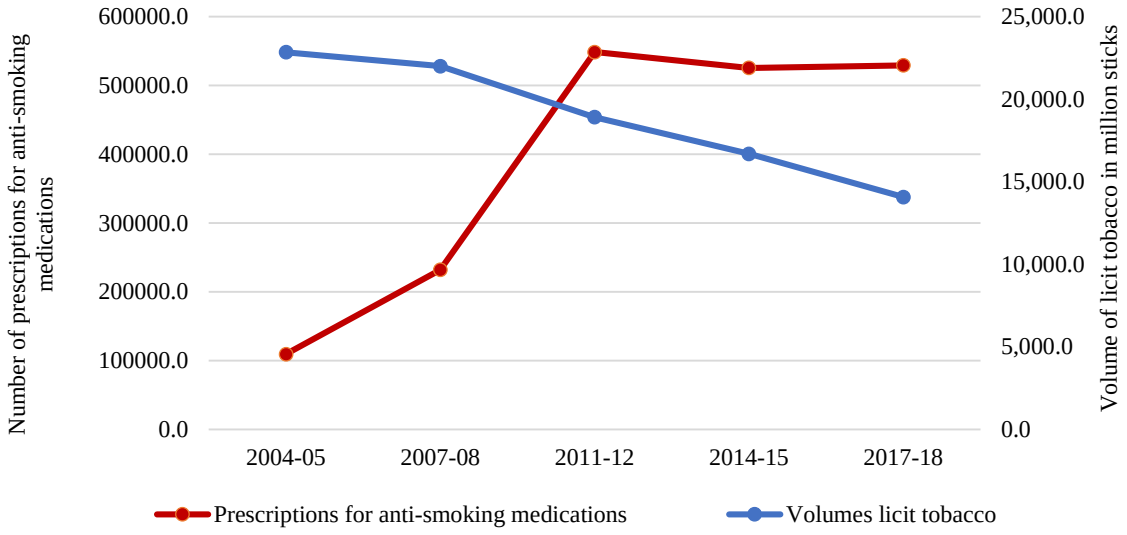
[91] Table 9 in Annex 1 contains a list of the main anti-smoking campaigns in Australia.

3. Smoking cessation medications

The PBS provides subsidized pharmacotherapies for smoking cessation, along with prescribing other drugs (Department of Health, 2020a). The main requirement for receiving subsidies for smoking cessation medications is that the applicant must participate in smoking cessation counselling. The number of prescriptions for anti-smoking medications have increased over the years: in Australia, the number of prescriptions (considering also second and subsequent prescriptions) rose by 405% from 2002 to 2017 (Figure 58). In the same period, it was possible to observe a decrease in the retail volume of tobacco. Indeed, the retail volume of tobacco decreased by 39% between 2002 and 2017. This appears to indicate that an increase in the number of prescriptions could have contributed to a general reduction in the consumption of tobacco in Australia.

However, when one considers the trends in prescriptions for anti-smoking medications and the prevalence of ex-smokers over the years, the patterns do not match up in the way one might expect (Figure 59). In 2004-05, when the number of prescriptions was low (about 100,000 prescriptions), the prevalence of ex-smokers was relatively high. On the contrary, in 2017-18, when the number of prescriptions was quite high, the share of ex-smokers registered a decrease in comparison to previous years.

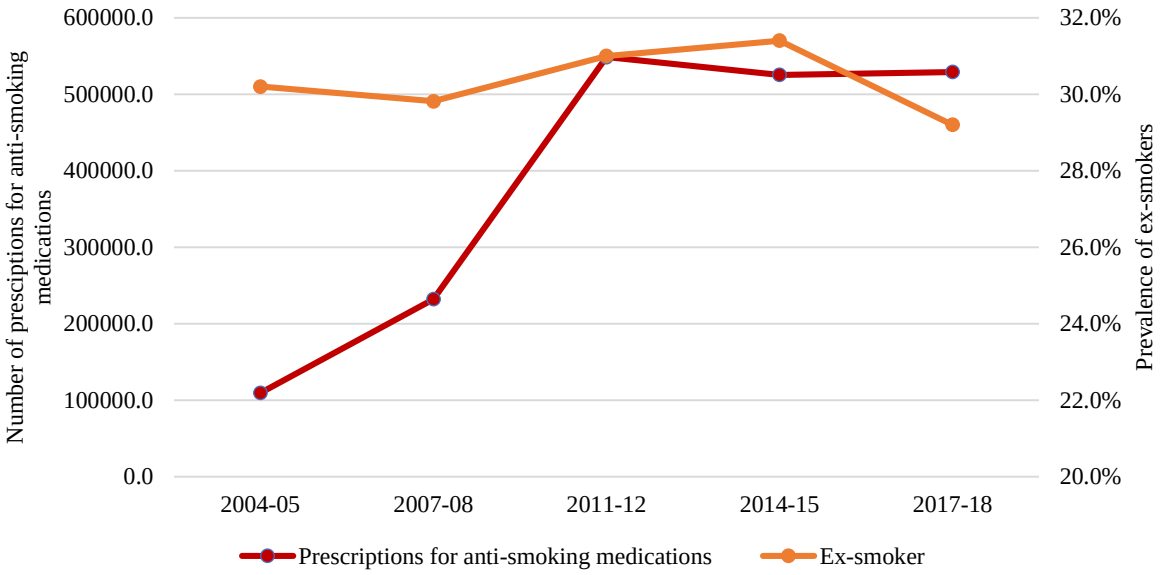
Figure 58. Number of prescriptions for anti-smoking medications and retail volume of licit tobacco, 2004/05-2017/18 (available estimates)



Note: when the survey data represent a two-year period (e.g., 2004-2005), the average number of prescriptions in those two years were calculated (e.g., average between the 2004 value and the 2005 value). Data on prescriptions included second and subsequent prescriptions for all types of patients (ordinary patients, those with healthcare cards, and those covered by Repatriation Benefits Scheme). Same patients may have used more than one medicine in the timeframe considered.

Source: authors' elaboration of Pharmaceutical Benefits Scheme, retrieved from Greenhalgh et al. (2020, fig. 7.16.1), and Euromonitor International (2018) data.

Figure 59. Number of prescriptions for anti-smoking medications and prevalence of ex-smokers aged 18 years or older, 2004/05-2017/18 (available estimates)



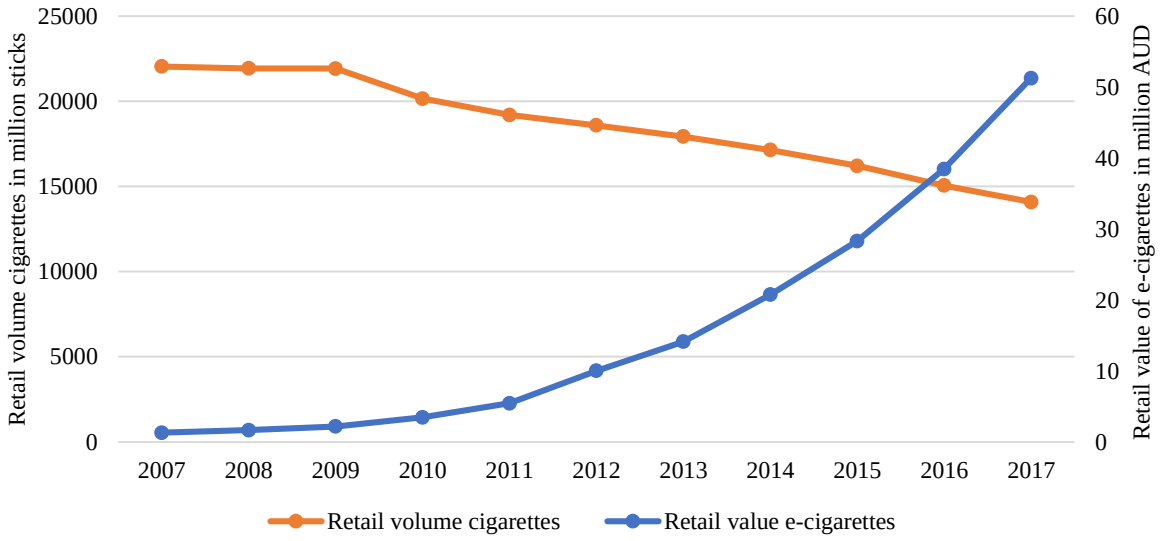
Note: when the survey data represent a two-year period (e.g., 2004-2005), the average number of prescriptions in those two years were calculated (e.g., average between the 2004 value and the 2005 value). Data on prescriptions included second and subsequent prescriptions for all types of patients (ordinary patients, those with healthcare cards, and those covered by Repatriation Benefits Scheme). Same patients may have used more than one medicine in the timeframe considered.

Source: authors' elaboration of Pharmaceutical Benefits Scheme, retrieved from Greenhalgh et al. (2020, fig. 7.16.1), and ABS.

4. E-cigarettes and other ANDS

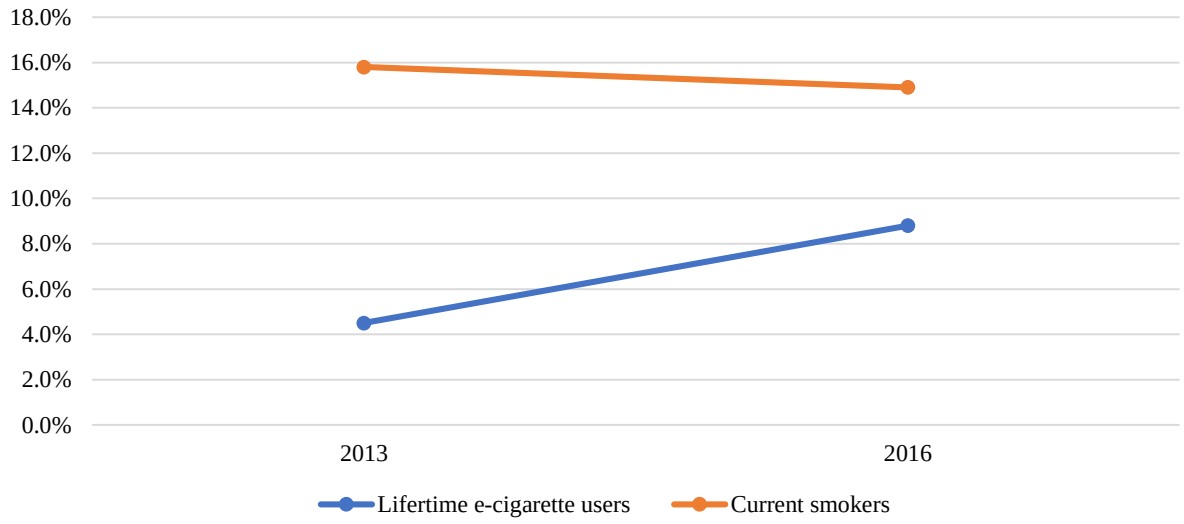
In Australia, ANDS, with the exception of nicotine patches, are not officially approved tools for smoking-cessation treatments; in particular, e-cigarettes, even those without nicotine, are not approved by the TGA for sale as a cessation aid either. More generally, ENDS that contain nicotine without a prescription are not allowed into Australia. Most likely in relation to this, there is a relative dearth of data on the use of e-cigarettes and ANDS. However, some data do exist. Data covering the last decade indicate a negative correlation between the value of the retail market for e-cigarettes and the volume of the retail market for regular cigarettes (Figure 60). Similarly, in recent years, smoking prevalence has displayed an opposite trend compared to the percentage of people who have used e-cigarettes in their lifetime (Figure 61).

