Cigarette brand loyalty in Australia: findings from the ITC Four Country Survey

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ABSTRACT

Background and aim There is little academic research on tobacco brand loyalty and switching, and even less in restrictive marketing environments such as Australia. This paper examines tobacco brand family loyalty, reasons for choice of brand and the relation between these and sociodemographic variables over a period of 10 years in Australia.

Methods Data from current Australian smokers from 9 waves of the International Tobacco Control Policy Evaluation 4-Country Survey covering the period from 2002 to early 2012. Key measures reported were having a regular brand, use for at least 1 year, brand stability (derived from same reported brand at successive waves), and reasons for choosing brands.

Results Measures of brand loyalty showed little change across the period, with around 80% brand stability and 95% reporting a regular brand. Older adults were more brand-loyal than those under 25. Young people’s brand choice was influenced more by friends, whereas older adults were more concerned about health. Price was the most reported reason for brand switching. Those in the higher income tertiles showed more loyalty than those in the lowest. The least addicted smokers also showed less brand loyalty. We found no clear relationship between brand loyalty and policies that were implemented to affect tobacco use.

Conclusions Levels of brand loyalty in Australia are quite high and consistent, and do not appear to have been influenced greatly by changes in tobacco control policies.

INTRODUCTION

This paper documents aspects of tobacco brand loyalty, including rates of switching and reasons for brand choice, among Australian smokers over the period 2002 to early 2012. Smoking rates in Australians aged 14 years and older have declined over this period, from 19.4% in 2001 to 15.1% in 2010.1 Several factors affect brand choice, such as price and packaging,2 3 and to the extent that smokers value their brand of cigarettes, they should be reluctant to shift unless they have the opportunity to use brands with even more of the qualities they desire.

Australia is a unique market for tobacco in several respects. Although about 99% of the market is dominated by three major market companies,4 there are a wide variety of brands available and a lower concentration of market share for any one brand than in other countries such as the USA. Pack sizes vary between 20 and 30 cigarettes as a result of the historical practice of taxing tobacco by weight up until 1999, when price per stick taxation was introduced.5 The larger pack sizes (>25) have been used mainly in budget brands. The market is organised by the industry into three broad price band segments: premium, mainstream and budget.

Australia has also become an increasingly restrictive market for tobacco.6 By the year 2000, advertising was banned in all settings excepting point of sale (POS) and on packs, with very limited exemptions for some forms of sponsorship until 2006. On a state by state basis, displays of cigarettes at POS were progressively prohibited between 2009–2011, preceded in some states by bans on POS advertising and restrictions on display size.7 Tobacco products are now required to be concealed at POS in all states,8 which has been associated with reduced levels of spontaneous purchasing.9 In 2006, misleading variant terms like ‘Light’ and ‘Mild’ were banned and text only health warnings on packs were replaced by graphic warnings marginally larger on the front of the pack (30% compared with 25%), but much larger on the back (90% compared with 30%). These warnings increased smokers’ health-related reactions to packs,2 reactions shown to be associated with increased quitting.10 Finally, in 2010, there was a 25% tax increase on top of the regular consumer price index–based increases.

None of the abovementioned policies were designed to influence brand choice, all being either targeted at consumer awareness, increasing cessation and/or reducing uptake overall. However, it is possible that a policy affecting the appearance of brands such as graphic warnings on the pack, their salience at POS (not being visible might reduce switching) and price increases (downshifting to cheaper brands) could all conceivably influence brand choice, potentially in ways that could at least in part undermine the intended effects.

The tobacco industry has a direct commercial interest in researching brand switching—some of this research is now publicly accessible through litigation in the USA and Canada in the early 1990s.11 Most of this research is US-based, and mostly from the late 1980s to early 1990s.12 13 The 1991 ‘Philip Morris Switching Book’14 extensively describes switching across demographics, type of cigarette, company and brand, based on telephone interviews with 34 117 US smokers over a 12-month period. ‘Switchers’ are defined as those smoking their current brand for 1 year or less in cross-sectional surveys, although the methods are not known. Though sources of earlier data are unspecified, this document additionally lists the annual incidence rate of brand switching from 1981 (the highest rate, at 11.0% of smokers) to
1991, with the lowest rate of switching in 1987 (6.2%). Most recently, a short market research summary from 2000 indicated US brand family switching of around 14% over the preceding 2-year period across four major brand families, a figure consistent with the earlier data, suggesting no major change in brand switching. The majority of independent brand-switching research has focussed on the US market, and suggests that over the period 1986–1993 around 10% of smokers switched brands in any given year. Independent research concerned with the effect of tobacco advertising on youth has shown that brand choice is related to both peer influence and exposure to brand advertising. Furthermore, one 1994 US study found that among regular adult smokers, the vast majority nominated their first brand smoked as their later regular brand, implying immediate and lasting brand loyalty. Research on tobacco brand loyalty and switching in Australia is sparse. One analysis of industry documents between 1990 and 2001 suggests that compared with the US market, Australian smokers are perceived as less brand loyal and more likely to smoke more than one brand or switch between brands. An industry report on the Australian market suggests brand family switching of around 15%, derived from six monthly telephone interviews of smokers from 1985 to 1988, questioning their main brand smoked, and whether this changed in the previous 6 months. Another Philip Morris document from 1990 stated that at least 33% of smokers shifted brands annually in Australia; however, because of the lack of details on the methods used, this high incidence rate might have included variant switching. A search of publicly available documents revealed no newer relevant industry documents. On the presumption that the industry has accurate estimates of brand switching, this suggests that at least at that time Australian smokers exhibited lower brand loyalty than their US counterparts. The restrictive marketing environment for tobacco in Australia is now markedly different to that in the USA and to that of the previous Australian research. The reduced differentiation between brands may reduce brand loyalty; however, equally there may be fewer incentives for smokers to change brands. This paper aims to describe tobacco brand family switching, reasons for brand choice and other indicators of loyalty over a period of 10 years, among Australian smokers. It also explores several different methods of estimating brand loyalty to see if they provide similar results. We explore the possibility that brand loyalty may be reduced in poorer smokers as a result of price differentials forcing some downshifting to less desired cheaper brands, and more generally explore whether policy changes have a detectable impact on brand loyalty.

