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Research paper

The incentives created by a harm reduction approach to smoking cessation: Snus and smoking in Sweden and Finland

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ABSTRACT

Background: Tobacco harm reduction involves advocating the use of a less harmful alternative to smoking for those users who are unwilling or unable to quit. The net effect of such an approach is unclear as it may create opposing incentives. Although some smokers may substitute toward this less harmful alternative, it may reduce the incentive to quit by undermining public health efforts and may act as a gateway to smoking. This research paper aims to answer the question: Does the availability of a less harmful alternative to smoking lead to cessation? To explore the opposing incentives created by a harm reduction approach to smoking cessation, I focus on the role of snus, a popular smokeless tobacco product in Scandinavia that is widely used in Sweden.
Methods: This paper exploits a quasi-natural experiment to examine the net effect resulting from these opposing incentives. While two Scandinavian countries, Sweden and Finland, joined the European Union (EU) in 1995, Finland was subject to a pre-existing EU ban on oral tobacco products while Sweden received an exemption. A difference in differences framework is used to estimate the change in the smoking rate in Finland due to the implementation of the ban. A secondary analysis uses Finnish smoking data to test for a structural break in trend.
Results: In the post-ban period, smoking was 3.47 percentage points higher in Finland *relative to what it would have been* in the absence of the ban.
Conclusion: The availability of snus, a less harmful alternative to smoking, appears to have had a positive impact (reduction) on the smoking rate. Offering acceptable alternatives to cigarettes is critical in reducing smoking prevalence.

Introduction

Tobacco harm reduction involves advocating the use of a less harmful alternative in lieu of complete abstinence for those smokers who are unwilling or unable to quit. The goal of such an approach is to lower the smoking rate by providing an acceptable substitute to current smokers. Many advocates of tobacco harm reduction cite the Swedish Experience, a term used to refer to Sweden's relatively high rate of tobacco consumption, but low level of smoking related disease. This phenomena is attributed to the widespread use of snus and suggests that the availability of this less harmful alternative is key to Sweden's low smoking rate (see Fagerström & Schildt, 2003).

Snus is a form of tobacco that is used orally and offers an alternative to smoking. It has nicotine content similar to that of cigarettes (Roth, Roth, & Liu, 2005), but it differs from cigarettes in several ways which makes it an attractive substitute. It is considered to be less harmful than smoking (Nutt et al., 2014; Royal College of Physicians, 2007), and poses fewer externalities as there is no second hand smoke. Despite the benefits that may arise from advocating the use of snus as an alternative to cigarettes (and promoting it as a substitute), many remain sceptical of a doing so as such an approach may create opposing incentives (see Savage, 2007).

The availability of a less harmful alternative to smoking may act as an incentive to increase nicotine consumption among smokers and may act as a gateway to smoking (Milikian and Hoffmann, 2009). A product that allows cigarette users to continue nicotine intake in areas where smoking is prohibited moderates the incentive to quit tobacco use altogether and may undermine public health efforts, reducing the effectiveness of policies aimed at decreasing smoking. In addition, as Savitz, Meyer, Tanzer, Mirvish, and Lewin (2006) notes, there is concern that there may be widespread misunderstanding resulting from a harm reduction strategy whereby the public may mistake "safer" for "safe". A

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product marketed as a less harmful alternative to cigarettes may attract users who would have otherwise abstained. These new users, once addicted to nicotine, may ultimately progress to cigarette use. Both scenarios suggest that the availability of snus would have a negative effect (increase) on the smoking rate. However, advocates of tobacco harm reduction believe that the availability of a less harmful alternative, such as snus, provides an incentive for current smokers to substitute away from cigarettes and toward the less harmful good. This would lead to a decrease in the number of smokers, and ultimately, a reduction in negative health effects due to tobacco use (Rodu & Godshall, 2006).

