

**Regulating E-Cigarettes in Hong Kong**

Report of Kevin K. Tsui, Ph.D. and Kwok Ping Tsang, Ph.D.

June 30, 2015

**I. Introduction**

Scientific evidence that has been accumulating since the 1950s shows that cigarette smoking causes serious health problems, and members of a society may agree to delegate power to their government to promote public health. To the extent that promotion of public health is the policy goal pursued, however, regulations that prevent harm reduction contradict the will of the society.

Despite decades of tobacco control laws and regulations, 21% of the global population aged 15 and above smoked tobacco in 2012. In the case of Hong Kong, more than 10% of Hong Kong adults still smoke on a daily basis. For instance, we provide empirical evidence that larger graphic cigarette warning labels are ineffective in reducing smoking prevalence in Hong Kong (Tsang and Tsui, 2015). Similar results are obtained using international experience (Mulligan, 2010). Even though some public health advocates consistently ignore what economists called the “consumer surplus” from smoking, to explain the existing non-trivial smoking prevalence, no one can deny that cigarette smoking can be addictive. In economic terms, the demand for cigarettes among these smokers is inelastic (i.e., relatively insensitive to changes in both market price of cigarettes as well as other costs of smoking induced by tax and regulatory changes).

Empirical studies show that when substitutes of legal tobacco products, such as cross-border smuggling and counterfeit cigarettes, are pervasive, further increase in excise tax will induce smokers to switch to these substitutes, rather than discourage them from smoking (Merriman, 2010). This observation reminds regulators that in addition to raising the costs of smoking, reducing the costs of some other less harmful substitutes (e.g., less-harmful nicotine-

containing alternatives to cigarettes) can also be a potential solution to public health improvement.

## **II. Health Effects and Substitutability of E-Cigarettes**

According to a study by the Tobacco Advisory Group of the Royal College of Physicians (2007), cigarette smoking causes disease because burning tobacco generates carcinogens; the nicotine in cigarettes does not cause harm. Some public health experts have estimated that e-cigarettes, which do not burn tobacco and thus do not generate carcinogens, are less harmful than traditional cigarettes.<sup>1</sup> Although the existing evidence is by no means definitive, it suffices to note that less-harmful nicotine-containing alternatives to cigarettes can potentially provide significant public health benefit.

Consider e-cigarettes as possible substitutes for the traditional ones. In economic terms, the extent of substitutability between them can be expressed as the cross-price elasticity between e-cigarettes and the traditional ones. The UK experience is useful to understand this cross-price elasticity. Data from the UK provide the most current and precise information about the consumption of e-cigarettes and traditional cigarettes. For instance, according to a survey conducted by the ASH-UK in March 2015 (see factsheet in May 2015, “Use of electronic cigarettes (vapourisers) among adults in Great Britain”), among current users the principal reasons for using e-cigarettes given by smokers who no longer consume traditional cigarettes are “to help me stop smoking entirely” (61%) and “to help me keep off tobacco” (53%). Among current smokers who also use e-cigarettes, the principal reasons are “to help me reduce the amount of tobacco I smoke, but not stop completely” (43%) and “help me stop smoking entirely”

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<sup>1</sup> For example, Goniewicz M.L., et al. (forthcoming) argue that “substituting tobacco cigarettes with e-cigarettes may substantially reduce exposure to selected tobacco-specific toxicants.”

(41%). In another study, it is also found that e-cigarettes may have helped approximately 20,000 smokers, who would not have stopped otherwise, to stop smoking last year (West, 2015).

### **III. The Economic Case for a Different Regulatory Framework for E-Cigarettes**

An important concern of some public health advocates about the less-harmful nicotine-containing alternatives to cigarettes is that they may encourage non-smokers to starting using these products. This is a legitimate concern. According to the ASH-UK survey, less than 1% of the regular users of e-cigarettes were non-smokers. The household study described in the previous section also documents that the use of e-cigarettes by never smokers is extremely rare. To evaluate the health impact of any nicotine-containing alternatives, one needs to balance the health benefits of switching to these less-harmful products among existing smokers and the additional harm among those who did not smoke.

Should vaping e-cigarettes impose the same costs as smoking cigarettes does to the society, the same government intervention is called for to improve public health. To the extent that e-cigarettes as well as other nicotine-containing alternatives are less harmful compared with the traditional ones, denying access to existing smokers for them is also denying access to these smokers for means of public health improvement. Indeed, to improve public health, standard economic analysis suggests a different framework to regulate e-cigarettes. In general, a more aggressive control on those no-more-harmful nicotine-containing alternatives relative to tradition ones is not optimal from the public health promotion perspective.