METHODS

Sample

The International Tobacco Control Policy Evaluation (ITC) Project includes a longitudinal study of smokers from Australia, Canada, the USA and the UK (ITC Four Country Project). This paper uses the nine waves of data collected from the Australian arm of the study, and only that from current (at least monthly) smokers (factory made or roll-your-own). The survey was conducted using computer-assisted telephone interviewing, and more recently, partly online. Cohort members lost to attrition were replenished at each wave from the same sampling frame to maintain sample size. Methods are further described by Fong et al and Thompson et al.


As a result of it being a cohort survey replenished from the same sampling frame with a higher dropout rate among younger smokers, the average age of the cohort has increased across waves, from 38.9 years (SD=13.6) to 50.0 years (SD=12.8).

Brand loyalty measures

There were three measures of brand loyalty: (1) ≥1 year use: at each wave, smokers were asked, ‘What brand of cigarettes do you smoke more than any other?’. Those reporting a brand were then asked how long they had been smoking this brand (Waves 1–5), or for Waves 6–9, simply if it was at least a year. (2) Brand stability: defined as the brand family (ignoring variant) reported at one wave being the same as that reported at the next wave. This measure was based on adjacent wave intervals; therefore, participants who quit at any wave were missing/excluded on the two related intervals. (3) Regular brand: ‘Do you have a regular brand and variety of cigarettes?’ asked only in Waves 5–9. Where participants said they had a regular brand and what brand it was, this answer was used in the above brand measures. In Wave 3, those without a regular brand were not asked which brand they smoked most; instead their brand stability was derived from brand last purchased. For Waves 5–9, when the regular brand question was introduced, those without a regular brand were not asked about ≥1 year use, we assumed less than 1 year use.

Reasons for brand choice measures

Reasons for brand choice were only asked of all smokers at Wave 9, 2011, with yes/no answers to: ‘Was part of your decision to smoke this brand based on any of the following: The tar and nicotine levels for the brand?; It may not be as bad for your health?; As a way to help you quit?; The price?; How they taste?; How satisfying they are?; The look and feel of the pack?; Your friends smoke them?’

Other measures

Sociodemographic measures included sex, age category (18–24, 25–39, 40–54 and 55 years and over) and income category (from annual household income: low, <$30 000; moderate, $30 000–$59 999; and high, $60 000+). Tobacco addiction was assessed by the Heaviness of Smoking Index (HSI; 7 levels, 0=least addicted to 6=most addicted). Brands value categories were based on recommended retail prices (RRP) listed in editions of The Australian Retail Tobacconist from the beginning (December 2002–January 2003), middle (October–November 2006) and end (November–December 2011) of the study period. Brands were ordered by maximum price per stick in each time period (see online supplementary Appendix A); natural cut-off points were then found for each market segment using the listing of key brands by market segment from Tobacco in Australia, which allocated all the top-selling brands into the appropriate category. Price per stick cut-offs for discount, mainstream and premium classification, respectively, were ≤$3c, $3.5–$3.7c, $3.8c+ in 2002; ≤$4c, $4.1–$4.4c, $4.5c+ in 2006; and ≤$5c, $6–$6.9c, $7c+ in 2011. Brands that changed classification between these three periods were classified into the category that they appeared two out of three times or in mainstream where brand crossed all three
categories (one brand only, used by only one participant). Among brands with market share above 1%, Alpine was classed as mainstream, having started at premium in 2002. Longbeach was classified as discount, although it was in the mainstream price range in 2011.

Analyses
Simple bivariate relationships were evaluated using $\chi^2$ tests. Generalised Estimating Equation (GEE) modelling allowed testing for demographic differences collapsed across the survey period and overall longitudinal trends, and by treating waves as categorical, possible effects of major policy changes in the waves immediately following implementation. Where GEE showed evidence of subgroup differences, these were examined using further $\chi^2$ tests. All GEE models included interwave interval (continuous, days) as control, with demographic variables entered individually to test independent categorical effects. Overall variable significance was calculated with postestimation (composite, linear) Wald tests. Multivariate relationships between sociodemographics and reasons for brand choice were tested with logistic regression. Critical effect sizes for the logistic regressions (as all of the GEE) were determined using G*Power 3.1.6.25 This analysis indicated that with the sample size of 1000, $\alpha$ at 0.05 provides power of 0.8 to detect effects of magnitude OR <0.62 or >1.52.

RESULTS
How consistent are smokers in their brand choice?
Figure 1 shows that the three brand loyalty measures ($\geq$1 year use, brand stability and regular brand) remained remarkably constant across the survey period. Percentages shown in figure 1 are adjusted for interwave interval with unadjusted percentages reported in table 1. Between 94.5% and 95.1% reported a regular brand (Waves 5–9 only). Assuming that smokers with no regular brand (at Waves 5–9) had been using their nominated brand less than 1 year, a reasonably stable number (83.1–88.4%) of smokers reported $\geq$1 year use. Brand stability was consistently lower, with between 77.6% and 82.3% reporting the same brand at successive waves (excluding those currently quit at either wave).

Figure 1 also shows the declining proportion of smokers who have never switched from their first nominated brand among those retained over the 10-year survey period. By Wave 9 (N=254), this was quite low (39.8%), indicating that the switching recorded at adjacent waves is not solely the result of continual switching among a small group of smokers. To examine the relative stability of the retained sample, smokers present in Waves 1 to 2 were grouped based on total number of waves participated in (2 waves only, 3–4, 5–6, 6–7, or all 9 waves). Resultant groups were not significantly different on brand stable for wave 1 to 2 ($\chi^2(4)=6.28, p=0.18$), though the trend was increasing brand stability with increasing survey participation (2 waves=80.1% stability to 9 waves=84.8% stability).

Finally we looked for effects by survey wave to identify any trends and to see if waves associated with interventions had different levels of stability. After controlling for interwave interval, GEE analysis showed no significant linear ($p=0.11$) or non-linear (quadratic; $p=0.87$) trends in brand stability across waves.