Figure 60. Retail volume of cigarette market in million sticks and retail value of e-cigarette market in million AUD, 2007-2017 (available estimates)



Source: authors' elaboration of Euromonitor International (2017) data.

Figure 61. Percentage of lifetime e-cigarette users and prevalence of current smokers aged 14 years or older, 2013-2016 (available estimates)



Source: authors' elaboration of Australian Institute of Health and Welfare (2017) data.

Of course, none of these conjunctions proves that e-cigarettes caused a reduction in smoking prevalence and tobacco consumption. More plausibly, the Australian non-smoking policies influenced both the consumption of traditional tobacco products—reducing it—and the demand for e-cigarettes—increasing it. At the same time, smoking reduction and the use of e-cigarettes are likely to influence each other, as smokers who use e-cigarettes as a quitting aid are more likely to succeed than those smokers who do not, as shown by international studies (Yong et al., 2017). In this respect, e-cigarettes may provide a mechanism

for cessation for a category of Australian smokers for whom motivation alone was insufficient, rather than serving as a gateway to tobacco consumption for non-smokers (Mendelsohn et al., 2020).

C. Structured literature review

This section presents the main results yielded from the structured literature review. The factors affecting smoking cessation in Australia are presented in accordance with the conceptual framework outlined in section VII.A (macro, meso, micro and individual). The factors are discussed in light of extant theories on smoking and smoking cessation. Annex 3 provides the reference list of all the studies included in the review, while Annex 4 comprises a brief summary of each of the studies. Although the present analysis mostly relied on quantitative empirical peer-reviewed studies to ensure they were of sufficiently high-quality (see the selection criteria specified in section III.B), these varied in terms of the type of study, the sample size and methodological strategy employed. For each study, Annex 4 specifies this information, along with other details.

1. Macro-level factors

The review of the literature identified tobacco control legislation, cost and affordability, anti-smoking media campaigns, and smoking cessation services and aids as the main macro-level factors associated with smoking cessation in Australia.

Tobacco control legislation

Broadly speaking, the literature is concordant in saying that, in the last forty years, tobacco control laws have been effective in Australia, insofar as they have contributed to lower smoking prevalence. The following sub-sections provide details on this, discussing the contribution of the principal laws to the reduction in smoking prevalence in Australia.

i. Tobacco control activities

Intense and well-funded tobacco control activities have been effective in reducing smoking rates in Australia. Conversely, less-intensive or poorly funded programs have had little to no significant effect, or, indeed, have perhaps even been counter-productive, causing increases in smoking prevalence, as explained below. Such counter-productivity is especially evident among the low SES adolescents and Indigenous population, who appear to be more sensitive to badly funded and fragmented tobacco control initiatives.

White et al. (2008, 2011) tested the overall impact of Australian tobacco control policies launched between 1987 and 2005 on youths aged between 12 and 17 years old from different SES. Considering the entire period, White and her colleagues (2008, 2011) showed that policies adopted during the late 1990s and early 2000s contributed to succeed in reducing smoking prevalence among all SES groups. However, during 1992-1996, smoking prevalence grew among adolescents aged between 12 to 15 years old, especially those from low SES. In the 1992-1996 period, the Australian government introduced only a few new tobacco control laws, greatly reduced their expenditure in anti-smoking programs, and decreased the scope of mass media anti-smoking advertising (D. J. Hill et al., 1991). Fragmented policies can have a counter-productive effect on disadvantaged populations. As shown in sections VI.D and VI.E, smoking rates are higher among these populations than in advantaged ones, due to the fact that smoking is socially

accepted and encouraged (V. Johnston & Thomas, 2008a). Because of this, disadvantaged people often do not receive sufficient support to stop smoking from within their close social networks (Siahpush et al., 2006). In this context, the reduced attention paid by the government to the problem of smoking may, albeit inadvertently, have sent out the message that smoking-related harm was no longer an issue, thus reinforcing the culture of smoking within these populations and jeopardizing the longstanding efforts to reduce tobacco consumption.

In the following period, between 1997 and 2005, smoking prevalence decreased among all SES groups. During this period, the government strengthened its commitment on tobacco control, launching the National Tobacco Strategy (see section IV.A and IV.E). Advertisements portraying health warnings that aroused negative emotions were broadcast on television. These media campaigns were intended to target specific individuals aged between 18 and 40, as well as low SES smokers (D. J. Hill & Carrol, 2003). Yet, in this period, anti-smoking advertisements reached a greater audience than between 1991 and early 1997, and, as such, may have also had an effect on youths (White et al., 2008). Between 1997 and 2005, the government also adopted a range of measures designed to reduce opportunities for smoking. Among these, strengthening bans on smoking in restaurants and cafes may have contributed to de-normalizing smoking, thus preventing adolescents from starting to use tobacco products (Siegel et al., 2005).

Between 1995 and 2007, tobacco control policies contributed to a 30% reduction in the prevalence of Australian regular smokers aged 18 years old and over (from 27% to 19%) (Greenhalgh, Bayly, et al., 2019).[92] The same effect was not observed among the Indigenous population. Indeed, from 1994 to 2008, the prevalence of Indigenous current smokers aged 18 years old and over dropped by only 9% (from 55% in 1994 to 50% in 2008) (Australian Bureau of Statistics, 2017b). Although these data are not directly comparable because they rely on slightly different populations and timeframes, they broadly indicate that policy interventions were not as effective in decreasing smoking rates among the Indigenous population. This discrepancy led scholars to specifically focus on smoking cessation among Indigenous populations.

In a study conducted among Aboriginal health-workers in South Australia, Dawson et al. (2012) showed that low investment in tobacco programs, combined with the absence of smoke-free environments, hindered smoking cessation among Indigenous. The Aborigines interviewed by Dawson et al. (2012) reported that in some of the environments where they worked, smoke-free policies were not fully in place. This was more common in places where managers were either smokers themselves or were unable to enforce rules among their staff. Moreover, short-term funding of anti-smoking initiatives did not provide sufficient support for them to quit smoking. Indigenous smokers ordinarily face greater difficulties in quitting, are more skeptical of anti-smoking interventions, and less aware of cessation services (Bond et al., 2012). Although their smoking prevalence has decreased in the last decade, it remains very high, in comparison to the non-Indigenous population.[93] This is due, at least in part, to the social marginalization

[92] Regular smokers include those smoking daily and at least weekly. They differ from current smokers in that they do not comprise those who smoke less than weekly. The data reported by Greenhalgh and her colleagues (2019) were drawn from NDSHS surveys and analyzed by the Centre for Behavioural Research in Cancer (Cancer Council Victoria).

[93] In 2018-2019, 37.4% of Indigenous people aged 15 years and over were daily smokers (Australian Bureau of Statistics, 2019b).

and disadvantage that have historically affected this population (see sections IV.A and VII.C.2) (Brady, 2002).

ii. Plain packaging law and health warnings

Most of the studies included in this review tested the specific effect of health warnings on smoking cessation; less studies considered the impact of plain packaging in Australia more broadly. Resultantly, this section predominantly focuses on studies investigating the effects of health warnings. All in all, these empirical analyses tend to indicate that negative emotions associated with warnings are often insufficient for stimulating behavior change.

These studies yielded mixed results. Most of them showed that health warnings were ineffective in prompting cessation (Drovandi et al., 2019; Dunlop et al., 2013; Hardcastle et al., 2016; Havard et al., 2018; Wilkinson, Scollo, Durkin, et al., 2019). However, some studies indicated the opposite (Cho et al., 2018; Diethelm & Farley, 2015; Wakefield et al., 2014). Two considerations derive from this apparent inconsistency in the literature. First, the inconsistency in the results of these studies underlines the complexity of evaluating smoking cessation policies. The effectiveness of health warnings—as well as of other policies—depends on a range of factors whose effects are often hard to separate from those caused by other policies launched in that same period or in the past. By controlling for different factors, researchers may observe a different impact of the policy they are examining. Second, the review of studies on health warnings emphasizes the time-bound nature of policies' effectiveness. As shown below, the effect of health warnings appears to decrease over time. This is indeed consistent with the data presented in Figure 43, in section VI.I, which documented a considerable decline in the share of smokers who had changed their smoking behavior because of health warnings on packs (-56.2%) between 2007 and 2016. In turn, this must be considered when evaluating the effectiveness of policies, as evidence might hold within a specific moment and context, but lose its validity over time.

Among those who argue for the partial ineffectiveness of health warnings, Drovandi et al. (2019) interestingly found that health warnings on cigarette packaging are more likely to prevent people from starting to smoke, than in inducing smokers to quit. Smokers are generally aware of the risks caused by smoking and adopt different techniques to avoid looking at the warnings. Because of this, over time, pictorial warnings lose their disturbing and shocking effect; on the contrary, they may end up helping smokers to endorse self-exempting beliefs (Drovandi et al., 2019). Indeed, in such cases, smokers often relativize the deleterious health consequences of smoking, thinking they will not be personally affected by them. This is an example of how policy and psychological factors (see section VII.C.4) interact with each other to either drive smoking cessation, or contribute towards it failing.

Between the end of 2017 and the beginning of 2018, Drovandi et al. (2019) interviewed Australian pharmacists about the potential effectiveness of new warnings on cigarette sticks compared to those currently displayed on packs. According to them, warnings on mortality statistics and on the social and financial consequences of smoking would be more likely to drive smokers to quit if displayed on cigarette sticks, than on packs, as they currently are. Conversely, those focused on non-fatal health consequences (e.g., "smoking causes asthma") or those including supportive messages to quit smoking (e.g., "visit a doctor or pharmacist") would not further stimulate the intention to quit if they were also printed on cigarette sticks.

Similar to Drovandi et al. (2019), Hardcastle et al. (2016) also accounted for the temporal effect of health warnings. Hardcastle et al. (2016) tested the effects of health warnings immediately after the introduction of the law. Specifically, the researchers observed that health warnings aroused negative emotional reactions at first, and stimulated smokers to think about the health consequences of smoking. However, in accordance with theories of both cognitive dissonance (Chatzisarantis et al., 2008; Festinger & Carlsmith, 1959) and coping responses to health threats (Carver et al., 1992; Diefenbach & Leventhal, 1996), smokers rapidly got used to them and proceeded to minimize the health risks. These psychological mechanisms generated two behavioral responses. On the one side, they induced smokers to discredit the reliability of the warning messages on the packets, while, on the other, they pushed them to adopt coping strategies to avoid looking at the warnings. Many participants in the study reported that plain packaging aroused a sense of shame and guilt, although this did not prompt them to quit or reduce the number of cigarettes they smoked. As international studies have shown (e.g., Moodie et al., 2011; Moodie & Mackintosh, 2013), the concern aroused by health warnings was insufficiently strong to stimulate a change in smoking behavior and, according to the authors, may also have reinforced the willingness to smoke. Indeed, there were only a few cases of smokers seriously beginning to think about stopping smoking, attempting to quit or definitely quitting (Hardcastle et al., 2016).

In contradistinction to policies, the empirical studies examined did not observe differences in the efficacy of health warnings for people of different SES. In particular, a study carried out by Havard et al. (2018) showed that low and high SES were similarly affected by health warnings. Interestingly, Havard et al. (2018) also found that health warnings did not have any effect on pregnant women; thus contradicting the results of previous studies (e.g., Kollath-Cattano et al., 2017). This will be discussed further in the proceeding sub-sections, since the evidence showed that other tobacco control policies also had no effect on pregnant women.

