HHS Public Access

Author manuscript

Addiction. Author manuscript; available in PMC 2023 March 01.

Published in final edited form as:

Addiction. 2022 March ; 117(3): 514–516. doi:10.1111/add.15685.

Combustible Tobacco Age-of-Sale Laws: An Opportunity?

Michael F. Pesko, Ph.D. [Associate Professor]

Department of Economics | Andrew Young School of Policy Studies, Georgia State University, 55 Park Place – Suite 657, Atlanta, GA 30303

Abstract

This editorial argues for the benefits of raising age-of-sale laws for combustible tobacco only, such as through a Combustible 21 law that would prohibit the sale of combustible tobacco to individuals under 21 years of age but leave open the opportunity to legally purchase e-cigarettes and smokeless tobacco products.

Tobacco 21 (T21), which prohibits retailers from selling tobacco including non-combustible tobacco products like e-cigarettes and snus to individuals under 21 years of age, became federal law in the United States at the end of 2019, following adoption of T21 by many states prior to the federal law (1). T21 has more recently been proposed for England and Europe, where current ages are generally 18 (2,3). In contrast to having a minimum legal sale age (MLSA) of 21 for all tobacco products, a different approach is to raise the MLSA for combustible tobacco to 21 but leave the MLSA for e-cigarettes and other non-combustibles at 18, as a way to regulate tobacco products proportionate to risk to incentivize harm reduction (4,5). This is similar in concept to Sweden and Norway having separate MLSAs for beer and liquor, for example (6). New Zealand is in the consultation phase of a possible law prohibiting individuals born after January 2004 from purchasing combustible tobacco, but leaving open the avenue for these individuals to legally purchase non-combustibles instead (7).

I and others have previously studied the effect of e-cigarette MLSAs in the United States (8-10), and after observing how these have raised cigarette use among youth we proposed using a lower MLSA for e-cigarettes than combustible tobacco to encourage youth to use less risky products as determined by several reviews (11,12). Implicit in this recommendation is the scientific opinion that focusing upon reducing risks of nicotine products, even at the expense of higher overall nicotine exposure, is the best way to reduce tobacco-related disease and death. T21 was adopted instead and is reducing cigarette use in the United States (13-15), so is an important improvement over the status quo. However, it's reasonable to ask if a Combustible 21 law (C21) would have been better for public health than T21.

To simulate the effect of a hypothetical C21 law, I draw from the literature to present a back-of-the-envelope method to predict the effect of a hypothetical C21 law would have had in the United States on 18–20-year-olds. This method may also be applicable for estimating effects of other hypothetical policies.

Step 1: Effect of T21 on cigarette use.

Two studies use difference-in-differences methods to find that T21 reduces cigarette use among 18-20-year-olds by 3.1 percentage points (ppt) (13) and 4.0 ppt respectively (14). Averaging the effects across these studies suggests a 3.6 ppt reduction.

Step 2: Effect of incentivizing e-cigarettes with lower regulation.

The effect of C21 on cigarette use may be larger than T21 because additional people will use e-cigarettes (which can be legally purchased) instead of cigarettes. Three studies of e-cigarette MLSA law adoption in the United States find that allowing all teenagers to legally purchase e-cigarettes causes, on average, a 0.9 ppt reduction in cigarette use (8-10). This suggests that the hypothetical effect of C21 would have been a 4.5 ppt (= 3.6 + 0.9) reduction in cigarette use, compared to the previously existing law (T18/19).

Step 3: Substitution to e-cigarettes.

One published study estimates the effect of cigarette taxes on e-cigarette use, finding a $1 increase in cigarette taxes increases daily e-cigarette use among young adults by 0.48 ppt and decreases daily cigarette use by 0.73 ppt, suggesting a 66% substitution rate (16). Therefore, a cigarette-only policy causing a 4.5 ppt reduction in cigarette use may cause a 3.0 ppt (4.5 x 66%) increase in e-cigarette use for young adults.

This back-of-the-envelope method extrapolates effects of C21. I use the best available estimates from difference-in-differences studies, and do not attempt an exhaustive inclusion of all published estimates. In particular, I do not use estimates for populations of less generalizable youth, nor estimates using variation in potentially endogenous prices. Published estimates for steps (2) and (3) do not exist specifically for 18–20-year-olds, so estimates for near-age groups are used instead. The available literature is limited by being only from the United States and for e-cigarettes. Estimates include average effects on smoking that compensate for possible gateway and/or diversion dynamics for up to several years after the policy change, but not more distal effects.

The simulation suggests that a C21 law has 0.9 ppt lower cigarette use rates for 18-20-year-olds compared to a T21 law, but 3.0 ppt higher e-cigarette use rates. This trade-off is important to acknowledge, and could be justifiable if the risk of e-cigarettes is determined to be less than one-third of cigarettes.

There are other ways a C21 law could benefit countries that are not factored into this simulation. One is that C21 could help disseminate correcting information that non-combustibles, while not harmless, are safer (5,11,12). Seventy-five percent of Americans and a majority of European smokers mistakenly believe that e-cigarettes are as dangerous or more dangerous than combustible tobacco products (17,18). Resetting these risk perceptions to encourage people to use non-combustibles instead of combustibles should be an important public health priority. C21 would probably be noticed and the harm-reduction rational for it discussed by people of all ages, thus helping to correct misperceived risks and motivating harm reduction across all ages.

A second added benefit is that C21 could help combat possible apathy towards these laws. A recent difference-in-differences study finds no effect of existing MLSA laws in Europe (19), suggesting limited public buy-in to ensuring the laws are successful. Therefore, bifurcating the MLSA laws is worth trying to possibly elicit more public buy-in on the importance of preventing youth access to tobacco, especially the most harmful forms of it.

New Zealand's current proposal of not allowing individuals born after January 2004 to purchase combustible tobacco, but allowing non-combustible purchases, is sensible. This proposal would allow demand for nicotine to be met by safer (though not harmless) products, thus staving off black market activity and public apathy that could otherwise doom the policy. Other countries may wish to consider a similar policy, whether C21 or New Zealand's gradual combustible ban. One note of caution is that not all non-combustible tobacco products (e.g., e-cigarettes, snus) have the same levels of risk, so additional nuance within non-combustible product categories may be warranted.

Declarations of competing interest:

Dr. Pesko is supported by the National Institute on Drug Abuse of the National Institutes of Health (NIDA-NIH) (grant # R01DA045016). The content is solely the responsibility of Dr. Pesko and does not necessarily represent the official views of NIDA-NIH.

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