Sociodemographics of brand loyalty
GEE analysis showed that females were more likely to report having a regular brand (OR=1.53, 95% CI 1.16 to 2.03, $p=0.003$), but the other two measures showed no significant differences ($p=0.32$ for $\geq$1 year use; $p=0.21$ for brand stability).

Compared with the oldest age category (55+), the youngest age group was less likely to be brand stable (OR=0.61, 95% CI 0.48 to 0.77, $p<0.001$), with no evidence of difference for the other groups (25–39 years, OR=1.00, 95% CI 0.84 to 1.19, $p=0.97$; 40–55 years, OR=1.16, 95% CI 0.99 to 1.36; $p=0.07$). Similarly, compared with the oldest smokers, the youngest group were less likely to report $\geq$1 year use (OR=0.45, 95% CI 0.32 to 0.63, $p<0.001$), with no apparent difference with the other groups (25–39 years, OR=0.82, 95% CI 0.64 to 1.05, $p=0.12$; 40–54 years, OR=1.14, 95% CI 0.90 to 1.44, $p=0.27$). Regular brand showed a different pattern, with both middle age groups more likely to report having a regular brand (40–55 years, OR=1.78, 95% CI 1.19 to 2.68, $p=0.005$; 25–39 years, OR=1.64, 95% CI 1.01 to 2.66,

Figure 1 Stability of brand choice Wave 2 to Wave 9.
p=0.04) and no evidence of difference in the youngest group (18–25 years, OR=1.04, 95% CI 0.47 to 2.29, p=0.92) when compared with those over 55 years.

Compared with the lowest income category, the middle (OR=1.37, 95% CI 1.11 to 1.70, p=0.004) and highest categories (OR=1.77, 95% CI 1.41 to 2.23, p=0.001) were significantly more likely to have smoked their brand for ≥1 year. Regular brand showed a similar pattern though it did not reach significance.

Similarly, brand stability was more likely in the middle income category (OR=1.29, CI 1.12 to 1.49, p=0.001), and most likely in the highest income group (OR=1.74, CI 1.49 to 2.04, p<0.0001). There was considerable variability of this between waves, see table 1. Notably, the income differential in brand stability disappeared in the two waves following the 2010 tax increase. Separate analyses on each income group found no effect of wave on brand stability for either low or medium income. In the high-income group, brand stability from Wave 2 decreased significantly in Wave 8 following the taxation increase (OR=0.27, 95% CI 0.10 to 0.73, p=0.009), though this recovered somewhat at Wave 9 (OR=0.56, 95% CI 0.31 to 1.01, p=0.053). We looked to see if this might be due to downshifting to cheaper brands; however, there was no evidence of differential category switching in the high-income group at wave 6–7 compared with 7–8. As this was the period with a large excise tax increase, we also looked at how prices changed over the period (see table 2). Percentage increases in reported price paid per cigarette between waves 7 and 8 were similar across value categories, meaning greater absolute price increases in the premium category.

Compared with the most addicted smokers (HSI=6), the least addicted (HSI=0) showed significantly lower brand stability on GEE analysis (OR=0.63, CI 0.41 to 0.96, p=0.032); the other HSI groups were not significantly different (p=0.07 to 0.45). GEE showed no significant relationship between HSI and ≥1 year use (overall variable χ²(6)=11.23, p=0.08).

However, there was a curvilinear relationship between HSI and having a regular brand (overall variable χ²(6)=17.08, p<0.01)—this increased with increasing HSI up to HSI=5, then dropped sharply in the most addicted group to be non-significantly lower than HSI=0.

### Reasons for brand choice (Wave 9 only)

Reasons for brand choice surveyed and their relationship to brand stability are shown in figure 2. Smokers who chose their brand for tar/nicotine levels, taste or because they found their brand satisfying were more likely to be brand stable; price was the most frequently reported reason for switching.

Reasons for brand choice and relationships to sociodemographics are shown in table 3.

No sex differences were found.

The older the age category, the more likely smokers were to choose their brand for health reasons. The younger the age

### Table 2 Absolute and relative price increases around the 2010 taxation increase as a function of market segment of brands

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>2009 Mean price/stick</th>
<th>2010/2011 Mean price/stick</th>
<th>Absolute Increase</th>
<th>% Increase</th>
<th>2011/12 Mean price/stick</th>
<th>Absolute Increase</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount</td>
<td>39.2c</td>
<td>50.0c</td>
<td>10.8</td>
<td>27.5</td>
<td>53.5c</td>
<td>3.5</td>
<td>7.1</td>
</tr>
<tr>
<td>Mainstream</td>
<td>44.4c</td>
<td>55.7c</td>
<td>11.4</td>
<td>25.6</td>
<td>60.3c</td>
<td>4.6</td>
<td>8.2</td>
</tr>
<tr>
<td>Premium</td>
<td>48.2c</td>
<td>61.5c</td>
<td>13.3</td>
<td>27.6</td>
<td>66.4c</td>
<td>4.9</td>
<td>8.0</td>
</tr>
<tr>
<td>Total</td>
<td>42.8c</td>
<td>54.0c</td>
<td>11.3</td>
<td>26.4</td>
<td>58.3c</td>
<td>4.3</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Note. All prices refer to reported price paid by sample participants, not recommended retail prices.