Among those who showed that health warnings were effective, Cho (2018) maintained that smokers who reported negative emotions associated with health warnings were more likely to attempt to quit smoking. Those with stronger negative emotions were also more likely to elude warnings and, importantly, abstain from buying cigarettes. This is supported by dual-process theories, according to which emotions can prompt a change in behavior (Borland, 2013; Slovic et al., 2007). Interestingly, coping mechanisms to avoid the sight of shocking images (e.g., conceal them, purchase a cigarette case and move cigarettes there) are common among both smokers who decide to quit after being exposed to warnings and those who keep smoking in spite of them. Hence, the decision to quit is most likely influenced by other factors, and health warnings in and of themselves are insufficient in motivating a change in smoking behavior.

iii. Smoke-free environments

The studies included in the review are concordant on the fact that the introduction and the strengthening of smoke-free laws significantly contributed to reducing smoking rates in Australia. These results held across different populations (14 years and older, youths, workers) and geographical areas (Commonwealth, NSW, South Australia, Victoria), thus underlining the robustness of this specific finding. Moreover, in a study conducted among employees at Peninsula Health (a public healthcare provider in Victoria) between 2009 and 2013, Hale (2017) showed that the introduction of a smoke-free policy had positive effects, both in the short-term and the long-term, after they followed-up their research 6 months and 3 years after the implementation of the policy.

Smoke-free policies "increase the opportunity costs of smoking and alter its level of social unacceptability" (Alamar & Glantz, 2006, p. 1359). On the one hand, they reduce everyday circumstances in which smoking is allowed: smoking bans in workplaces, bars, cafes and other indoor places force smokers to change their habits (Scollo & Winstanley, 2012). Hence, smoke-free environments may reduce the number of cigarettes smoked per day, decrease the likelihood of relapse, and stimulate quitting (Hopkins et al., 2010). By de-normalizing smoking, they also contribute towards preventing future generations from taking up smoking in the first place (Scollo & Winstanley, 2012). On the other hand, their implementation has been found to raise awareness among the general population about both the deleterious effects of secondhand smoke and the necessity to protect non-smokers from the damaging effects of tobacco (Institute of Medicine, 1994).

Having said this, it is relevant to note that several scholars have indicated that stronger implementation of smoke-free policies, that is, implementing them in conjunction with increases in tobacco taxes, plain packaging and media campaigns, significantly contributed to the decrease in smoking prevalence in Australia (e.g., Diethelm & Farley, 2015; Wakefield et al., 2014; White et al., 2011). In particular, Wakefield et al. (2014) showed that, between February 2002 and June 2011, the smoking prevalence in Australia decreased from 23.6% to 17.3%. The combination of strengthened smoke-free policies, increased tobacco prices, and greater exposure to media campaigns was estimated to account for 76% of the decrease in smoking prevalence over the considered period.

iv. Advertising bans and anti-smoking policies at points-of-sale

With some exceptions, the studies included in the review indicate the potential effectiveness of anti-smoking POS policies, especially when fully and uniformly implemented. In particular, according to most studies, exposure to anti-smoking warnings at the POS increased the likelihood of both the intention and attempt to quit (L. Li et al., 2012; White et al., 2011). These results held for both youths and the general population. Li et al. (2012) showed that the bans on POS and outdoor advertising were more effective in increasing the probability of both intending and attempting to quit in Australia, than in other countries (e.g., UK, Canada and US). The result was maintained over time, also when controlling for other anti-smoking warnings disseminated in other locations. According to Li et al. (2012), the particular success of the Australian policy can be attributed to the broad strategy of the government, which comprised a massive dissemination of health warnings at POS, on tobacco packs, and within mass media campaigns.

Tutt et al. (2009) previously showed how restrictions on the sale of tobacco were capable of preventing youths under 18 years old from buying cigarettes. The authors explored the effect of an age-restricted tobacco sales intervention on smoking prevalence among students in the Central Coast (NSW region). In 1995, the Central Coast Health Promotion Unit and the police jointly adopted an intervention to reinforce policies on youth access to tobacco products. The intervention involved, for example, the use of under-age decoys who pretended to buy cigarettes at retailers' shops, as well as publicizing prosecutions for those who disobeyed the rules. Between 1993 and 1996, the smoking prevalence among youths significantly decreased in the Central Coast. According to the authors, this change could mainly be attributed to the intervention, considering that no other youth anti-smoking initiatives and programs were implemented in the region in that timeframe. This hypothesis was further supported by the fact that, during the same period, smoking prevalence did not change in NSW and Australia in general. This shows that the reduction in the percentage of smokers in the Central Coast did not derive from prices, media campaigns

or other tobacco control policies implemented at the federal level, as these would have been expected to affect smoking prevalence across the whole country.

Conversely, White (2011) found that anti-smoking POS policies, as well as other measures aimed at restricting youths from accessing tobacco products, were not as effective in terms of encouraging youths to quit indefinitely. This was explained, in part, by the fact that smoking advertisement bans were only progressively introduced in Australia and, as such, were not fully effective during the entire period considered in White's (2011) study (i.e., 1990-2005). Indeed, only in 2006 was POS tobacco advertising completely banned across all states and territories. Prior to this, tobacco products were still promoted in retail shops, especially after the introduction of bans on mass media advertisements. Similarly, laws on youth access at POS were also gradually adopted and, as such, during the timeframe considered in the study, there was significant variation in the regulations across states and territories.

Overall, on the one hand, the results of these studies indicate that advertising bans and other anti-smoking POS policies can be effective in decreasing smoking prevalence, especially among youths. On the other hand, they illustrate that tobacco control policies are more likely to be effective if they are comprehensive. Fragmented policies (in this case, incomplete bans) are not able to produce the same beneficial effects.

Price and affordability

Several studies included in the review tested the role played by the affordability of tobacco products (Diethelm & Farley, 2015; Drovandi et al., 2019; Havard et al., 2018; Wakefield et al., 2008, 2014; White et al., 2011, 2011; Wilkinson, Scollo, Durkin, et al., 2019) and smoking cessation aids (Bryant et al., 2011; Wilkinson, Scollo, Durkin, et al., 2019) in shaping smoking behaviors. Most of the studies similarly showed that the decline in smoking prevalence in Australia was significantly associated with increased tobacco prices or taxes. More specifically, the studies showed that the 25% increase in 2010 (e.g., Diethelm & Farley, 2015; Wilkinson, Scollo, Wakefield, et al., 2019) and the annual increment of 12.5% on tobacco excise in 2013 (Wilkinson, Scollo, Wakefield, et al., 2019) were positively correlated with a reduction in smoking prevalence.

The results also held across different subpopulations (e.g., adults, youths, residents in major cities, different SES groups). The only relevant exception in this regard was among pregnant women. Havard et al. (2018) showed how the decline in smoking prevalence among pregnant women could not be attributed to an increase in tobacco taxes, or other policies for that matter (e.g., introduction of health warnings, discussed above). In Australia, the smoking rate among this population is relatively high: in 2017, 9.9% of women who gave birth smoked during their pregnancy (Australian Institute of Health and Welfare, 2019). According to Havard et al. (2018, p. 557), anti-smoking policies "may not be sufficient to promote quitting prior to conception, which is required for a reduction in prevalence of smoking during pregnancy to be observed". Smoking during pregnancy endangers both the life of the mother and the baby, by increasing the likelihood of placental abruption (West & Shiffman, 2016). It also increases the probability of the sudden death of the baby or the development of intellectual impairment and behavioral problems during childhood. For this reason, pregnant smokers should be better informed about the risks that they expose themselves and their babies to while smoking (West & Shiffman, 2016).

Havard et al. (2018) found that tax increases equally reduced smoking prevalence among high and low SES smokers. While this demonstrates that disadvantaged smokers are responsive to price rises, it also shows that taxation policies are not able to exert a stronger impact on this particular population, who are traditionally characterized by higher smoking rates. In response to tax increases, socio-economically disadvantaged smokers often adopt 'price-minimization' strategies to keep smoking (Guillaumier et al., 2015). For example, they buy cheaper products (e.g., roll-your-own tobacco products), share tobacco with their friends, as well as cutting back on food or delaying the payment of bills to afford cigarettes. In Australia, in particular, excise increases coincide with an increase in the sale of roll-your-own tobacco products. Disadvantaged smokers face more difficulties in quitting due to stressful social and environmental conditions, and are thus more resistant to certain smoking cessation interventions (e.g., Pateman et al., 2016; Siahpush et al., 2003). Moreover, the increased costs of smoking cessation aids and services (e.g., NRT) make socio-economically disadvantaged people even less likely to give up smoking (Bryant et al., 2011). For these reasons, taxation policies should be combined with broader strategies that account for the environment in which socio-economically disadvantaged smokers are embedded (Pateman et al., 2016).

Anti-smoking media campaigns

Since the 1970s, numerous mass media campaigns were launched in Australia with different aims, chief among which were informing people about the health effects of smoking, the existence of smoking cessation services, preventing smoking among youths and recent quitters from relapsing, and encouraging smokers to quit. Some of these were aimed at the entire population, while others targeted specific populations (e.g., youths, pregnant women, low SES, Indigenous people). Even though the heterogeneity of the campaigns makes it difficult to compare them, broad conclusions can nevertheless be drawn on their effectiveness.

Most of the studies included in the review showed that exposure to anti-smoking media campaigns increased one's intention to quit (e.g., Boyle et al., 2010; Emily Brennan et al., 2014; Dunlop et al., 2013; Ho, 1998; White, 2003), prompted quit attempts (e.g., Emily Brennan et al., 2014; Dunlop et al., 2013; White, 2003), and reduced smoking prevalence (e.g., Dono et al., 2019; Egger et al., 1983; Havard et al., 2018; Perusco et al., 2010; Pierce et al., 1990; Wakefield et al., 2008; White et al., 2015; Wilkinson, Scollo, Durkin, et al., 2019; Wood et al., 2009). These results held across different populations (e.g., males and females, youths, and adults). However, as discussed below, mass media campaigns were less effective with certain populations.

The main reasons for unsuccessful campaigns are low budget and intensity of the campaign, as well the inadequate identification of targets and their respective social environments. Regarding the first reason, the literature showed that poorly funded and fragmented campaigns did not significantly contribute to lower smoking rates, and, indeed, could even be counter-productive (Dono et al., 2019; White et al., 2015). As aforementioned, the reduced attention paid by the government to tobacco-related health issues may have generated negative consequences for smoking habits, especially among the most disadvantaged individuals, insofar as these individuals often cannot rely on the support of members of their community (Siahpush et al., 2006). The lack of such external support to quit may indeed be counter-productive and end up reinforcing the culture of smoking within these populations. With respect to the second reason, the literature showed that, in some cases, anti-smoking campaigns failed or did not achieve their desired reach due to the improper identification of the targets and their specificities. For example, Boyle et al. (2010) showed that

a campaign specifically addressing Indigenous smokers in Western Australia was launched on both television and the radio, despite the fact that the target population rarely listened to the latter. In another study, Havard et al. (2018) showed that anti-smoking campaigns launched between 2003 and 2011 did not contribute to a decrease in the smoking prevalence among pregnant women in NSW. This result, when read together with the others highlighted in the previous sub-sections, appears to suggest that different policies (e.g., taxation, plain packaging, anti-smoking campaigns) were unsuccessful among this population.