Prior research studies examining the role of snus in smoking cessation or uptake primarily rely on survey data. Several studies using survey data from Norway and Sweden find that many respondents report using snus to help quit smoking. Lund, Scheffels, and McNeill (2011) review seven cross-sectional data sets and find that the quit ratio for smokers who used snus was generally significantly higher than for those who did not. Stenbeck, Hagquist, and Rosén (2009) study cigarette uptake and quit behaviour attributable to snus use among Swedish males in the 1990s. They find that behaviour varies by age group with the younger cohort (age 16–44) having six quitters per smoking starter attributable to snus. Among the older cohort (age 45–84), the difference was more modest with approximately two quitter per starter. Some research has found that snus use may reduce smoking initation. Ramström and Foulds (2006) find that smoking uptake was lower for those that used snus than for those who had not. Among primary snus users, 20 percent initiated daily smoking while 47 percent of non-users did so.

Ramström and Foulds (2006) also compared the effectiveness of snus with other nicotine replacement therapies as a smoking cessation aid. They found that 66 percent of Swedish men who used snus were able to quit smoking compared to only 47 percent of those using nicotine gum and 32% of those using the nicotine patch. Lund, McNeill, and Scheffels (2010) report consistent results among Norwegian males, finding that would be quitters who use snus were more likely to be successful than those who used other medicinal nicotine products. They also note that those who use snus were more likely to remain nicotine dependent and continue use long term.

Although survey data is useful, determining the net impact on the smoking rate due to the use of this product and assessing the external validity of the findings is challenging. Prior research has been unable to directly address the competing incentives created by a harm reduction approach to smoking cessation. This research paper aims to determine if the availability of a less harmful alternative to smoking reduces the overall prevalence of smoking. Within this context, I focus on the impact of the availability of snus. As data on introducing snus to a market is not available, I undertake an alternative approach. I exploit a quasi-natural experiment to determine the effect of removing snus from a market, in effect limiting the availability of this less harmful alternative, and explore the subsequent change in the smoking rate.

The European Union (EU) implemented a ban on oral tobacco products in 1992 and Finland was forced to ban the sale of snus when it joined the European Union in 1995. Joining the EU and the resulting policy change in Finland provides a means to evaluate the effect on the smoking rate due to limiting access to a less harmful alternative.

Empirical methods

Data

Data on smoking prevalence was obtained from the World Health Organization (WHO) "European Health for All" database. This database contains an array of core health statistics including demographics, health determinants, risk factors, and health care resources and expenditures for 53 member states. Data on smoking prevalence by age group for Finnish males and total snus consumption (estimated through retail sales tax) was obtained from a statistical report, which was compiled by The European Smokeless Tobacco Council in Brussels from data collected by Finland's National Public Health Institute (NPHI). The NPHI collects the data through a yearly survey that gathers information on the health status and health behaviour of the Finnish population.

Differencing analysis

In 1992, the European Union implemented a mandatory ban on all oral tobacco products, except those intended to be smoked or chewed (i.e., cigarettes and whole leaf tobacco). This ban prohibited the sale and advertising of moist snuff and snus (Council of the European Communities, 1992). The rationale for the ban was to protect public health by limiting uptake of a potentially harmful product (European Commission, 2012). When Sweden and Finland joined the EU in 1995, both countries were subject to this ban. Sweden applied for and received an exemption, and remains the only country in the EU where the sale of snus is legal. Finland did not apply for an exemption and upon joining the EU was required to implement a ban on the sale of snus. Using these two similar countries, it is possible to exploit the differing response to the ban to investigate the effect of banning snus on the smoking rate.

Key to successful implementation of the difference in differences methodology is finding an appropriate control. Although Sweden and Finland differed in response to the proposed ban, they share many similarities which make Sweden a reasonable control for Finland. Finland and Sweden are both northern welfare states and share many health and societal policies. Both Finnish and Swedish are the national languages of Finland. Both countries joined the EU at the same point in time and would have experienced similar political, social, and price effects as a result of the change. With the exception of the snus ban, public policy regarding tobacco is very similar between these two countries (Patja, Hakala, Boström, Nordgren, & Haglund, 2009). In the period leading up to the ban, Sweden had a lower overall level of smoking than did Finland, but both were trending down at a remarkably similar rate. This overall trend in the smoking rate highlights the need to include a control that can account for a decline in the smoking rate over time.