Table 1 Percentage of smokers reporting same brand at adjacent waves by age and income

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Total 42.8c 54.0c 11.3 26.4 58.3c 4.3 8.0</td>
<td></td>
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<tr>
<td>Age</td>
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</tr>
<tr>
<td>18–24 years</td>
<td>75.4</td>
<td>69.2</td>
<td>69.2</td>
<td>71.2</td>
<td>72.2</td>
<td>62.1</td>
<td>76.1</td>
</tr>
<tr>
<td>25–39 years</td>
<td>82.9</td>
<td>81.0</td>
<td>79.3</td>
<td>83.0</td>
<td>79.9</td>
<td>84.2</td>
<td>73.8</td>
</tr>
<tr>
<td>40–54 years</td>
<td>85.9</td>
<td>82.5</td>
<td>85.7</td>
<td>84.1</td>
<td>81.3</td>
<td>83.3</td>
<td>76.0</td>
</tr>
<tr>
<td>≥55 years</td>
<td>85.7</td>
<td>86.8</td>
<td>80.4</td>
<td>77.7</td>
<td>74.1</td>
<td>80.4</td>
<td>79.2</td>
</tr>
<tr>
<td>p Value</td>
<td>0.002</td>
<td>0.001</td>
<td>0.001</td>
<td>0.044</td>
<td>0.070</td>
<td>0.007</td>
<td>0.015</td>
</tr>
</tbody>
</table>

χ²(2) | 14.52 | 17.58 | 16.41 | 9.21 | 7.71 | 12.07 | 10.43 | 5.07 |

χ²(2) | 5.44 | 13.55 | 17.46 | 13.66 | 15.35 | 30.24 | 5.39 | 6.28 |

*Cell count=6.
†Cell count=10.
category the more likely smokers were to choose what their friends smoked. Choosing for satisfaction was highest in both extreme age groups.

The lowest income group was most likely to choose their brand on price, and the highest income group the least likely. This pattern was reversed for taste.

Choosing their brand for price was sharply associated with increased level of HSI. There were also non-linear relationships with choosing on basis of ‘friends’ and to help them quit.

DISCUSSION

These data show that, at least for Australian smokers, both reporting having a regular brand and reporting ≥1 year use underestimate the extent of brand stability as indexed from longitudinal analyses of reporting smoking the same brand at successive surveys. All three of these measures were stable across the period of the study, with no clear evidence of any impact of policy changes.

These measures seem to assess somewhat different things. Having a regular brand showed greater differences to the other measures, which might be expected, given its more subjective nature. Brand stability and ≥1 year use showed similar patterns except among the least addicted group, which showed lower brand stability but were no less likely to report having smoked their current brand for ≥1 year.

The data from cumulative brand switching wave to wave show that over a period of 10 years most smokers have made at least one brand switch. That the small retained cohorts were, if anything, more brand loyal, makes the overall estimate of consistency of brand use likely conservative. That said, it may underestimate brand loyalty longer term, as some may have a preferred brand and return to it over time. However, it does show that there is considerable switching. In future work, we plan to look at whether stability of brand choice is related to interest in and actual quitting activity.

It is not possible to draw any clear conclusions as to whether brand stability might have changed from the period when cigarettes could be more actively promoted. The estimates found in industry documents would suggest there may have been an increase in stability, as the rates of brand switching reported in the 1980s was much higher (about 33%). It is not clear what the basis of this estimate is, but as it indicates greater switching than any of our measures and is likely to be based on cross-sectional data, it seems likely that switching may have declined, but is now stable.

The most important reasons for brand choice among switchers were price, to be the same as that of their friends and pack design. Satisfaction and taste were the major reasons in those who were brand stable. For consciously mediated choice, those aspects of cigarettes that are intrinsic seem more important for those maintaining the same brand, while more external factors may be stimulating switching. Unfortunately, as these measures were only asked of all smokers in the last wave, we cannot explore prospective associations at this point.

It is notable that gender appears to have little effect on brand loyalty, and no relationship with reasons for brand choice. The youngest age group (18–24 years) was generally the least brand loyal, with little difference between the other age groups. Youn people were more likely to report peer influence as a reason for choice, whereas older people (55+ years) were more likely to report choosing for health concerns and satisfaction. As friendship groups probably change more in the young this is likely to contribute to the greater switching among this group. It should be noted that the under 25s, are under-represented in this study.

As expected, low-income smokers were less brand loyal and report being more price-sensitive, although we found no impact of the large 2010 price increase in this group. The only evidence of any possible relationship between policy changes and brand loyalty was that this substantial taxation increase may have decreased brand stability in high-income smokers. However, given there was neither an overall change to brand stability nor an increase in downshifting to value categories, we are not sure that it can be attributed to the price change.

The least addicted were less brand loyal than all others and most likely to choose the same brand as their friends. Both could be because they are more likely to share packs, and thus, have their choices more determined by others. The consistent

Figure 2 Reasons for brand choice at W9 and brand stability W8–9.
### Table 3 OR (95% CI) of sociodemographics predicting proportion of smokers nominating reasons for brand choice