Smoking cessation services and aids

Within the framework of the analysis proposed here, smoking cessation services and aids comprise both those approved by TGA as such (e.g., NRT) and those that are not (e.g., e-cigarettes).

i. Smoking cessation services and/or aids approved by TGA

The available evidence on the effectiveness of smoking cessation services and aids is mixed. In some studies, participation in smoking cessation programs and the use of smoking cessation aids was significantly associated with the increased likelihood of intending to quit (Ivey et al., 2019a), attempting to quit (Bonevski et al., 2018), and successfully quitting (Borland et al., 2003; Burford et al., 2013). Moreover, qualitative studies also showed the usefulness of smoking cessation programs for smoking cessation (Drovandi et al., 2019; Paul et al., 2013; Richmond & Webster, 1985). However, in many other studies, the associations were found to not be statistically significant (Baker et al., 2010; E. Campbell, 2006; Miller, 2003; Taylor et al., 2017; Wakefield et al., 2008, 2014). One potential explanation for this is that participation in cessation programs and using available aids served to reinforce and facilitate cessation, but other factors actually encouraged smokers to quit. Sometimes, when considering also these other factors available cessation programs and aids results to be ineffective. The studies that achieved significant results showed that pharmacotherapies were more successful when combined with counselling (e.g., quitlines) (Bonevski et al., 2018; Borland et al., 2003).

ii. Smoking cessation aids not approved by TGA

Very few studies have analyzed the association between ANDS—in particular e-cigarettes—and intention to quit/cessation in Australia, in comparison to the extensive studies dedicated to other smoking cessation factors. This is possibly due, in part, to the fact that ANDS, with the exception of nicotine patches, are not considered as smoking cessation tools. Still, studies do exist. Chan et al. (2019), for example, analyzed smoking and e-cigarette usage patterns using NDSHS data from 2016, which referred to those 18 years old or older. Current vapers were found to be more likely to be young, current, or ex-smokers, as well as having higher level of psychological distress. This is important, because previous research has shown that people suffering from psychological distress have greater difficulties in quitting smoking (Leung et al., 2011), and, hence, may be more likely to try such products to aid their quitting (Sharma et al., 2016). In turn, this suggest that also the most disadvantaged population strata may benefit from the use of e-cigarettes to quit smoking. In the future, our knowledge on the effectiveness of smoking cessation strategies may benefit from the design of studies aiming at investigating specifically the consumption of e-cigarettes among smokers with a low SES, which are still missing in the literature. Consistent with international studies (e.g., Hitchman et al., 2015), Chan et al. (2019) showed that the daily use of e-cigarettes was significantly associated with both the intention to quit and smoking cessation. Occasional use, conversely, was not associated with either the intention to quit or actual smoking cessation. This appears to suggest that

the frequency of e-cigarette-use may indicate the reason for vaping, as showed by previous studies carried out in other countries (e.g., Farrimond, 2017; Polosa et al., 2011). Differently from daily users, occasional vapers tend to use e-cigarettes for other reasons than quitting, e.g., using them as substitutes in places where they cannot smoke or to decrease their tobacco consumption.

2. Meso-level factors

Interactions with ethnic communities at the neighborhood level, within both school and the workplace, were the meso-level factors identified in the literature as being associated with smoking cessation in Australia. Meso-level factors emerged as particularly relevant for explaining the persistence of smoking among Indigenous communities.

Ethnic community

Several studies, which satisfied the inclusion criteria of the performed review, analyzed the impact of ethnic communities on smoking cessation, mostly by focusing on the Indigenous community (Dawson et al., 2012; Hyland, 2006; V. Johnston & Thomas, 2008a; Mohsin & Bauman, 2005; Peiris et al., 2019; Wood et al., 2008). None of the identified literature focused on communities other than ethnic communities. Broadly speaking, these studies showed that Indigenous individuals are less likely to quit smoking than white individuals or, more generally, non-Indigenous populations. Within Indigenous communities, smoking is socially accepted, contributes to building a strong sense of identity, as well as reinforcing ties among members (V. Johnston & Thomas, 2008a). In the context of smoking normalization, then, Indigenous people "must negotiate their smoking or ex-smoking within both the local habitus of their own community as well as within a wider societal sphere in which smoking is rendered deviant" (Bond et al., 2012, p. 577).

The widespread social acceptability of smoking within Indigenous communities constitutes for them a major barrier to quitting. Peiris et al. (2019) recently carried out a study to test the effectiveness of an Indigenous-targeted smartphone app on smoking cessation behavior among Indigenous people aged 16 years old and over, who were willing to attempt to quit smoking. During the interviews, the participants reported that the shared culture of smoking within their community, allied with the general scarce use of the app, represented the main obstacles to smoking cessation. The cultural attachment to tobacco makes it particularly difficult for Indigenous people to use smoking cessation aids like NRT or, potentially, e-cigarettes. However, some of the participants explained how the culture of smoking was also beginning to change among Indigenous communities, and that many families were now taking steps to prevent their children from smoking. This may open up space for smokers from this community to use substitute products. Similarly, Wood et al. (2008) showed that the main barriers to smoking cessation among Indigenous people were the smoking culture within their community. Furthermore, a lack of awareness of the health consequences and self-exempting beliefs, which are particularly widespread within their community, constitute further barriers to ceasing smoking. The study by Wood et al. (2008) found that few pregnant Indigenous women gave up smoking during their pregnancy, while none of the current smokers expressed an intention to quit.

Socio-economic status

In Australia, there are health inequalities related to smoking. Disadvantaged neighborhoods are characterized by high smoking rates and a high perception of insecurity (e.g., Blackman et al., 2001; Dotinga et al., 2005; Ellaway & Macintyre, 2009; Miles, 2006; Wiltshire et al., 2003), which, in turn, can raise the sense of stress (Stead et al., 2001; van Lenthe & Mackenbach, 2006). In disadvantaged neighborhoods there is usually a higher availability of tobacco products (Chuang et al., 2005; Novak et al., 2006; Pierce et al., 1990), secondhand smoke is also more likely (Copeland, 2003; Nettle, 2011; Ross, 2000; Wiltshire et al., 2003), and, as such, is more socially accepted. Data from the National Drug Strategy Household Survey (Australian Institute of Health and Welfare, 2017) showed that smoking prevalence was higher among low SES population. Indeed, low SES individuals tend to keep smoking to cope with their stress and frustration. However, smoking prevalence among low SES displayed a similar trend to that of the high SES population (see section VI.D). In the same manner, the trends in the prevalence of ex-smokers were similar among the two socio-economic classes (see section VI.L). Coherently, the studies included in the review mostly yielded non-significant results on the association between low SES and smoking cessation (Dunlop et al., 2013; Germain et al., 2010; Hyland et al., 2006; Perusco et al., 2010; Siahpush et al., 2013). At the same time, low-income individuals have been found to be generally less willing to quit and do not receive strong support to quit within their close network (Siahpush et al., 2006). These latter variables appear to better explain smoking cessation than socio-economic status alone.

School

According to the latest available estimates, which refer to 2016, the average initiation age of Australian smokers is 16.4 years, which marks a slight increase from the recent past (Australian Institute of Health and Welfare, 2017). Therefore, it is perhaps unsurprising that school plays a relevant role in curbing smoking initiation in youth, which, in turn, has potentially indirect persistent effects on the overall level of tobacco consumption. Indeed, empirical studies conducted in Australia tend to confirm this. For instance, smoking cessation programs implemented by schools in Victoria and South Australia were successful in preventing students from smoking and in terms of encouraging them to quit (Buller et al., 2008). On the contrary, attending schools with high smoking rates reduced the likelihood of stopping smoking (Patton et al., 1998). Conversely, attending high-quality kindergartens (D'Onise et al., 2011) and schools in metropolitan cities, rather than in small towns (Patton et al., 1998), was found to not be significantly associated with future smoking cessation.

3. Micro-level factors

The intimate social environment in which smokers are embedded has been found to influence their willingness, capacity and successfulness in quitting smoking (Bryant et al., 2011; Drovandi et al., 2019; Ho, 1998; V. Johnston & Thomas, 2008b; Patton et al., 1998; Peiris et al., 2019; Siahpush et al., 2013; Tsourtos et al., 2011; Wood et al., 2008). Conversely, living in a positive social environment and receiving support from family and friends to stop smoking increased the probability of successfully quitting (e.g., Ho, 1998; Patton et al., 1998; Peiris et al., 2019; Siahpush et al., 2013; Tsourtos et al., 2011; Wood et al., 2008). The positive role of the family is particularly effective for hard smokers and, more generally, on those who find hard to quit. Coherently, the family is the social structure on which most of the studies investigating micro-level factors focused on.

Family

Johnston and Thomas (2008b) explored the influences on smoking behavior among Australian Indigenous communities. The positive influence of the family and concerns over health emerged as the main drivers of smoking cessation. Most of the interviewees reported that they quit because they were chiefly concerned with the health consequences that smoking had on their entire family. Some of the interviewees reported that they also wanted to act as positive role models for their children, while others reported that they were quitting to save money for their family, due to how expensive cigarettes were.

Having parents who are daily smokers and, more generally, being constantly exposed to smoke at home, constitutes a strong barrier to quitting smoking (Bryant et al., 2011; Patton et al., 1998). On the contrary, socio-demographic characteristics (e.g., education, marital status) of the family tend not to be significantly associated with smoking cessation (Patton et al., 1998). The decline in individuals' exposure to smoke, combined with an increase in smoke-free home environments over the last decade in Australia (Australian Institute of Health and Welfare, 2017), may also have contributed to the activation of a self-reinforcing positive cycle. Indeed, smokers who succeed in quitting not only directly increase their own health and that of their entire family—i.e., via the reduction in secondhand smoking—they also have an indirect impact on the smoking behavior of their relatives, thus further contributing to lowering smoking rates.

4. Individual-level factors

People start and quit smoking for a variety of reasons, and their personal decisions are informed by manifold factors that extend beyond structural and contextual factors. The individual-level factor categories associated with smoking cessation in Australia identified in the literature were smoking-related behaviors and intentions (i.e., quit intentions, previous quit attempts or cessation, smoking dependence), psychological factors, and demographic factors. Although these did not emerge from the Australian literature review, scientific evidence indicates that genetics also strongly influence smoking behaviors (Malaiyandi et al., 2005; Sullivan & Kendler, 1999).

Smoking-related behaviors and intentions

Willingness to quit facilitates future smoking cessation (Hyland, 2006). In a longitudinal study carried out between 2002 and 2003 on Australian adult smokers (+18 years old), Hyland (2006) found that those who planned to quit both within one or six months were more likely to quit indefinitely. This is in accordance with the theory of planned behavior (Ajzen, 1991), according to which behaviors can be predicted by the intention to adopt those behaviors and the perceived degree of control people have over them.

Attempts to quit in the past are predictive of making another attempt in the future (Hyland, 2006). However, it does not predict stopping smoking; indeed, unsuccessful attempts may undermine self-efficacy and act as a barrier towards smoking cessation (Hyland, 2006). Moreover, actually having quitted in the past is not necessarily predictive of successful attempts in the future. In fact, only one study found that it significantly increased the probability of stopping smoking indefinitely (Rattan et al., 2013). Rattan et al. (2013) specifically explored the association between having quit smoking during pregnancy and long-term cessation in one's lifetime, analyzing a sample of mothers who smoked daily prior to their pregnancy

between 1981 and 2002. The authors found that mothers who quit smoking during their pregnancy were more likely to abstain from smoking during their lifetime, in comparison to mothers who did not quit during pregnancy. However, other studies found that quitting smoking previously did not significantly predict either the intention to quit in the future (Ivey et al., 2019b), or future quit attempts and cessation (Hyland, 2006).