The fact that Sweden applied for an exemption while Finland did not suggest that snus was relatively more popular in Sweden than in Finland. Sweden's response may have been influenced by differing popular and corporate response to the proposed ban. Snus originated in Sweden and there is a long history of use within that country. In addition to the importance of snus in popular culture, it is also an important product commercially. Swedish Match, Sweden's largest tobacco manufacture, is one of the top 25 largest companies in Sweden. It produces snus and does not manufacture or sell cigarettes. However, it should not be interpreted as an indication that snus was not used in Finland during this time. The ban of snus in Finland has been met with considerable reluctance. For example, Aland, a semi-autonomous island of Finland, agreed to join the EU, but refused to stop selling snus. This has resulted in the assessment of fines and culminated with the island threatening secession from the EU if forced to ban snus (Ben-Aaron, 2008).

Detailed statistics on adult snus consumption in Finland prior to the ban are not available as they were not collected. Finland began including questions pertaining to snus use in their annual health survey in 2000. Results of the survey are not publically available. However, retail tax receipt data, obtained from the ESTOC and available from 1977 to 1994, can proxy for overall country level consumption. Fig. 1 depicts snus consumption (in tons) pre-ban

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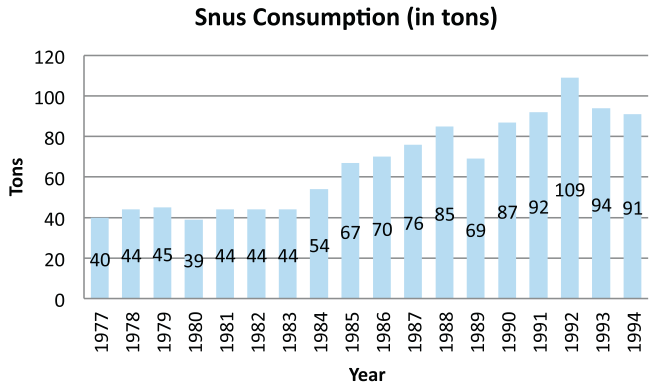

Fig. 1. Snus sales in Finland (males and females), 1977–1994.

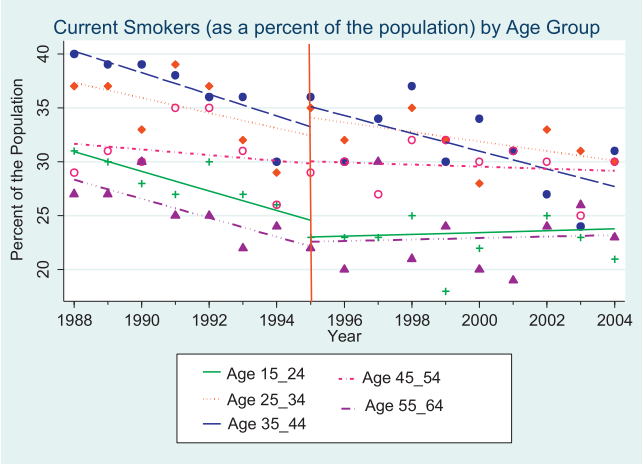

Fig. 2. Male smokers (as a percent of the population) by age group in Finland: 1988–2004.

during 1977–1994 in Finland, approximated through tax receipts. Although consumption was relatively stable in the late 1970s and early 1980s, snus use in Finland increased rapidly in the 10 year period leading up the ban. Between 1980 and 1989, snus consumption doubled in Finland. By 1994, it increased another 30 percent. Data collected in youth tobacco surveys supports the claim that snus was widely used in Finland prior to the ban and can be used to compare the prevalence among Swedish and Finnish youths in the pre-ban period. Using data from youth tobacco use surveys in Finland, Huhtala, Rainio, and Rimpela (2006) find that in 1994, roughly 30 percent of 16 year old males reported that they had tried snus and 6 percent indicated that they were occasional/daily users. Nilsson, Weinehall, Bergstrom, Stenlund, and Janlert (2009) report similar use during the same period in Sweden; 34 percent of 17 year old males reported that they had tried snus and 12 percent indicated that they were occasional/daily users. The adult consumption data and youth usage data taken together suggest that snus was widely available and utilised in Finland prior to the ban.