<table>
<thead>
<tr>
<th>% of Wave 9 sample</th>
<th>Tar/nicotine levels</th>
<th>Price</th>
<th>Same as friends</th>
<th>Health</th>
<th>To help quit</th>
<th>Taste</th>
<th>Satisfaction</th>
<th>Pack design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Female (54.5%)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>Male (45.5%)</td>
<td>0.91 (0.69 to 1.19)</td>
<td>0.87</td>
<td>1.06 (0.76 to 1.13)</td>
<td>1.19 (0.86 to 1.65)</td>
<td>1.06 (0.72 to 1.57)</td>
<td>1.05 (0.78 to 1.41)</td>
<td>1.10 (0.84 to 1.45)</td>
<td>1.45 (0.96 to 2.20)</td>
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<tr>
<td><strong>Age</strong></td>
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<tr>
<td>18–24 years (24.3%)</td>
<td>0.83 (0.58 to 1.23)</td>
<td>0.67</td>
<td>0.72 (0.31 to 1.62)</td>
<td>0.59 (0.29 to 1.23)</td>
<td>0.50 (0.30 to 0.81)</td>
<td>0.67 (0.50 to 0.89)</td>
<td>0.71 (0.37 to 1.35)</td>
<td>1.03 (0.56 to 1.88)</td>
</tr>
<tr>
<td>25–39 years (19.3%)</td>
<td>0.87 (0.59 to 1.29)</td>
<td>0.90</td>
<td>1.28 (0.88 to 1.86)</td>
<td>0.57 (0.37 to 0.89)</td>
<td>0.56 (0.39 to 0.81)</td>
<td>0.78 (0.55 to 1.11)</td>
<td>0.61 (0.44 to 0.85)</td>
<td>0.90 (0.55 to 1.48)</td>
</tr>
<tr>
<td>40–54 years (27.7%)</td>
<td>0.85 (0.62 to 1.16)</td>
<td>1.08</td>
<td>0.80 (0.82 to 1.91)</td>
<td>0.94 (0.63 to 1.41)</td>
<td>0.61 (0.44 to 1.51)</td>
<td>0.90 (0.55 to 1.48)</td>
<td>1.10 (0.84 to 1.45)</td>
<td>1.45 (0.96 to 2.20)</td>
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<tr>
<td>55 years (55.2%)</td>
<td>1</td>
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<td>1</td>
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<tr>
<td><strong>Income</strong></td>
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</tr>
<tr>
<td>Low (27.9%)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Moderate (28.5%)</td>
<td>1.22 (0.85 to 1.77)</td>
<td>0.61</td>
<td>0.43 (0.40 to 0.87)</td>
<td>0.68 (0.43 to 1.09)</td>
<td>0.43 (0.40 to 1.09)</td>
<td>0.71 (0.43 to 1.19)</td>
<td>1.57 (1.06 to 2.36)</td>
<td>1.40 (0.96 to 2.03)</td>
</tr>
<tr>
<td>High (43.6%)</td>
<td>1.31 (0.93 to 1.86)</td>
<td>0.43</td>
<td>0.76 (0.50 to 1.17)</td>
<td>0.94 (0.63 to 1.41)</td>
<td>0.60 (0.39 to 2.36)</td>
<td>1.70 (1.17 to 2.46)</td>
<td>1.21 (0.86 to 1.71)</td>
<td>0.83 (0.50 to 1.40)</td>
</tr>
<tr>
<td><strong>Heaviness of Smoking Index</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1.61 (0.92 to 2.81)</td>
<td>1.12</td>
<td>0.24 (0.12 to 0.49)</td>
<td>0.74 (0.38 to 1.45)</td>
<td>0.64 (0.31 to 1.32)</td>
<td>0.81 (0.43 to 1.51)</td>
<td>1.22 (0.70 to 2.13)</td>
<td>0.70 (0.29 to 1.69)</td>
</tr>
<tr>
<td>2</td>
<td>0.93 (0.55 to 1.56)</td>
<td>1.47</td>
<td>0.48 (0.28 to 0.85) **</td>
<td>0.78 (0.44 to 1.43)</td>
<td>0.67 (0.35 to 1.27)</td>
<td>1.09 (0.61 to 1.96)</td>
<td>1.41 (0.85 to 2.33)</td>
<td>1.21 (0.60 to 2.46)</td>
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<tr>
<td>3</td>
<td>1.04 (0.66 to 1.68)</td>
<td>1.82</td>
<td>0.34 (0.21 to 0.57) **</td>
<td>0.69 (0.40 to 1.18)</td>
<td>0.31 (0.16 to 0.58) **</td>
<td>0.73 (0.44 to 1.23)</td>
<td>1.12 (0.72 to 1.75)</td>
<td>0.61 (0.30 to 1.24)</td>
</tr>
<tr>
<td>4</td>
<td>1.18 (0.71 to 1.93)</td>
<td>1.73</td>
<td>0.42 (0.24 to 0.71) **</td>
<td>0.69 (0.33 to 1.10)</td>
<td>0.55 (0.29 to 1.03)</td>
<td>0.93 (0.53 to 1.62)</td>
<td>1.62 (0.96 to 2.65)</td>
<td>0.75 (0.36 to 1.58)</td>
</tr>
<tr>
<td>5</td>
<td>2.00 (1.23 to 3.50)</td>
<td>1.95</td>
<td>0.31 (0.15 to 0.64) **</td>
<td>0.69 (0.34 to 1.40)</td>
<td>0.51 (0.23 to 1.12)</td>
<td>0.96 (0.49 to 1.87)</td>
<td>1.68 (0.92 to 3.10)</td>
<td>1.14 (0.50 to 2.61)</td>
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<tr>
<td>6</td>
<td>1.28 (0.54 to 3.06)</td>
<td>5.72</td>
<td>0.34 (0.11 to 1.05)</td>
<td>0.42 (0.13 to 1.33)</td>
<td>0.13 (0.02 to 0.98) *</td>
<td>0.89 (0.34 to 2.34)</td>
<td>1.23 (0.51 to 2.98)</td>
<td>0.50 (0.11 to 2.37)</td>
</tr>
</tbody>
</table>

Note: Logistic regressions were conducted separately for each reason, and included all predictors entered as a single block. *p< 0.05, **p< 0.01, ***p< 0.001.
Contributors RB, FJC and GTF were involved in the design of the ITC Four Country Survey. RB conceived the topic of this paper with input from GAC and ES, who both carried out the data analysis and interpretation, assisted by RB. GAC drafted the paper with contributions from ES; comments and amendments were provided by all authors.

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Patient consent Obtained.

Ethics approval The ITC Surveys were cleared for ethics by Research Ethics Boards.

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REFERENCES
11 Carter SM. The Australian cigarette brand as product, person, and symbol. Tob Control 2003;12(Suppl iii):iii9–86.
### Appendix A: Classification of brands into market segments over survey period