Results on the association between smoking cessation and addiction were mixed. Germain et al. (2010) analyzed a sample of Australian adult smokers in Victoria between 2006-2008, and found that heavy smokers were less likely to quit. Alternatively, other studies yielded non-significant associations between nicotine addiction and intention to quit (Dunlop et al., 2013), attempts to quit and smoking cessation (Hyland, 2006), which appears to indicate that smoking cessation primarily depends on other factors than, say, simply the level of nicotine dependence.

Psychological factors

As acknowledged in the general literature on smoking, there is a strong psychological component associated with both smoking and smoking cessation. The rapid intake of nicotine related to smoking creates powerful motivation to smoke further (West & Shiffman, 2016). The physiological addiction to nicotine means that many smokers trying to abstain have withdrawal symptoms, which undermine and overwhelm their resolve. Different smokers tend to have different levels of nicotine dependence. Nonetheless, for most smokers, the stimulus to smoke is stronger than concerns about the negative consequences of smoking. Of course, as already underscored, psychological addiction to nicotine is not the only factor explaining difficulties in quitting. Enjoyment of smoking, social rewards and attachment to the self-identity have all been shown to affect smokers' capacity to quit (Fidler & West, 2009, 2011; West & Shiffman, 2016).

Many studies in Australia have shown that having anti-smoking beliefs (e.g., self-confidence in one's own ability to quit smoking, health concerns about smoking) can facilitate the intention to quit (Ho, 1998), the attempt to quit (Hyland, 2006) and cessation (Egger et al., 1983; V. Johnston & Thomas, 2008b; Richmond & Webster, 1985). This is in line with the health belief model, according to which the use of tobacco can be predicted by individuals' perceptions regarding the perceived threats of smoking, benefits from quitting, self-efficacy, and obstacles to changing their behavior (Janz & Becker, 1984), as well as with the results of the surveys conducted by AIHM and commented in section VI.I. However, other researchers yielded non-significant results (Hyland, 2006). Ho (1998) assessed the influence of socio-psychological predictors of intention to quit smoking on a sample of young and adult daily smokers in Rockhampton (Queensland). Smokers who were more confident in their own ability to quit (self-efficacy) were also more likely to intend to quit. However, Hyland et al. (2006) found that, among smokers who previously attempted to quit, self-efficacy was not predictive of smoking cessation. Hence, holding such anti-smoking beliefs is often not enough to successfully stop smoking. This may be due to the lack of a strong intention to quit, the presence of contradictory feelings (e.g., being aware of the health risks caused by smoking, but minimizing it), other contextual factors that hinder quitting (e.g., stress, loss of parents, lack of knowledge about smoking cessation services), or even genetic determinants.

Furthermore, some studies showed that concerns for the deleterious health effects of smoking were good predictors of the intention to quit (Ho, 1998) and quit attempts (Hyland, 2006). Results were mixed

with regards to smoking cessation. Two studies, carried out in the 1980s, yielded similar results in terms of health concerns being relevant drivers of cessation (Egger et al., 1983; Richmond & Webster, 1985). More recently, however, the evidence is mixed. For example, most of the people interviewed by Johnston and Thomas (2008b) reported quitting because they were primarily concerned with the health consequences that smoking had on their family. Conversely, Hyland et al. (2006) did not find any significant effect. This may be due to the lack of a strong intention to quit, the presence of contradictory feelings (e.g., being aware of the health risks caused by smoking, but minimizing it), other contextual factors that hinder quitting (e.g., stress, loss of parents, poor knowledge about smoking cessation services), or even genetic determinants.

Low awareness of both the health consequences of smoking and smoking cessation services, which is especially common among disadvantaged populations, are relevant barriers for successful cessation (Bryant et al., 2011; Peiris et al., 2019; Wood et al., 2008). Peiris et al. (2019) recently interviewed Indigenous women in NSW to understand smoking cessation patterns among this population. The authors found that one of the main obstacles to smoking cessation was the low awareness and use of smoking cessation support services. As already mentioned, the historical marginalization of this population and the normalization of smoking in their community played an important role in this regard. However, more generally, it is also important to underline that, as discussed with reference to the results on health warnings, awareness of the health consequences of smoking is often not enough in and of itself to drive people to quit. The awareness of health risks appears only to prompt cessation among those who have been diagnosed with a smoking-related disease (e.g., lung cancer) (Bryant et al., 2016; Drovandi et al., 2019; Richmond & Webster, 1985).

Pro-smoking beliefs (e.g., perception of relaxing and receiving pleasure from smoking, self-exempting beliefs) generally hinder the intention to quit, attempts to quit, and smoking cessation (Bryant et al., 2011; Dawson et al., 2012; Germain et al., 2010; Guillaumier et al., 2016; Ho, 1998; Oakes, 2004; Wood et al., 2008). This was confirmed by both qualitative and quantitative studies. For example, Bryant et al. (2011) explored the barriers and enablers of smoking cessation among disadvantaged smokers in NSW between 2008 and 2009. They found that beliefs in the benefits of smoking for stress relief was a persuasive factor in keeping smoking. Similarly, Ho (1998) found that perceptions of smoking as being pleasurable and relaxing acted as barriers towards the intention to quit, especially among young people. Moreover, especially among the female population, the fear of gaining weight acted as a strong deterrent against smoking cessation. The women interviewed by Bryant et al. (2011, p. 493) reported that losing weight was a "nice side effect" of smoking, and was one of the key reasons why some of them relapsed after a period of cessation.

Playing down the health consequences of smoking to one's self is one of the major barriers to quitting. Guillaumier et al. (2016) explored the association between self-exempting beliefs and the intention to quit smoking among low SES individuals in NSW. More specifically, they investigated different types of self-exempting beliefs: skeptic beliefs (playing down the health consequences of smoking), worth it beliefs (thinking that smoking is worth it, despite its health consequences), bulletproof beliefs (thinking that they will not be personally affected by smoking-related health problems), jungle beliefs (relativizing the risks of smoking, considering the probability of getting sick or dying for other reasons). Their results showed that socio-economically disadvantaged smokers minimized the risks of smoking by endorsing self-

exempting beliefs.[94] When controlling for smoking-related variables (smoker happiness, enjoyment of smoking, nicotine dependence), only individuals who held skeptic beliefs were found to be significantly less likely to intend to quit in the next 6 months, than those who did not have such beliefs. Conversely, holding other self-exempting beliefs was found to not be significantly associated with the intention to quit.

Qualitative studies have investigated the role of work-related or trauma-related stress in discouraging smoking cessation. Dawson et al. (2012) showed that Aboriginal health workers frequently experienced stress, deriving from racism, loss of parents, excessive workloads, inequity in employment, and poor access to health services. Such individual barriers to smoking cessation were further reinforced by the lack of strong policies to deter smoking in work environments, as discussed above (see sub-section VII.C.1). The interviews carried out by Wood (2008, p. 2380) with 14-50 year old Indigenous mothers in Perth further confirmed that smoking was not only a "social experience" but also a "stress release". Besides social discrimination, teenage pregnancy, and single motherhood were also found to be relevant conditions that stimulated stress among this specific population. Tsourtos et al. (2011) assessed the influence of resilience to stress among smokers, ex-smokers, and never smokers who had all been diagnosed with depression between 2008-2009 in Adelaide. Overall, smokers tended to perceive higher levels of stress than ex-smokers and non-smokers. The main reasons for stress reported in the interviews were the necessity to overcome a difficult moment, the death of a family member, a physical injury, the end of a relationship with a partner, a stressful job, and being diagnosed with a mental disorder.

Demographic characteristics

Age and gender are usually strongly correlated with smoking habits. Smoking prevalence is higher in men than in women in Australia as in almost every country. Adults and young adults are more likely to be smokers that older people. Nonetheless, the studies included in the our analysis did not agree upon the existence of a statistical association between demographic characteristics (i.e., age and gender) and smoking cessation.

i. Age

As aforesaid, tobacco consumption varies across age groups in Australia, as it does in many other countries. Data from the National Drug Strategy Household Survey (Australian Institute of Health and Welfare, 2017) and National Health Survey (Australian Bureau of Statistics, 2019c) showed that smoking prevalence was higher among young adults and adults (those under 65 years old), in comparison to older people. This shows that quitting becomes more likely the older one gets. Indeed, some studies showed that people in their 30s, 40s or 50s were more likely to think about quitting and actually trying to quit than those who were younger (Dunlop et al., 2013; Hyland et al., 2006). Yet, other studies included in the review found no statistically significant correlation between age and smoking cessation (Hyland et al., 2006; Siahpush et al., 2013; Taylor et al., 2017). Hyland et al. (2006), for example, found that after controlling for other variables, age was no more significant in predicting successful cessation than other demographic variables. Instead, they found that the intention to quit, which was not simply induced by aging, was one of

[94] The study solely refers to low SES and does not compare them with high SES.

the most relevant predictors of smoking cessation. This suggests that smoking cessation can only be explained by factors extending beyond age.

ii. Gender

The results of the last National Drug Strategy Household Survey (Australian Institute of Health and Welfare, 2017) and National Health Survey (Australian Bureau of Statistics, 2019c) showed that smoking prevalence was higher among males than females. However, their smoking prevalence trends were very similar and the results on the role of gender in smoking cessation of the studies included in this review were mixed. Dunlop (2013) showed that males were less likely to think about quitting. Hyland (2006) did not find that gender impacted quit attempts. Among youths, Patton (1998) found that females were less likely to stop smoking, while other studies found being female to be a significant predictor of actual smoking cessation (Germain et al., 2012; Hyland et al., 2006). Altogether, the results of these studies appear to indicate that smoking cessation can only be explained by factors that lie beyond mere gender differences. In particular, the specific role of gender should be seen in light of the role of individuals within communities and families and in relation to the evolution of gender identity through time.

D. Media coverage analysis

Seminal research on this issue in the US associated decreases in tobacco consumption and smoking prevalence with the publicity surrounding the US Surgeon General's reports (Warner, 1977). A study conducted by Pierce and Gilpin (2001) in the US suggested that between the 1950s and early 1980s news media coverage of smoking and its attendant health issues contributed to an increase in cessation rates, especially among middle-aged smokers. The enhanced focus of the media on the deleterious effects from secondhand smoking were also said to coincide with increased quitting rates among the younger population. More recently, Smith et al. (2008) showed that the volume of news on tobacco issues, irrespective of their content, increased the likelihood of youths perceiving smoking as harmful. In the UK, unpaid publicity has been credited as the main factor for the 30% decline in smoking prevalence among British males between 1960 and 1980, with substantial falls occurring in the periods immediately following the publication of the 1962 and 1971 Royal College of Physicians' reports (Reid et al., 1992).

The mass media has the ability to convey messages to a large proportion of the population, in turn, having the power to influence public perception and raise awareness about important issues. Given this aforesaid power, news is often used as a privileged, strategic and relatively-cheap advocacy channel through which to convey messages. This has also proven to be the case in relation to Australian smoking reduction campaigns. For example, Australian tobacco control advocacy groups were explicitly cited in around one in five newspaper articles on tobacco use between 2004 to 2007 (Wakefield et al., 2012). During that period, according to the study by Wakefield and colleagues, Australian tobacco control advocacy groups had a strong presence in popular media debates on tobacco control, which is to say that they also likely contributed to generating and shaping this discourse.

