

Comments on Kaul & Wolf “The (possible) effect of plain packaging on the smoking prevalence of minors in Australia: a trend analysis”
(Available at: <http://www.econ.uzh.ch/static/wp/econwp149.pdf>)

**From: Cancer Council Victoria, Melbourne, Australia
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The report is seriously flawed conceptually. It is based on the straw man principle that plain packaging could be expected to immediately lead to a detectable reduction in adolescent smoking prevalence. No other tobacco control intervention has achieved that and neither is this the expectation of governments or credible researchers.

The process of smoking uptake in adolescence is gradual, beginning with the first puff of a cigarette and then a period of experimentation of sharing puffs and cigarettes which can last some years. If left unarrested, this experimentation gradually becomes more regular in nature and ultimately progresses to the commencement of daily smoking and an escalation of the number of cigarettes smoked each day. At the point of daily smoking, adolescents begin to resemble adult smokers. Any intervention that exerts an impact on adolescent smoking will naturally take many years to become detectable because the change needs to occur early in the period of uptake to divert adolescents from becoming regular smokers as they age into adulthood. Further complicating any effort at evaluation is that adolescent smoking in Australia was at an all-time low in 2011. The national smoking prevalence based on the international standard measure of adolescent smoking (smoked in the past month) among 12-15 year olds who completed an anonymous and confidential school-based survey in 2011 was just 6% and 17% among 16-17 year olds.[1] Thus, especially among young adolescents who comprise most of the experimenters, it is going to be difficult to detect yet further declines in use of tobacco below this using past-month smoking as the indicator. It is going to be even more difficult to detect change among adolescents who are well on the way to becoming established smokers: in the Australian school-based survey of 2011, committed smokers (those who had smoked on 3 or more days of the past seven days) comprised just 2% of 12-15 year olds and 7% of 16-17 year olds.[1]

With the comprehensive approach adopted by the Australian government, many tobacco control interventions have occurred over the recent period, including a large excise increase in April 2010, strengthening of smoke-free laws, large scale mass media campaigns, rotating

graphic health warnings, and the implementation of cigarette display bans, all of which have contributed to declining smoking prevalence over many years.[2] While some interventions appear to have stronger effects than others on adolescents [3], parsing the influence of plain packaging from that of these other interventions is difficult without the benefit of many years of post-implementation survey data and adequate control for other policy effects.

It is a breathtaking error of logic that the authors demand to find an immediate reduction in this crude measure of prevalence after plain packaging, while not also requiring the same immediate drop in prevalence from the many other tobacco control interventions that have been implemented during the period under study—for example, the introduction of graphic health warnings in early 2006, the tobacco excise increases that occurred in 1999–2001 and the particularly large tobacco excise increase in April 2010. It is not excusable that the authors were unaware of these policies because they note the existence of “numerous regulatory changes in tobacco control policies over this period”(p.3).

Further comments about the survey from which these data were drawn

The home-based mode of survey administration leads adolescents to misreport their smoking. The survey is a household sample, where one randomly selected respondent per household completes the survey in the home. Adolescents aged 14–17 years who become this randomly selected respondent for the household therefore complete the questionnaire in the home, most usually when parents are present. Even with the computer-assisted personal computer method of survey administration, surveying adolescents when parents are present would lead adolescents to under-report their smoking.

The survey questions to assess smoking are inappropriate for adolescents. The questions to establish smoking are designed to measure adult smoking, not youth smoking. In the Roy Morgan survey, smokers are defined as those who indicate they either “now smoke factory-made cigarettes” or “in the past month, have smoked any roll-your-own cigarettes of tobacco”. This definition of “smoker” is an inappropriate one for adolescents because it misses the much more common experimental smoking among adolescents that occurs as part of the process of smoking uptake.

The small monthly sample size prohibits any credible analysis of change over a short period of time. The authors describe the sample as being between 200 to 350 adolescents per month, (although they neglect to point out the sample size in the last several years has been reduced to closer to 200 per month). The authors entire analysis is based on the fact that they have been able to fit a trend line to the measure of smoking over the 13-year period examined. This is not a test of plain packaging but a simple description of how much on average smoking prevalence has declined over the 13-year period. It would be truly concerning if any ongoing survey in Australia could not yield this basic descriptive parameter, since there has been such a large gradual decline in smoking over this 13-year period due to the aforementioned ongoing tobacco control policies and program efforts.[3]

The authors acknowledge that monthly observed smoking prevalence is unstable because of the small sample size each month and the fact that the sample composition changes each month. Despite this, their analysis of deviations from the trend line is expressly focussed on the size of the deviations that occur each month from this longer term trend, in the year prior to and after plain packaging implementation. In other words, they have greatly over-interpreted the meaning of the monthly prevalence estimates, both in their “naïve” analysis and in their so-called “more informative” descriptive analyses, the data points for which are summarised in Figures 3 to 5. In their “naïve” analysis they point the reader to the fact that “... the twelve numbers pre 12/2012 are almost a mirror image of the twelve numbers post 12/2012” (p.4). The “more informative” analysis that focusses on confidence intervals merely serves to underline the basic concern that the monthly data series have extremely wide confidence intervals and are too variable for credible analysis in the short term.

Lack of transparency of any ‘real’ analytic results. The report is silent on much of the detail of the analyses undertaken and actual results obtained. For example, there is no detail to explain whether and how the data have been weighted to the population of 14-17 year olds, given the sample composition could vary widely within this age group each month and given the prevalence of smoking varies widely between younger and older adolescents.

Concluding comment

At the end of the day, no amount of data mining or analysis can compensate for the authors seeming lack of understanding of the process of adolescent smoking uptake and the fact that they have asked the wrong research question.

1. White V and Bariola E. Chapter 3. Tobacco use among Australian secondary students in 2011, in Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substances in 2011. Canberra: Drug Strategy Branch Australian Government Department of Health and Ageing; 2012. Available from: <http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/school11>
2. Scollo M. Introduction, in Tobacco in Australia: facts and issues. Scollo M and Winstanley M, Editors. Melbourne, Australia: Cancer Council Victoria; 2013. Available from: <http://www.tobaccoinaustralia.org.au/introduction>.
3. White V, Warne C, Spittal M, Durkin S, Purcell K, et al. What impact have tobacco control policies, cigarette price and tobacco control program funding had on Australian adolescents' smoking? Findings over a 15-year period. *Addiction*, 2011; 106(8):1493–502. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2011.03429.x/pdf>