<table>
<thead>
<tr>
<th>Brand Family</th>
<th>Classification for analysis</th>
<th>Price/cig (max ¢) 2002 band</th>
<th>Price/cig (max ¢) 2006 band</th>
<th>Price/cig (max ¢) 2011 band</th>
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<tbody>
<tr>
<td>Albany</td>
<td>P</td>
<td>40 P</td>
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<td>-</td>
</tr>
<tr>
<td>Alpine*</td>
<td>M</td>
<td>38 P</td>
<td>44 M</td>
<td>67 M</td>
</tr>
<tr>
<td>American Spirit</td>
<td>P</td>
<td>43 P</td>
<td>52 P</td>
<td>63 M</td>
</tr>
<tr>
<td>Ardath</td>
<td>P</td>
<td>47 P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Benson &amp; Hedges</td>
<td>P</td>
<td>38 P</td>
<td>46 P</td>
<td>70 P</td>
</tr>
<tr>
<td>Brandon</td>
<td>D</td>
<td>33 D</td>
<td>37 D</td>
<td>57 D</td>
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<td>P</td>
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<td>51 P</td>
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<td>Choice</td>
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<td>-</td>
<td>37 D</td>
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<tr>
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<td>P</td>
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<td>68 P</td>
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<td>John Player</td>
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<td>41 P</td>
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<td>79 P</td>
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<td>Longbeach*</td>
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<td>40 D</td>
<td>62 M</td>
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<tr>
<td>Lucky Strike</td>
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<td>39 P</td>
<td>46 P</td>
<td>-</td>
</tr>
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<td>Marlboro</td>
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<td>46 P</td>
<td>70 P</td>
</tr>
<tr>
<td>Mild 7</td>
<td>P</td>
<td>42 P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>More</td>
<td>P</td>
<td>47 P</td>
<td>55 P</td>
<td>79 P</td>
</tr>
<tr>
<td>Next</td>
<td>P</td>
<td>-</td>
<td>84 P</td>
<td>84 P</td>
</tr>
<tr>
<td>Pall Mall</td>
<td>M</td>
<td>-</td>
<td>41 M</td>
<td>60 M</td>
</tr>
<tr>
<td>Peter Jackson</td>
<td>M</td>
<td>36 M</td>
<td>44 M</td>
<td>65 M</td>
</tr>
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<td>Peter Stuyvesant</td>
<td>P</td>
<td>40 P</td>
<td>47 P</td>
<td>70 P</td>
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<td>Raison</td>
<td>D</td>
<td>-</td>
<td>-</td>
<td>54 D</td>
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<tr>
<td>Rothmans</td>
<td>P</td>
<td>41 P</td>
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<td>-</td>
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<td>Special Mild</td>
<td>M</td>
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</tr>
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<td>St Moritz</td>
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<td>57 P</td>
<td>-</td>
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<td>Stradbroke</td>
<td>D</td>
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<td>38 D</td>
<td>59 D</td>
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<td>Superkings</td>
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<td>34 D</td>
<td>40 D</td>
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</tr>
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<td>Superlights</td>
<td>M</td>
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<td>Vogue</td>
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<td>42 P</td>
<td>55 P</td>
<td>80 P</td>
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<td>73 P</td>
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<td>67 M</td>
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<tr>
<td>Zhong Hua**</td>
<td>M</td>
<td>39 P</td>
<td>43 P</td>
<td>57 D</td>
</tr>
</tbody>
</table>

**Note.** D: discount, M: mainstream, P: premium

Price/cig cut-offs: **2002**: D ≤34¢, M 35-37¢, P ≥38¢; **2006**: D ≤40¢, M 41-44¢, P ≥45¢; **2011**: D ≤59¢, M 60-69¢, P ≥70¢

* Brands with >1% market share that changed market segment category over survey period

** Brands with <1% market share that changed market segment category over survey period

- brand was not currently being sold, or was not listed as preferred brand by any participant
澳大利亚的卷烟品牌忠诚度：源自国际烟草控制政策评估项目四国调查的结果

Genevieve A Cowie,1 Elena Swift,2 Ron Borland,3 Frank J Chaloupka,4 Geoffrey T Fong5,6

摘要

背景和目的 目前很少有关于卷烟品牌忠诚度及品牌转换的学术研究，而针对在限制性营销环境（如澳大利亚）下的此类研究更少见。本文探讨了十年间澳大利亚吸烟者的卷烟品牌忠诚度、选择品牌的原因及其与社会人口变量之间的关系。

方法 数据来源于国际烟草控制政策评估项目（ITC）四国调查的前九轮中澳大利亚的吸烟者，调查跨度为2002年到2012年初。主要调查指标包括是否有常用品牌，是否使用该品牌至少一年，品牌稳定性（根据是否在接下来几轮调查中使用同一品牌导出），及品牌选择的原因。

结果 品牌忠诚度的调查指标在调查期间的波动很小，品牌稳定性在80%左右，并且大约95%的吸烟者表示有常用品牌。相对于25岁以下的吸烟者，年龄较大的吸烟者有更高的品牌忠诚度。年轻人的品牌选择更多受朋友影响，而年龄相对较大的人则更从健康考虑。价格是品牌变更的主要原因。相比最低收入人群，较高收入的群体品牌忠诚度更高。烟瘾程度最低的吸烟者品牌忠诚度较低。我们没有发现品牌忠诚度与已执行的用来影响烟草使用的各项政策之间有明确的关联。

结论 澳大利亚吸烟者的卷烟品牌忠诚度相当高且稳定，卷烟品牌忠诚度并未随烟草控制政策改变而产生重大变化。


澳大利亚、美国、加拿大、英国和美国四国吸烟者的纵向研究(四国)包含了一项对于澳大利亚烟草零售商》中的推荐零售价,版本分别为本项研究中“精品”类被定义为在那些市场份额大于1%的品牌中，有三种评估品牌忠诚度的指标：(1) 使用时间大于等于6个月的品牌是吸烟者们指出了他们第一次抽烟的品牌作为他们日后的常用品牌。

品牌转换率在澳大利亚的市场研究中显示，品牌选择与朋友的影响和与品牌广告的接触有关[15]。而且，一项1994年的研究发现，大部分的普通成年吸烟者都指定了他们第一次抽烟的品牌作为他们日后的常用品牌。这表现了当下的和持续的品牌忠诚度[14]。

在澳大利亚、美国、加拿大、英国和美国四国吸烟者的纵向研究(四国)包含了一项对于澳大利亚烟草零售商》中的推荐零售价,版本分别为本项研究中“精品”类被定义为在那些市场份额大于1%的品牌中，有三种评估品牌忠诚度的指标：(1) 使用时间大于等于6个月的品牌是吸烟者们指出了他们第一次抽烟的品牌作为他们日后的常用品牌。这表现了当下的和持续的品牌忠诚度[14]。
被划分在“低价”类，尽管2011年它的价格属于“主流”的范畴。