Despite the fact that the media are key actors in terms of popularizing debates on smoking in Australia, research on the role of the news in directly influencing individual-level smoking behaviors is currently limited (Cotter & Bailey, 2015). Among those available studies, Dunlop and colleagues (2012) found that 30% of the respondents in the Tobacco Tracking Survey of the Cancer Institute NSW in 2010

reported semi-prompted recall of tobacco news, and that these patterns of recall closely coincided with peaks in news coverage. The results show that the news media are an important source of information for smokers, and, hence, that they have the potential to both influence beliefs and put, and keep, quitting on smokers' agendas. According to the study, television was the most frequently cited source of tobacco news (49%), followed by newspapers (38%), radio (32%) and the Internet (10%) (Dunlop et al., 2012). Media are also a highly relevant source of information for minority groups and the Indigenous population in Australia. Among Aboriginal and Torres Strait Islander smokers, for example, self-reported awareness of anti-tobacco news stories in the previous six months was associated with significantly higher levels of worry about the dangers of smoking for an individual's health and a greater desire to quit smoking (Nicholson et al., 2015).

Given the importance of the news media in shaping tobacco consumption, this study conducted a media coverage analysis that considered national, sub-national and local Australian newspapers stored in the Nexis Metabase from January 2011 to December 2019.[95] The media coverage analysis focused on five main topics: i) Tobacco and ANDS/ANNDS; ii) smoking cessation and anti-smoking campaigns; iii) vaping products; iv) health-related issues associated with combusted tobacco and ANDS/ANNDS; and v) tobacco control laws. The main goal of the media coverage analysis was to, first, understand if media attention towards these topics has changed over the years, and, if so, in what ways, and secondly, to highlight attitudes towards vaping products in the news. This data from news outlets was combined with data on smoking prevalence, which is discussed in the subsections below in relation to the major tobacco-related events that occurred in Australia during the timeframe considered for the analysis (2011-2019).

1. Tobacco and ANDS/ANNDS related issues

Media attention towards tobacco-related issues increased between 2011 and 2015 (+48% in the number of articles), before it began to subside immediately after (Figure 62). Overall, we were able to identify 1,450 articles on tobacco-related issues that were published in Australian newspapers between 2011 and 2015, and 560 between 2016 and 2019. Differences in the intensity of the debate on tobacco and ANDS/ANNDS issues at different times contributed to the unequal distribution of the articles. For instance, between 2011 and 2015 there was an intense debate in Australia over stiffening tobacco legislation and regulating both the use and the sale of e-cigarettes and other ANDS. Moreover, as discussed in section IV.D, in 2011 the government adopted the plain packaging legislation; in 2012, it introduced a ban on online tobacco advertising (2012); in 2013, it imposed an annual 12.5% tobacco tax excise. These initiatives also attracted considerable attention from the media. In 2014 and 2015, some states and territories introduced and reinforced smoking bans in specific contexts. For example, in 2015, Tasmania, Victoria and NSW implemented smoking bans in prisons. Several news outlets reported this event, even though this provision was not adopted at the Commonwealth level (Northern Territory and Queensland, had already introduced smoking bans in prisons in 2013 and 2014, respectively). Between 2014 and 2015, an extensive debate on the effectiveness of plain packaging garnered considerable media attention. Many articles reported the results of the first rigorous studies carried out in the years immediately following the implementation of the

[95] Data were also collected from January 2020 up to March 18th 2020, but the trends over the first months of the year showed an overrepresentation of articles for 2020, so we opted to focus the analysis on January 2011 – December 2019.

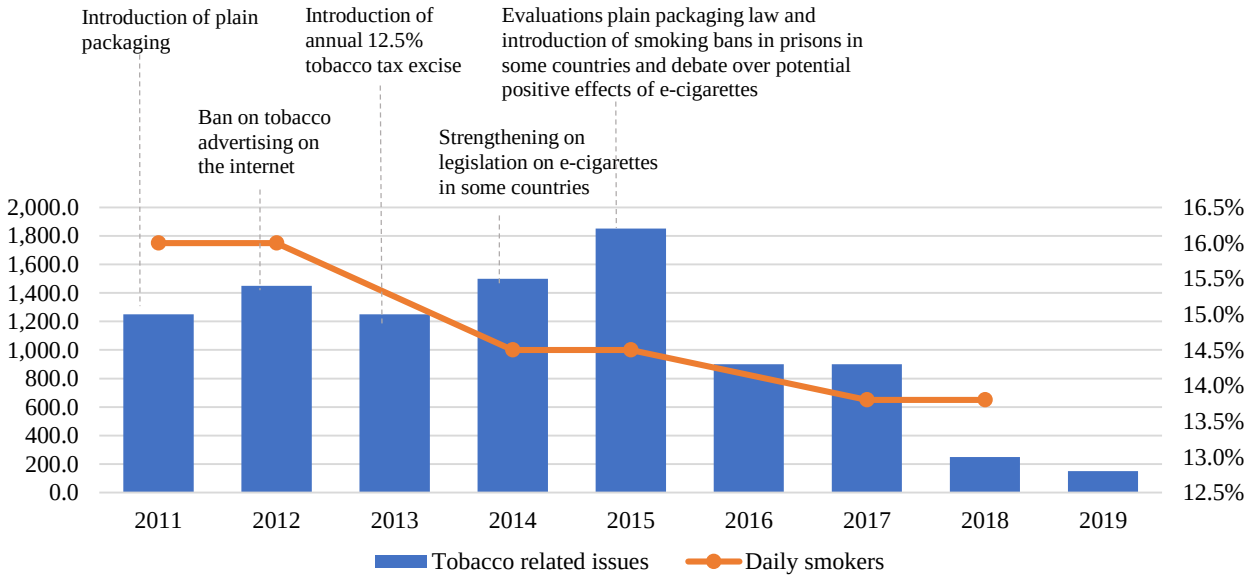
law, and presented the main arguments of the key stakeholders (e.g., government, health promotion bodies, tobacco industry) involved in the debate.

Regarding ANDS, Queensland became the first jurisdiction in the world to regulate e-cigarettes in the same way as tobacco cigarettes were, which received considerable space in Australian newspapers (Whitsunday Times, 2015). The law, adopted in 2014, specifically prohibited the sale of e-cigarettes to children, banned their use in smoke-free indoor and outdoor public places and forbid their promotion in retail shops. A year later, NSW banned the use of e-cigarettes in cars in the presence of a minor (SBS News, 2015). The increased volume of news reports in 2014 and 2015 (Figure 62) may be due to the additional media attention on vaping at this time (Figure 67). Indeed, during this period, many articles focused on national and international debates over the potential use of e-cigarettes as smoking cessation aids and their health effects.

Post-2015, the media attention on tobacco-related issues appeared to wane, most likely due to the less intense tobacco control activities by the government and the simultaneous emergence of new health issues. Principal among these issues, for example, was the opioid crisis in Australia during this period, the increased rate of opioid prescriptions and related deaths (Gelineau, 2019). Conversely, decreased governmental expenditure on anti-smoking advertising campaigns did not appear to be responsible for the lower level of media coverage on tobacco-related issues. Indeed, while the government cut spending on anti-smoking advertising campaigns in 2014, the coverage of tobacco only began to decrease the year after (-92% from 2015 to 2019) (Figure 62).[96] In this respect, it is evident that the media appear to follow their own agenda.

[96] Figure 57 shows the expenditure by the Australian government on anti-smoking advertising campaigns across time.

Figure 62. Estimated number of articles on tobacco and ANDS/ANNDS related issues (2011-2019) and prevalence of daily smokers (2011/12-2017-18)



Note: The data on daily smoking prevalence were originally collected by ABS in two year periods (2011-2012, 2014-15 and 2017-18). In the graph, data on smoking prevalence are kept constant along the two years for each period.

Source: authors' media coverage analysis and elaboration of ABS (2013, 2015, 2018) data.

From 2014-15 to 2017-18, the prevalence of daily smokers aged 18 years or older slightly decreased (-4.8%) compared to the more pronounced reductions registered between 2011-12 and 2014-15 (-9.4%). In addition, in the same period (between 2014-15 and 2017-18), the percentage of ex-smokers also decreased in Australia (-7%), whereas it had increased in the previous period, between 2011-12 and 2014-15 (+1.3%). The reduced media attention on tobacco-related issues may have contributed to slowing down the reductions in smoking prevalence. This might also be valid for news on more specific topics related to tobacco (vaping, smoking cessation, health problems, and tobacco control laws), whose number also decreased between 2011 and 2019. While this analysis does not allow to statistically prove the causal relation between media coverage and smoking prevalence, it does strongly suggest that the former may have contributed towards shaping individuals' attitudes towards smoking and, as such, indirectly prompted changes in smoking behaviors, thus endorsing previous studies carried out on the topic in Australia (Dunlop et al., 2012; Nicholson et al., 2015; Reid et al., 1992; Warner, 1977).

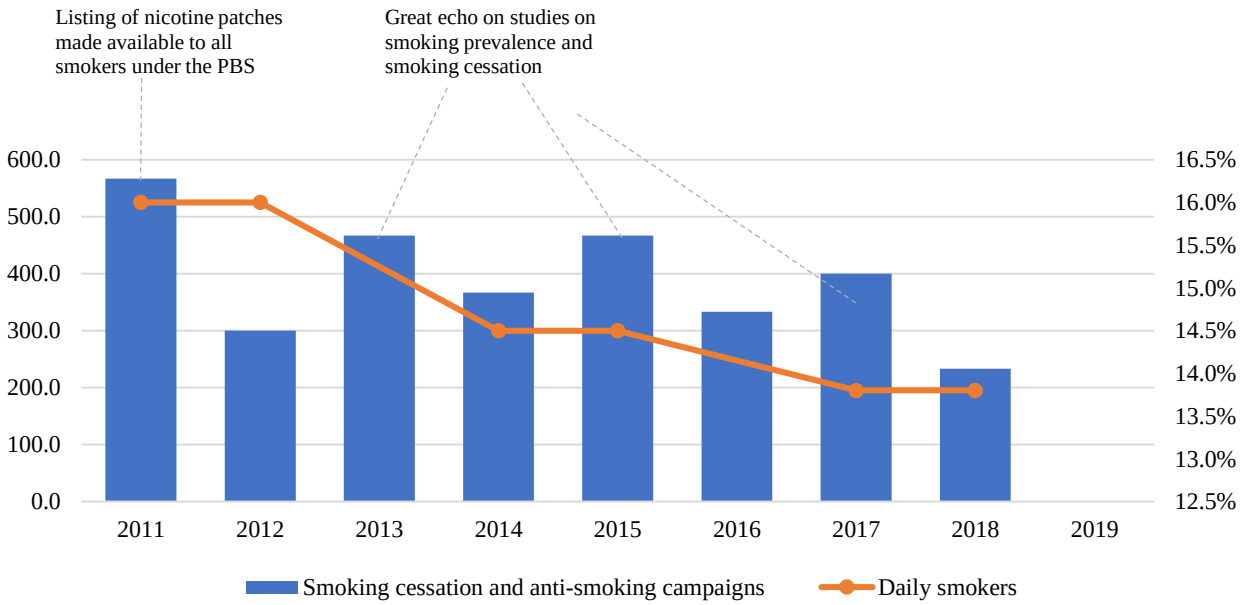
2. Smoking cessation and anti-smoking campaigns

The attention specifically paid to smoking cessation and anti-smoking campaigns constitutes around one-third of that devoted to tobacco and ANDS/ANNDS related issues by the Australian press (3,133 estimated articles compared to 9,500 between 2011-2019). The trend of the number of articles on smoking cessation and anti-smoking campaigns shows an oscillating tendency between 2011 and 2018 (Figure 63).[97] Despite these oscillations, the trend appears to be more stable overall than those registered by tobacco and

[97] This trend is probably due to the small sample size and the high degree of variability.