Because snus use is uncommon outside of Scandinavia, the analysis presented here focuses only on Sweden, Finland, and Norway. Other countries within the European Union were not included in this analysis as it would not be appropriate to do so within this framework. As other countries outside Scandinavia differ in many ways, including the use of snus, tobacco control policies, European Union member status, and trends in the smoking rate both in the period before and after 1995, there is no basis to include them as additional control groups. To explore the effect of limiting access to the less harmful alternative, I restrict my attention to males as snus use among females is far less common. As such, female smoking status is not expected to be impacted by the ban on snus. They would neither have been induced to smoke via access to this less harmful alternative, nor would they have used it as a means to quit smoking.

To investigate the effect of removing snus from the Finnish market, I compare the change in the smoking rate between Finland and Sweden. Within this context, Sweden is the control and Finland is the treatment group. The intervention is joining the EU in 1995. Successful implementation of this type of analysis requires that in the absence of the intervention, the smoking rate in Finland would have looked like that in Sweden. As noted above, both countries are substantially similar which allows Sweden to act as a reasonable control. An alternate specification uses Norway as a control for Finland. However, although snus remains legal in that country, it is considered to be an inferior control as it did not become a member of the EU and would not have experienced the similar societal and economic impacts due to joining.

The data used in this analysis was obtained from the WHO and includes the percent of male smokers in the population per year during the period 1988–2004.

The regression equation has the following form:

$$Y_{i,t} = \Upsilon_0 + \Upsilon_1 Treat_i + \Upsilon_2 Post_t + \Upsilon_3 Treat_i * Post_i + \varepsilon_{i,t}$$

$Y_{i,t}$ is the smoking rate for country i in year t. $Treat_i$ is a binary variable indicating treatment status, 1 if Finland, 0 if the control (Sweden or Norway), $Post_t$ is a binary variable, 1 if the period is after the change (1995–2004), 0 if not (1988–1994), and $Treat_i * Post_i$ is the interaction term.

Trend analysis

Although there are many factors which influence smoking prevalence (advertising, smoking cessation campaigns, price, etc.), I undertake a simple analysis to test for a break in trend in the smoking rate in Finland. Using pooled cross sectional data that presents the smoking rate by age group in Finland, I test to see whether there was a structural change in the smoking rate corresponding to implementation of the ban on snus. As snus use was growing rapidly in the pre-1995 period, I focus on only those years immediately preceding the implementation of the ban. During this time, there was a significant reduction in the smoking rate for nearly all age groups as depicted in Fig. 2.

Data on the smoking rate for males is available by age group (age 15–24, 25–34, 35–44, 45–54, and 55–64), which results in a sample size of 85 observations. Disaggregating the rate by age group reveals differences in the change in the smoking rate by age. In order to test whether the rate of change differs between the pre- and post-ban periods, I estimate the following equation:

$$Smoking\ Rate = \beta_0 + \beta_1 Year + \beta_2 Year + \beta_3 Year * Post + \beta_4 \mathbf{X} + \varepsilon,$$

where *Smoking Rate* is the annual smoking rate and *Year* indicates the time period corresponding to that particular rate, with the year normalised so that −1 = 1993, 0 = 1994, +1 = 1995, etc. *Post* is a binary variable, 1 is the period is after the change (1995–2004), 0 if not. *Year* * *Post* is the interaction term. **X** is a vector of dummy variables indicating the age-group for which the smoking rate applies.

Including the interaction term in the above equation allows both the intercept and slope to change between the two periods. In essence, this is akin to computing a Chow Test, where the significance of the coefficient on the interaction term, β_3 can be used to test for a structural change across time. If there were no change across time, the variable is expected to be statistically indistinguishable from zero.

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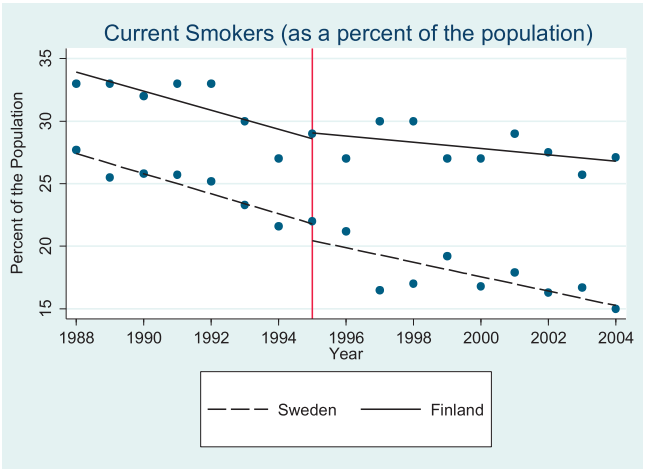

Fig. 3. Male smokers (as a percent of the population) in Sweden and Finland, pre and post intervention: 1988–2004.