分析

简单的二元关系通过χ²检验进行评估。通过广义估计方程（GEE）模型能够较好估计类别变量被独立地带入了方程来分析各变量独立的分类影响。变量的整体显著性用评估后的（复合、线性）Wald检验进行计算。所有GEE模型都包含了不同轮次调查之间的时间间隔(连续的,天数)作为控制变量，同时人口统计学变量被独立地代入了方程来分析各变量的独立影响。用logistic回归对社会人口学因素与品牌选择原因之间的多变量关系进行了分析。我们使用G*Power3.1.6[25]分析了logistic回归的关键效应量。结果表明当样本大小为1000时，α=0.05对检测边际效应OR<0.62或>1.52的检验功效为0.8。

图1 第2轮到第9轮调查的品牌选择的稳定性

### 表1 在相邻两轮调查中吸相同品牌卷烟的吸烟者比例（按年龄和性别分组）

<table>
<thead>
<tr>
<th>收入</th>
<th>X²(2)</th>
<th>P 值</th>
<th>吸相同品牌的总比例（未调整年龄）</th>
<th>X²(3)</th>
<th>p 值</th>
</tr>
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<tbody>
<tr>
<td>低</td>
<td>0.006</td>
<td>0.001</td>
<td>83.3</td>
<td>14.52</td>
<td>0.002</td>
</tr>
<tr>
<td>中</td>
<td>0.002</td>
<td>0.001</td>
<td>81.4</td>
<td>16.57</td>
<td>0.001</td>
</tr>
<tr>
<td>高</td>
<td>0.001</td>
<td>0.002</td>
<td>81.4</td>
<td>17.28</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

*单元数=6。
†单元数=10。

与最低收入群体相比，中等收入群体（OR=1.37, 95% CI 1.11-1.70, p=0.004）和最高收入群体（OR=1.77, 95% CI 1.41-2.23, p<0.001）的吸烟者更可能使用他们的卷烟品牌超过1年，差异具有显著性。常用品牌的情况与之相同，尽管差异并不显著。

同样与最低收入群体相比，品牌稳定性更高可能出现在中等收入群体（OR=1.29, CI 1.12-1.49, p=0.001）并且有可能出现在最高收入群体（OR=1.74, CI 1.49-2.04, p<0.0001）。不同调查轮间的差异较大，具体情况见表1。值得注意的是，在2010年增税后，两轮调查中不同收入群体间品牌稳定性的差异消失了。对各收入群体分别进行分析发现，调查轮次对中、低收入群体品牌稳定性无影响。

不同吸烟者群体的调查中，第3-4轮调查的品牌稳定性在增税后显著下降（OR=0.27, 95%CI 0.10-0.73, p=0.009），尽管这种下降趋势在第9轮调查中有所回升（OR=0.56, 95%CI 0.31-1.01, p=0.053）。我们探讨了出现这种变化是否是因为人们降档选择比较便宜的品牌；然而，在高收入群体中第7-8轮调查的调查中品牌转换率与第7-8轮调查相比无显著性差异。由于这一段时间内卷烟消费税有了大幅提高，我们还研究了吸烟价格在此期间的变化（见表2）。在第7轮和第8轮调查中每支卷烟价格增加的百分比在不同价格分类中是相近的，代表高收入群体价格的绝对增长量更大。

与烟瘾程度最高的吸烟者（HSI=6）相比，GEE分析结果表明，烟瘾程度最低的吸烟者（HSI=0）的品牌稳定性明显降低（OR=0.63, CI 0.41-0.96, p=0.032）；其他烟瘾程度的吸烟者与之相比无显著性差异。GEE显示烟瘾程度与吸烟品牌卷烟超过1年无显著相关（整体的χ²(6)=11.23, p=0.08）。

然而，烟瘾程度与有常用品牌之间存在曲线关系（整体的χ²(5)=17.08, p=0.01）。GEE显示在0-5之间有常用品牌的吸烟者与吸烟者比例随着烟瘾程度的上升而上升，然后烟瘾程度最高者的比例骤然下降到低于烟瘾程度最低者的比例，尽管两者的比例没有显著性差异。

### 品牌选择的原因（仅限于第9轮调查）

图2说明了调查中品牌选择的原因和品牌稳定性之间的关系。那些因为焦油/尼古丁含量、味道或者觉得他们的卷烟品牌更能使他们满足而选择卷烟品牌的吸烟者，更可能在第8轮到第9轮的调查中保持品牌稳定性。那些因为品牌的包装设计、跟随朋友的选择，或价格而选择品牌的吸烟者有较少的可能性保持品牌稳定性；价格是品牌转换最常见的原因。

### 讨论

这些数据表明，至少对于澳大利亚吸烟者，根据连续调查中使用同一品牌卷烟吸烟者的纵向分析，他们自报的常用品牌和使用某品牌超过1年这两个指标都低估了品牌稳定性。这三个评估指标在整个研究期间都比较稳定，并且没有清晰的证据表明政策变化会对其产生影响。

这些选取的指标评估的内容似乎不近相同。有常用品牌的选择指标具有更加主观性的体质，这项指标因此与其他指标相比有着不同的不同，而且此不同是可预期的。除了对于最低收入者，品牌稳定性使用某品牌超过1年的趋势相似。
表 2 作为品牌细分市场的 2010 年增税前后绝对和相对的价格增长

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>低档</td>
<td>39.2c</td>
<td>50.0c</td>
<td>53.5c</td>
</tr>
<tr>
<td>主流</td>
<td>44.4c</td>
<td>55.7c</td>
<td>60.3c</td>
</tr>
<tr>
<td>高档</td>
<td>48.2c</td>
<td>61.5c</td>
<td>66.4c</td>
</tr>
<tr>
<td>合计</td>
<td>42.8c</td>
<td>54.0c</td>
<td>58.3c</td>
</tr>
</tbody>
</table>