ANDS/ANNDS related issues (Figure 62) and vaping products (Figure 67). No articles on smoking cessation were identified in 2019 in Australian newspapers (Figure 63). On average, 17% of the articles discussing smoking cessation focused on anti-smoking campaigns. Other articles concerned smoking cessation programs, pharmacotherapies to help people to stop smoking, as well as studies on smoking prevalence and the factors associated with quitting in Australia. For example, as explained in section IV.E, in 2011, nicotine patches were made available under the PBS to all smokers as opposed to only Indigenous people, as it had been previously. This news received considerable interest from the Australian media, as smokers were provided with an additional subsidized smoking cessation aid. The unstable trend of news on smoking cessation does not allow for drawing any clear conclusions on the impact of these specific news reports on smoking prevalence. However, it is possible that, in conjunction with other news on tobacco, they contributed to shaping people's attitudes on smoking and increased smokers' awareness of the methods of quitting that were available to them.

Figure 63. Estimated number of articles on smoking cessation and anti-smoking campaigns (2011-2019) and prevalence of daily smokers (2011/12-2017-18)



Note: The data on daily smoking prevalence were originally collected by ABS in two year periods (2011-2012, 2014-15 and 2017-18). In the graph, data on smoking prevalence are kept constant along the two years for each period.

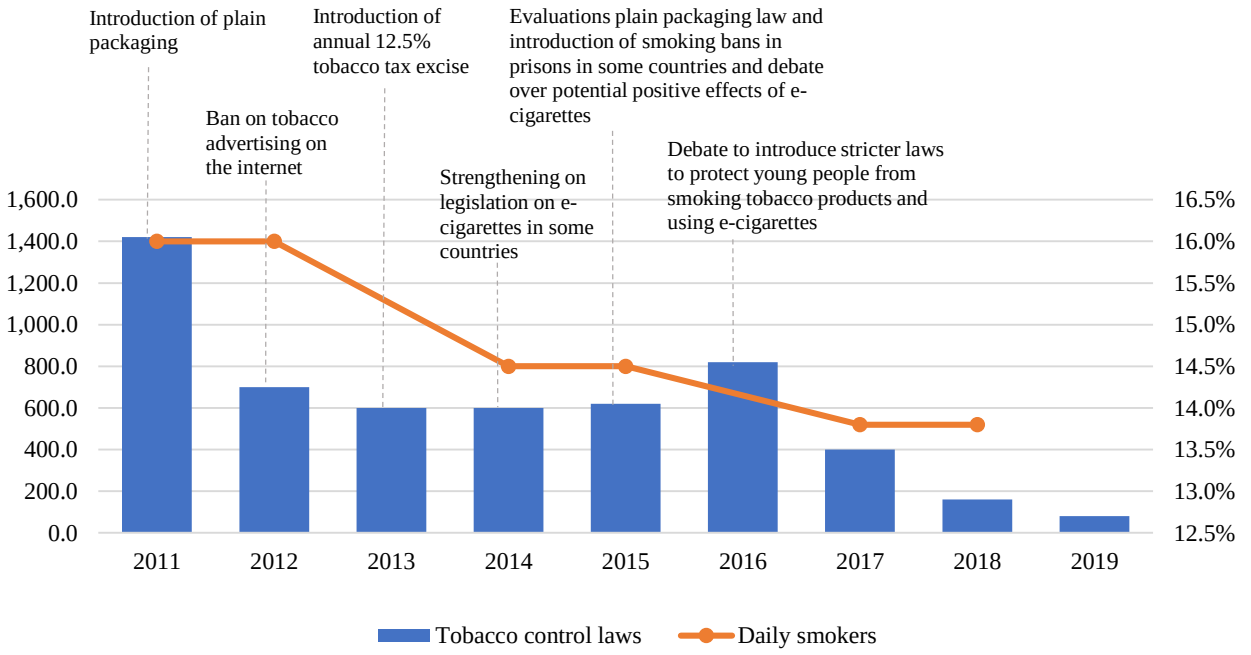
Source: authors' media coverage analysis and elaboration of ABS (2013, 2015, 2018) data.

3. Tobacco control laws

Coinciding with a reduction in the regulatory activity of the Australian government in the field of smoking policies, media attention toward tobacco control laws also strongly decreased in the considered period. In 2011, the news on plain packaging received notable attention; indeed, almost 40% of the articles discussing control laws in 2011 focused on the introduction of this law. The attention granted to this topic diminished the following year. More specifically, although plain packaging law only entered into effect in late 2012, the estimated number of articles about tobacco control laws decreased by 51% between 2011 and

2012. Subsequently, media attention towards tobacco control laws remained relatively stable between 2012 and 2015. The number of articles rose by 32% between 2015 and 2016, but immediately dropped again during 2016 to 2017 (-51%). In 2018 and 2019, an incredibly low number of articles on tobacco control laws were published by Australian newspapers (Figure 64). Despite the decreased media attention on the topic after 2011, on average, the estimated number of news on this topic published by Australian newspapers between 2011 and 2015 was still higher than in the following period, i.e., 2016-2019 (788 vs 365), which reflects a more intense period of tobacco control activity.

Figure 64. Estimated number of articles on tobacco control laws (2011-2019) and prevalence of daily smokers (2011/12-2017-18)



Note: The data on daily smoking prevalence were originally collected by ABS in two year periods (2011-2012, 2014-15 and 2017-18). In the graph, data on smoking prevalence are kept constant along the two years for each period.

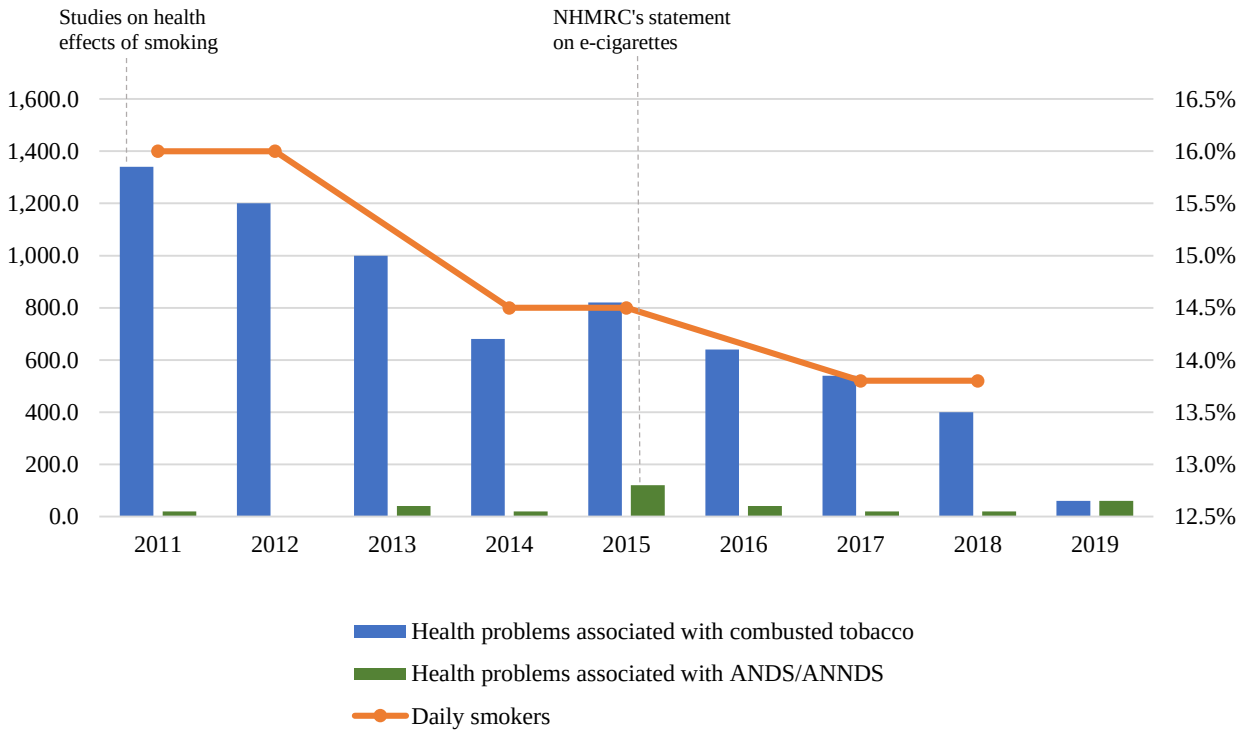
Source: authors' media coverage analysis and elaboration of ABS (2013, 2015, 2018) data.

4. Health issues

When referring specifically to health issues, the Australian media tended to focus on traditional tobacco products as opposed to ANDS/ANNDS. Between 2011 and 2019, an estimate of 6,680 articles discussed health issues related to the use of traditional tobacco products, while only 340 focused on ANDS/ANNDS. The media coverage of the health problems associated with combusted tobacco intensely decreased between 2011 and 2019. The estimated number of articles reported in Australian newspapers were 1,340 in 2011, before falling to only 60 in 2019 (-95.5%). In 2011, many studies were published on the health effects of smoking in Australia, and they received considerable attention (e.g., Adair et al., 2011; Bowden et al., 2011; Jamrozik et al., 2011; Miller et al., 2011). In all likelihood, the media's increased focus on these studies was influenced by the introduction of plain packaging: government authorities and

Australian health organizations stressed the positive effects of this measure on people's health by discouraging smoking and making it less appealing. The descending trend was relatively stable, despite a stronger decrease between 2013 and 2014 (-32%), which was followed by an increase between 2014 and 2015 (+21%). Within the entire time series, the highest volume of news reporting on health problems associated with the use of ANDS/ANNDS was registered in 2015 (120) (Figure 65). Notwithstanding the laws that were adopted by some governments at this time to mitigate the potential health issues from e-cigarettes for youths and minors (see above), in 2015, the National Health and Medical Research Council (NHMRC) issued a statement on e-cigarettes confirming that there was insufficient evidence that they were an expedient smoking cessation aid. In 2019, the same number of articles discussed the health problems associated with combusted tobacco and the health problems associated with ANDS/ANNDS (n=60). In contrast to the previous year, there was a huge increase in the news related to health problems associated with ANDS/ANNDS (+200%).