Results

Fig. 3 presents the male smoking rate in Finland and Sweden during the period 1988–2004. Prior to the ban, Sweden has a lower level of smoking than does Finland, but both are trending down at a similar rate. Subsequent to the ban on snus in Finland, the rates diverge. The break corresponds to the date of the intervention, 1995.

Norway borders Sweden to the west and has not joined the European Union. Snus is popular in this country, and as in Sweden, is sold legally. Norway does not experience an intervention (as does Finland), and can be used as an alternative, albeit inferior, control. We see in Fig. 4 that the smoking rate in Norway is similar to that in Finland prior to 1995, after which point the rates diverge. Using Norway in place of Sweden as a control produces a result similar to, but not as drastic as, that depicted in Fig. 3.

The rate of change analysis using males in Sweden and Finland is presented in row (1) of Table 1. It shows that in the post-ban period, smoking increased in Finland by 3.47 percentage points relative to Sweden. If Sweden is an appropriate control, then this estimate can be interpreted as an increase in the smoking rate, *relative to what it would have been*, in the absence of the ban. The difference in means is statistically significant at the 5 percent level and can be interpreted as suggestive evidence of a true change due to the treatment.

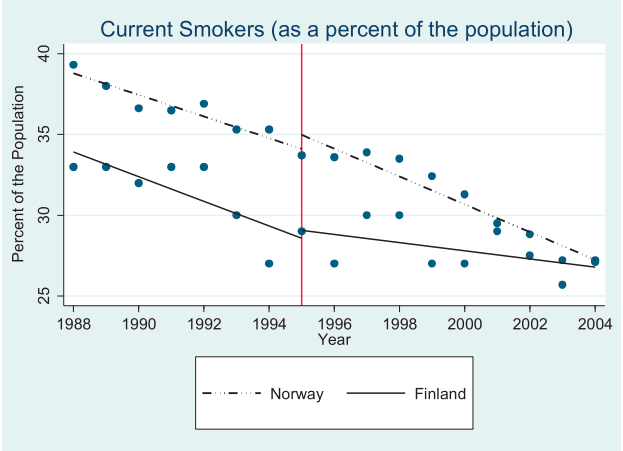

Fig. 4. Male smokers (as a percent of the population) in Finland and Norway: 1988–2004.

Table 1
Change in current smokers (as a percent of the population), Finland, Sweden, and Norway: 1988–2004.

Change in the percent of population smoking, age 15+			
	1988–1994	1995–2004	Difference between periods
Finland – males	31.57%	27.93%	−3.64
Sweden – males	24.97%	17.86%	−7.11
(1) Difference between Finland and Sweden	6.60	10.07	+3.47 (1.39)**
Finland – females	19.85%	19.67%	−0.18
Finland – males	31.57%	27.93%	−3.64
(2) Finland: difference between males and females	−11.72	−8.26	+3.46 (1.00)***
Finland – males	31.57%	27.93%	−3.64
Norway – males	36.84%	31.11%	−5.73
(3) Difference between Norway and Sweden	−5.27	−3.18	+2.09 (1.44)

Standard errors are in parentheses.
** Indicates statistically significant at the 5% level.
*** Indicates statistically significant at the 1% level.

Table 2
Regression estimate, test for structural break in trend.

	(1)
Year	−0.829*** (0.241)
Post-1994	0.328 (1.232)
Post-1994 * Year	0.586** (0.279)
Age 25–34	7.765*** (0.979)
Age 35–44	8.176*** (0.979)
Age 45–54	4.706*** (0.979)
Age 55–64	−1.412 (0.979)
Constant	25.039*** (1.068)
Observations	85
r^2	0.729

Standard errors are in parentheses.
Note: OLS regression, with the percent of the population that smokes in a given year as the dependent variable. Age variables are indicator functions and are used to indicate smoking rate by age group. The sample is limited to the period 1988–2004 and includes males only. The omitted age group is males age 15–24.
* $p < 0.10$.
** Indicates statistically significant at the 5% level.
*** Indicates statistically significant at the 1% level.