注意，所有的价格都是调查对象报告的购买价格，不是推荐零售价。

品牌稳定性在最低吸烟者中相对较低，但使用当前品牌卷烟时间超过一年的可能性并不低。来自不同轮次调查的累计品牌转换数据显示，在过去的 10 年中，大多数吸烟者至少换过 1 次品牌。少部分保留下来的未转换品牌的研究群体（如果有的话）有更高的品牌忠诚度，这使得估计的品牌稳定性总体趋于保守。也就是说，这可能会低估长期的品牌忠诚度，因为某些人可能会有一个偏好的品牌，并随着时间的推移而重新使用该品牌。然而，该方法确实表明了明显的品牌转换的存在。在今后的研究中，我们计划探讨品牌选择的稳定性是否与戒烟意愿和实际的戒烟行为有关。

本研究不能就品牌稳定性是否从积极促销卷烟时期开始发生变化得出任何明确的结论。烟草业文件中所发现的评估结果认为品牌稳定性可能有所增加，因为在 20 世纪 80 年代的品牌转换率高出很多（大约 33%）[18]。虽然尚不清楚该评估结果的依据，但因为该结果比本研究中任一指标的转换率都高，并没有低于横向研究的数据，这似乎表明品牌转换率可能已经下降，但现在趋于稳定。

对于品牌转换者而言，选择品牌最重要的原因有三个：价格、与朋友们的选择一样和包装设计。对于品牌稳定的吸烟者而言，品牌选择的主要原因是满足程度和口味。对于自主选择而言，更多考虑卷烟的内在因素有助于维持品牌稳定，而更多考虑外在的因素则可能引发品牌转换。然而，这些指标仅在最后一轮调查中被问及，我们不能在这一点上探索预期的相关性。

值得注意的是，性别似乎对品牌的忠诚度影响很小，并与品牌选择的原因没有任何关系。

最低年龄组（18-24 岁）的品牌忠诚度最低，其他年龄段之间的差异很小。年轻人更易受到同龄人的影响而做出选择，而年长者（55 岁以上）更倾向于从健康和满足程度的考虑上做出选择。年轻的朋友圈可能更常发生变化，这可能会增加这一群体的品牌转换率。值得注意的是，年龄低于 25 岁的人群在本研究中的代表性不足。

正如预期的那样，低收入吸烟者的品牌忠诚度较低且对价格更敏感，尽管我们并未发现 2010 年价格大幅上升对该人群的影响。唯一可以说明政策变化和品牌忠诚度之间可能关联的证据是，该大幅增税可能降低了高收入吸烟者的品牌稳定性。然而，既没有品牌稳定性整体的变化，也没有转向低价位卷烟的品牌转换，因此我们不确定它是否可以归因于价格的变化。

与其他烟瘾程度者相比，烟瘾程度最低者
的品牌忠诚度更低，且他们更可能选择和朋友
一样的品牌。二者都可以被归因为他们更可能
分享卷烟，因此，他们的选择更多地受他人
影响。更多的消费等同于更大的花费，因此不
难理解随着烟瘾程度的上升，以价格作为品牌
选择依据的吸烟者的比例也稳步的提高。这一
发现不应与经济学家所评估的实际上价格的
敏感性混淆，因为更重度的吸烟者可能会有更
大的烟瘾，这可能抵消价格对其消费的影响。他
们可能更愿意通过转换品牌的手段来减少花费，
而不是通过减少吸烟量或戒烟。

本研究具有一定的局限性，应加以
注意。样本量较小，导致本研究不太具
有发现一些小的效应的能力，尤其当这些
效应只在子样本中发生时。我们并未评估
GEE
分析的效力，因为在趋势分析中在
各轮调查间5%的品牌稳定性变化并没有
显著性。但如果干预政策导致的变化小于
5%，我们的数据则没有足够的效力来发现这个
变化。尤其和年龄有关，因为不同程度的
失访导致后续调查轮中的年轻吸烟者的比例
大幅下降。因为该调查为队列研究样本，用该
数据评估这些指标在整体人群中的长期流行率
并不理想。有意见表明，失访人群的品牌忠诚
度有所降低（可能与年龄相关的失访有关），
这意味着对近10年的品牌忠诚度的估计可能稍
稍偏大。

重要的是，我们只考虑了品牌系列之间的
转换，没有评估同一品牌系列中的不同品种的
转换。其主要的原因是2006年颁布的对烟草
误导性描述的禁令造成了大多数品牌的品种更
名。我们还没有完全解决在这个变化过程中的
问题。我们也没有考虑包装尺寸的改
变可能造成降档的问题。

同样的，常用品牌的封顶效应加上调
查轮次之间的长期间隔，可能会导致对任何指
标间的真实差异缺乏敏感性，特别是随着随
来的政策干预的时期。

最后，本文分析的数据只来自一个国家：
澳大利亚。本文不能说明其他地方的情况，特
别是那些无论是卷烟文化和市场环境都明显区
别于澳大利亚的地方。品牌转换率与价格上升
之间没有相关性的研究发现与来自墨西哥的一
项研究一致，该研究同时发现了每日消费量的
减少[28]。相比之下，Cornelius等人[22]发现继美
国2009年卷烟价格大幅上涨后，美国研究人群
中出现了降档的现象。

结论
该研究提供了对澳洲品牌忠诚度的概况。研
究使用的所有指标都表明，品牌忠诚度在本世
纪澳大利亚市场一直保持了相对的稳定，并在
政策变革期间相对未受影响。
本文贡献

本文对烟草品牌的忠诚度领域有一定的贡献。研究结果表明虽然在澳大利亚越来越严格规管的市场中，品牌忠诚度也相对稳定。

致谢

对来自 Cancer Council Victoria 的 Hua-Hie Yong 和 Timea Partos 的关于统计学的建议表示衷心感谢。

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利益冲突

无。

知情同意

已获得。

伦理审核

ITC 调查通过了 University of Waterloo（加拿大）、Cancer Council Victoria（澳大利亚）和 Monash University（澳大利亚）的研究伦理委员会/国际评审委员会的伦理审批。

出处和同行审查

未开展；外部同行已评审。

参考文献