Figure 65. Estimated number of articles on health problems associated with smoking and using ANDS/ANNDS (2011-2019) and prevalence of daily smokers (2011/12-2017-18)



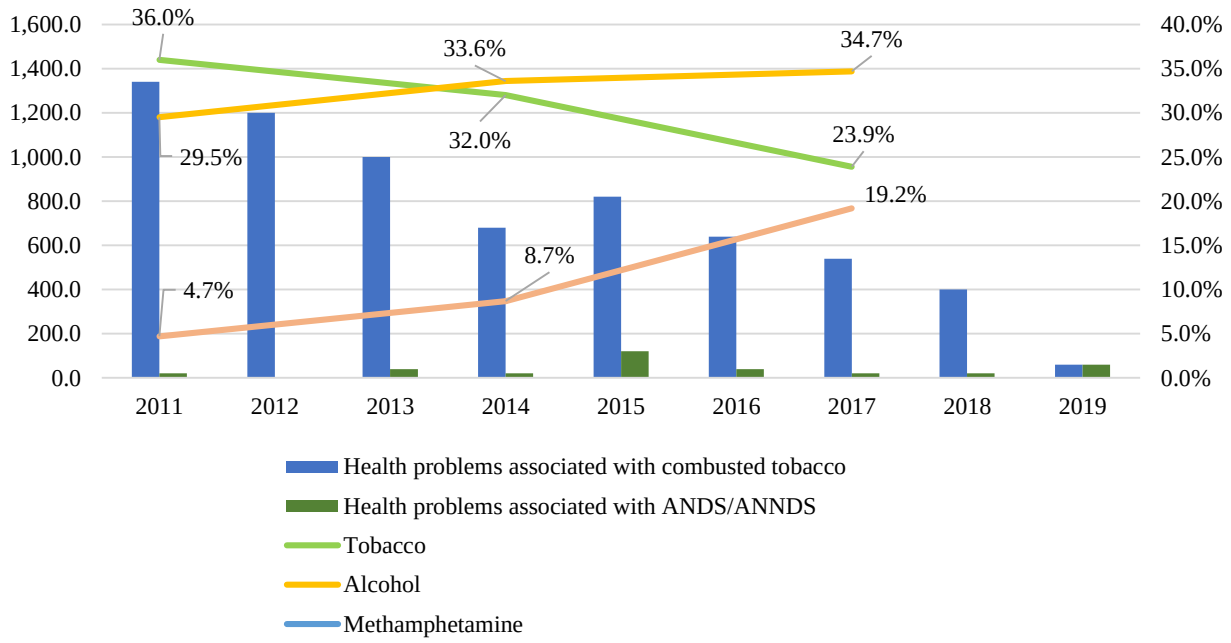
Note: The data on daily smoking prevalence were originally collected by ABS in two year periods (2011-2012, 2014-15 and 2017-18). In the graph, data on smoking prevalence are kept constant along the two years for each period.

Source: authors' media coverage analysis and elaboration of ABS (2013, 2015, 2018) data.

As aforementioned earlier in this section, extensive media coverage of smoking and its attendant health issues can encourage people to quit smoking (Pierce & Gilpin, 2001). Hence, reduced attention by the media on this topic can produce the reverse effect, insofar as it conveys the message that smoking is no longer harmful. This can contribute towards shaping the public's smoking attitudes and behaviors.

Interestingly, the decrease in news coverage of the health issues related to tobacco and/or ANDS/ANNDS coincided with a drop in the percentage of Australians who thought that tobacco was the substance that caused most deaths in Australia (Figure 66). On the contrary, over time (between 2011 and 2016), the percentage of individuals who considered methamphetamine and alcohol to be more damaging than other substances increased. Therefore, it is possible that the reduced media coverage of the health problems associated with tobacco-use contributed to a shift in the Australian public's perceptions of the health consequences of smoking. However, since this analysis did not allow for the establishing of any causal relation between the two factors, it is also possible that this relation is not univocal and that they influenced each other.

Figure 66. Estimated number of articles on health problems associated with smoking and using ANDS/ANNDS (2011-2019) and the drug thought to cause the most deaths according to Australians (2007 – 2016)

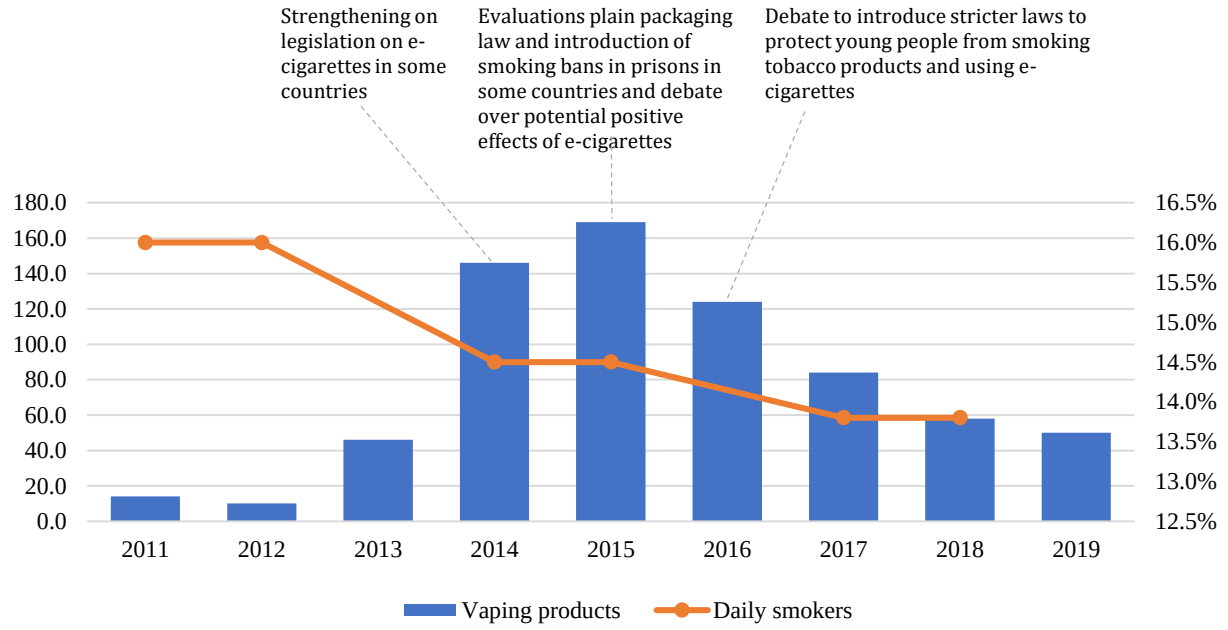


Source: authors'media coverage analysis and elaboration of Australian Institute of Health and Welfare (2017) data.

5. Vaping products

While the number of articles that discussed vaping products was relatively low in the first years of the selected time series (from 2011 to 2013), the attention paid to the topic grew remarkably between 2013 and 2014 (+217%) (Figure 67). The interest increased further in 2015, which is the year that registered the highest number of articles on vaping products in the entire time series, before it subsequently began to decrease from 2015 to 2019 (-70.4%) The aforementioned strengthening of e-cigarette regulation in NSW garnered considerable attention, and the estimates indicate that more than 60% of the Australian articles that discussed e-cigarettes in 2015 made reference to at least one of these bans. The increased media coverage on the issue between 2013 and 2015 coincided with a drop in the prevalence of daily smokers (Figure 67) and an increase in e-cigarette users (Figure 37).

Figure 67. Number of articles on vaping products (2011-2019) and prevalence of daily smokers (2011/12-2017/18)



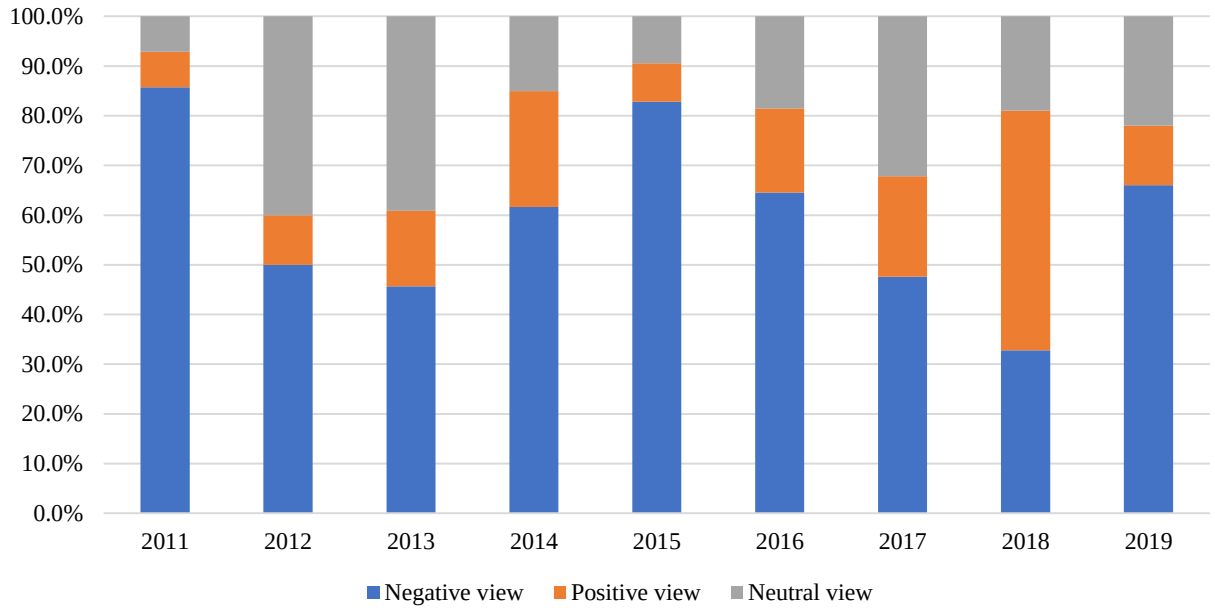
Note: The data on daily smoking prevalence were originally collected by ABS in two year periods (2011-2012, 2014-15 and 2017-18). In the graph, data on smoking prevalence are kept constant along the two years for each period.

Source: authors' media coverage analysis and elaboration of ABS (2013, 2015, 2018) data.

The number of articles that presented negative views about vaping products outweighed those that expressed positive or neutral views for all the years considered in the time series, with the exception of 2018 that registered a higher percentage of positive views (48.3%) compared to negative (32.8%) and neutral (19.0%) views (Figure 68). The positive views associated with vaping products observed in 2018 occurred in the context of news outlets commenting on political and public debates on both the appropriateness of the e-liquids nicotine ban and the ideologically motivated hostility towards e-cigarettes shown by several public health experts and smoking cessation advocates. In 2015, which is the year that registered the highest number of articles on vaping products, over 80% of the news articles about these devices were negative. In 2015, which is the year that registered the highest number of articles on vaping products, the news that reported negative views about these devices were more than 80%. It is possible that the negative news on vaping contributed towards the shaping of Australians' perceptions of these products. In 2016, one of the years that recorded a high number of negative news, the percentage of Australians in favor of restricting the use of e-cigarettes in public places (as for cigarettes) was 65.4%, while the percentage of those people who said they would prohibit the sale of e-cigarettes to people under 18 years of age was 76.8% (Australian Institute of Health and Welfare, 2017). In 2018, the Victorian Poisons Centre found that cases of nicotine poisoning doubled between 2018 and 2019 (from 21 to 41). These appear to have been primarily caused by products that were imported from abroad and did not satisfy Australia's safety requirements (Hunt, 2020). Moreover, in July 2018, a Victorian baby died due to e-cigarette liquid nicotine consumption (Haggan, 2020). The recent deaths in the US attributed to the use of e-cigarettes also

received considerable mileage in the Australian media (Davey, 2019), and may go some way to explain the increase in the negative number of articles on the issue in 2019.

Figure 68. Number of articles on vaping products by attitude and year, 2011-2019



Source: authors' media coverage analysis and elaboration of ABS (2013, 2015, 2018) data.

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