Interestingly, the idea of harm reduction is not new to the Department of Health. According to the Department of Health, “Harm reduction means reducing harm caused by drug abusing. With the priority on public health, it is an application strategy aiming at reducing harm to both individual and society at large.” Unfortunately, the Department of Health does not apply

the concept consistently, especially when new market products become available. In the terminology of economics, the idea of “marginal deterrence” emphasizes that when a person is contemplating which of several harmful acts to commit, he will have a reason to commit less rather than more harmful acts if expected sanctions rise with harm.

The concept of marginal deterrence, along with the concepts of own- and cross-price elasticities as well as externality, are essential in designing optimal tobacco control laws and regulations aiming for improving public health. The introduction of new products affects the calculation of marginal deterrence, because the value of these various price elasticities and externalities have to be updated. Accordingly, it should not be surprising that the introduction of new products has led some in the public health community to call on governments to adopt new regulatory frameworks to encourage cigarette smokers to switch to potentially less harmful alternatives (e.g., Letter from Specialists in Nicotine Science and Public Health Policy). In the case of e-cigarettes, for example, unless there is strong evidence showing that vaping is more harmful than smoking, the current regulations on e-cigarettes in Hong Kong are not optimal. To the extent that e-cigarettes and traditional cigarettes are substitutes, making e-cigarettes more difficult for smokers to have access is equivalent to subsidizing the traditional ones from the perspective of marginal deterrence.

We propose the government to re-evaluate the existing regulatory regime of tobacco control, which in our view is inconsistent with the objective of reducing smoking rates in order to reduce premature mortality and morbidity caused by smoking. As economists, we do not claim that we know precisely how much less harmful e-cigarettes are compared with traditional ones. We also do not claim to know the precise estimate of the cross-price elasticity of e-cigarettes and the traditional ones, although this important parameter can be estimated in principle. More

importantly, we also do not rule out the possibility that making e-cigarettes more accessible to consumers may induce some non-smokers to start consuming e-cigarettes. But there is an emerging literature and underlying data that could be analyzed to determine the extent, if any, of such phenomena (e.g., West, 2015). We find the following exercise useful. If we assume, for example, that e-cigarettes are, say 80% less harmful, that 5% of smokers fully switch to e-cigarettes if e-cigarettes are regulated under the same framework as the one regulating the traditional ones, and that 1% of non-smokers start using e-cigarettes, would the net health benefit be positive? What if when the percentage of non-smokers using e-cigarettes increases, or when e-cigarettes are only 50% less harmful? Apparently, we need sensible estimates of the various economic parameters to design the optimal tax and regulation on cigarettes as well as e-cigarettes.

#### **IV. Conclusion**

Other things being equal, the less harmful e-cigarettes are, the higher the cross-elasticity between e-cigarettes and the traditional ones, and the smaller number of non-smokers start using e-cigarettes, the less aggressive tax and regulation should be imposed on e-cigarettes. Given that public health is at stake, we support a careful examination of the optimal tax and regulation of the no-more-harmful nicotine-containing alternatives to cigarettes.

## References

Goniewicz, M.L., et al. (forthcoming): “Levels of selected carcinogens and toxicants in vapour from electronic cigarettes,” *Tobacco Control*, 23(2), 133-9.

Letter from Specialists in Nicotine Science and Public Health Policy, to Dr. Margaret Chan, WHO Director General (2014).

Merriman, David (2010): “The micro-geography of tax avoidance: evidence from littered cigarette packs in Chicago,” *American Economic Journal: Economic Policy*, 2(2), 61-84.

Mulligan, C.B. (2010): *Comparing health warning label sizes and smoking prevalence rates in the US and Canada*, report prepared for Philip Morris International, December 2010.

Tobacco Advisory Group of the Royal College of Physicians (2007): “Harm reduction in nicotine addiction: helping people who can’t quit. A report by the Tobacco Advisory Group of the Royal College of Physicians,” Royal College of Physicians, London.

Tsang, K.P. and K. Tsui (2015): *An economic analysis of health warning labels on cigarette packets in Hong Kong*, report prepared for the Coalition on Tobacco Affairs, June 2015.

West, Robert (2015): “Estimating the population impact of e-cigarettes on smoking cessation and smoking prevalence in England,” *Smoking Toolkit Study Document STS150530*.