Fig. 2 illustrates the yearly smoking rate in Finland by age group over this period. Although the rate of change exhibited among males age 45–54 is slight, the smoking rate declines among all age groups in the pre-ban period. Post-ban, the rate of decline slows, and for males at both ends of the age spectrum, it levels out.

Regression results presented in Table 2 indicate there was a shift in the rate across time, with the coefficient positive and statistically significant at the 5 percent level. Note that this analysis implicitly assumes that there has been no other confounding factor that has influenced the rate. To validate this assumption, exploring the smoking behaviour of Finnish females is helpful as they serve as a useful barometer regarding change in price or tobacco control policies during this time which would have influenced the smoking rate in the country. We would expect this group to be wholly unaffected in the change of the policy to ban snus. Finnish females largely did not consume snus, so while removing the product from the market may have affected male consumers, it should have had no bearing on females. In comparing the change in the smoking rate between males and females in Finland, we see in both Fig. 5 and Table 1, row (2) that the rate of change differs significantly by gender. In particular, there was virtually no change in the smoking rate among females during stable during 1988–2004. The findings

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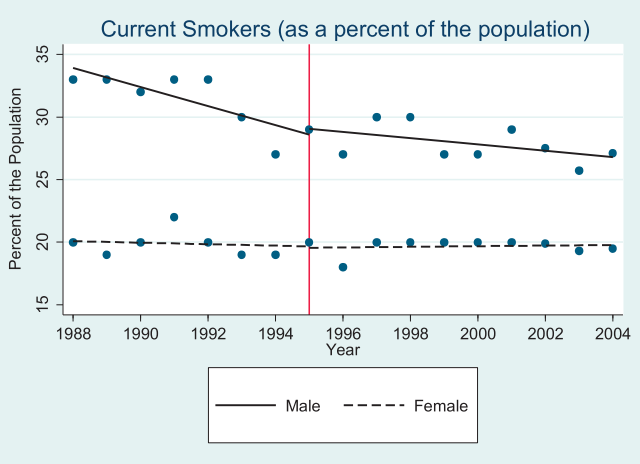

Fig. 5. Male and female smokers (as a percent of the population) in Finland, pre and post intervention: 1988–2004.

of this analysis suggest that the adoption of the ban on snus in Finland had a material effect on the smoking rate.

Discussion

The analysis employed in this research paper utilised aggregate level data on the smoking rate for Scandinavian countries. In comparing the change in the smoking rate between Sweden and Finland, the two countries which joined the EU in 1995, we see that the smoking rate in Finland increased relative to Sweden. We can interpret this to suggest that the smoking rate in Finland is higher than what it would have been in the absence of the ban. As a secondary analysis, I explore the smoking rate of Finnish males and find that there was a structural break in trend corresponding to the date of the ban.

It is possible that the increase in the smoking rate in Finland, relative to Sweden, is due to snus users switching from snus to cigarettes once snus becomes unavailable. If this were the case, it would represent a one-time shock to the smoking rate. However, the data does not support this argument. In the post intervention time period, Finland never again experiences a decline in their smoking rate similar to that experienced pre-ban.

These findings indicate that the ban on snus may be counterproductive. The analysis presented here suggests that snus use is effective in facilitating smoking cessation. These results indicate that limiting the availability of snus, a less harmful alternative to cigarettes, resulted in a *reduction* in the decline of smoking.

