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Methods for the Sizing of the Illicit Tobacco Market



BUILDING A SAFE AND RESILIENT CANADA

Currently, there are no reliable methods to estimate the size of the illicit tobacco market in Canada. A modified version of the “Data Confrontation Method”, along with the “Pack Swap Method” are promising methods. Mixing methodologies is recommended regardless of the methods chosen.

Federal and provincial governments need to understand the extent of the problem of contraband tobacco in Canada so that they can better direct their effort to combat it. Past attempts have been made to estimate the actual size of the contraband tobacco market in Canada. However, there are currently no reliable methods available to estimate the size of the market.

The purpose of this report was: first, to review and critically assess the literature on current methods of estimating the size of the illegal tobacco market; and second, to create an interdisciplinary methodological discussion of updated old or devised new methods on estimating the size of the illicit tobacco market. Public Safety Canada contracted expert methodologists from three different fields: criminology, health studies, and economics. These experts were asked specific questions with regards to appropriate methodologies that could be applied to estimate the size of the contraband tobacco market in Canada. Their opinions and methodological recommendations are summarized in this report.

Three of the most commonly used methods to estimate the size of illicit tobacco markets in Canada and worldwide have been the “Data Confrontation Method;” the “Cigarette Butt Collection Method;” and the “Pack Swap Method.” The “Data Confrontation Method” involves subtracting the total amount of tobacco products legally sold (total sales) from the estimate for the tobacco consumption (total consumption), with the resulting remainder being assumed to represent the

size of the illicit tobacco market. The “Cigarette Butt Collection Method” is used to collect cigarette butts from specific locations and forensically analyze them, where brand name and contraband cigarette butts are separated and counted. The “Pack Swap Method” involves identifying smokers and inviting them for a short interview that asks questions about their smoking habits. At the end of the interview the smokers are asked to exchange the pack of cigarettes they are currently consuming for another, brand name pack.

Each of the three methods has major shortfalls that would make a reliable estimation of the contraband tobacco market in Canada a complicated task. The experts attempted to circumvent these shortfalls by applying various adjustments, as well as suggesting new methods.

Dr. Russell Callaghan was chosen as an expert from the field of health and addiction. His proposed methods focused on how data from existing surveys can be better utilized for the purpose of estimating the size of the market for contraband tobacco in Canada. One of his main recommendations was to add questions on existing surveys that would allow for capturing the brand of cigarettes that smokers usually consume. Another of his recommendations is an updated version of the “Data Confrontation Method,” where some of the shortcomings of the conventional approach were adjusted. The third approach proposed by Callaghan is a “Pack Swap Method” using either a population-based sampling, or a respondent-driven sampling – a novel approach that could potentially be more accurate and less expensive than the population-based sampling one.

Dr. Martin Bouchard was chosen as an expert from the field of criminology. Other than the “Data Confrontation Method” and the “Pack Swap Method,” Bouchard and his research assistant Marie Ouellet proposed two innovative methods that have



been applied in the past to researching hidden populations of illicit drug users: the “Composite Synthetic Estimation” and the “Capture-Recapture Method.” The strength of the “Composite Synthetic Estimation” is that it accounts for use among populations that are the most vulnerable and susceptible to the use of substances and consumption of contraband tobacco (e.g., youth, inmates of prisons, and homeless people). The “Capture-Recapture Method” makes inferences about a certain population (e.g., criminals committing tobacco-related offences) by observing the patterns through which the criminals are caught, released, and caught again for the same type of crime.

Experts from the field of economics – Dr. William Sims and Dr. Ian Irvine – recommended using sophisticated economic and econometric modeling to arrive at the illicit tobacco market estimates. The “Price Elasticity Method” takes account of how changes in tobacco prices affect consumer behavior and the tendency of smokers to purchase illicit tobacco. The “General Equilibrium Method” attempts to measure the impact that changes in tobacco taxation carries on the makeup and the size of the tobacco market. Finally, the “Transition Matrices Method” predicts future patterns in the tobacco market based on the patterns observed in the current population of smokers.

All three of the teams of experts agree that if no new data is to be collected, the “Data Confrontation Method” with some modifications and adjustments is the best method to be applied. Further, a national study that mixes the “Data Confrontation Method” with the “Pack Swap Method” looks to be promising as well. The economics methods, however promising, might not be straightforward to execute for a non-economist. However, they can be used either to validate market estimates that were obtained using other methods, or in combination with other methods.

Other promising approaches suggest mixing, or “triangulating” methods could be a good idea. The benefit of applying the “triangulation” of methods is that one method would be covering for the shortcomings of the other as well as maintaining independence from each other’s biases. As such, one triangulation that would not require collection of

new data would include an analysis of contraband tobacco seizure data may be mixed with the “Data Confrontation Method” and the “Capture-Recapture Method.” Another possible “triangulation” was identified if new data was to be collected. It proposes a mix of an elaborate version of a “Pack Swap Study” and the “Composite Synthetic Estimation Method” that would include a national study of inmates and other hard-to-reach populations like homeless people, with improved data on offenders that is available through CANSIM, which should include identifiers of tobacco-related offences.

Maslov, Anton, and Alex Boucher. *Estimating the Size of Illicit Tobacco Market in Canada: Discussion of Possible Methods*. Ottawa, ON: Public Safety Canada, 2013

Bouchard, Martin, and Marie Ouellet. *Estimating the Size of the Illicit Tobacco Market in Canada - Methodology Discussion*. Ottawa, ON: Public Safety Canada, 2013 (unpublished)

Callaghan, C. Russell. *Public Safety Canada Illicit Tobacco Report*. Ottawa, ON: Public Safety Canada, 2013 (unpublished)

Sims, William, and Ian Irvine. *Methods of Estimating the Size of the Illegal Tobacco Market in Canada*. Ottawa, ON: Public Safety Canada, 2013 (unpublished)

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