The results of this analysis support findings from surveys suggesting that consumers are willing to substitute snus for cigarettes. However, the degree of substitutability may vary by the individual's characteristics. Lund (2012) finds that the willingness to substitute snus for cigarettes depends upon the individual's perception of the relative risk between the two products. Although Ramström and Foulds (2006) found that the use of snus was similar among individuals with differing levels of age and education when exploring the issue of selection (that smokers who use snus to quit are different than those who use a different aid), there may be other individual characteristics correlated with the probability of uptake. While substitution is considered evidence of a positive incentive, negative effects may exist. The availability of this less harmful alternative can have negative consequences as it may lead to uptake among those individuals who would have otherwise abstained. In addition, those individuals that use snus to quit smoking may continue use long term and remain nicotine dependent. However, both scenarios must be considered in light of the alternative. Smoking is remarkably more harmful than snus use, and some uptake may be an acceptable consequence of achieving meaningful reductions in the smoking rate, especially when the harm associated with use is relatively low. Gartner et al. (2007) find that in comparing smokers that quit tobacco entirely and those that transitioned to snus, there was little difference in health-adjusted life expectancy. In considering uptake, they report that there would need to be between 14 and 25 non-smokers who take up snus to cancel out the benefit from each smoker who transitions from cigarettes to snus.

The findings presented in this paper provide support for the viability of a harm reduction approach to smoking cessation and suggest that the Swedish Experience could be replicated elsewhere, a perception shared by other researchers such as Ramström (2011). It may have been underway in Finland prior to the implementation of the ban. These results are not only meaningful within Finland, but may be applicable to the entire EU. The smoking rate among Swedish males is remarkable low, and continues to decline; given Sweden's low smoking rate pre-1995, the ability to achieve further reductions post-1995 is notable. To achieve significant reduction in the smoking rate of other member countries in the EU, embracing evidence based policy setting and offering acceptable substitutes is critical.

Disclosure

This project developed from work I began while at North Carolina State University and was completed while employed at FTI Consulting. The views presented here are my own and do not represent those of either institution. There was no funding provided to support this project.

Conflict of interest

The author declares that she has no relevant or material financial interests that relate to the research described in this paper.

References

Ben-Aaron, D. (2008). Snuff ban feeds resentment of EU in Finland's Aland islands. *Bloomberg News Website* July 2, 2008. http://www.bloomberg.com/apps/news?pid=newsarchive&sid=atBXnoTda1WM (accessed 7.04.12).

Council of the European Communities. (1992). *Council Directive 92/41/EEC of 15 May 1992 amending Directive 89/622/EEC on the approximation of the laws, regulations and administrative provisions of the Member States concerning the labelling of tobacco products.* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0041:EN:HTML (accessed 16.04.12)

European Commission. (2012). *Directive of the European Parliament and of the Council.* http://ec.europa.eu/health/tobacco/docs/com_2012_788_en.pdf (accessed 5.08.14)

Fagerström, K. O., & Schildt, E.-B. (2003). Should the European Union lift the ban on snus? Evidence from the Swedish experience. *Addiction*, *98*(9), 1191.

Gartner, C. E., Hall, W. D., Vos, T., Bertram, M. Y., Wallace, A. L., & Lim, S. S. (2007). Assessment of Swedish snus for tobacco harm reduction: An epidemiological modelling study. *The Lancet*, *369*(9578), 2010–2014.

Huhtala, H. S. A., Rainio, S. U., & Rimpela, A. H. (2006). Adolescent snus use in Finland in 1981–2003: Trend, total sales ban and acquisition. *Tobacco Control*, *15*(5), 392–397 (October).

Lund, K. E. (2012). Association between willingness to use snus to quit smoking and perception of relative risk between snus and cigarettes. *Nicotine & Tobacco Research*, *14*(10), 1221–1228.

Lund, K. E., McNeill, A., & Scheffels, J. (2010). The use of snus for quitting smoking compared with medicinal products. *Nicotine & Tobacco Research*, *12*(8), 817–822.

Lund, K. E., Scheffels, J., & McNeill, A. (2011). The association between use of snus and quit rates for smoking: Results from seven Norwegian cross-sectional studies. *Addiction*, *106*(1), 162–167.

Melikian, A. A., & Hoffmann, D. (2009). Smokeless tobacco: A gateway to smoking or a way away from smoking. *Biomarkers*, *14*(07/02), 85–89.

Nilsson, M., Weinehall, L., Bergstrom, E., Stenlund, H., & Janlert, U. (2009). Adolescent's perceptions and expectations of parental action on children's smoking and snus use; National cross sectional data from three decades. *BMC Public Health*, *9*(March 4), 74.

Nutt, D. J., Phillips, L. D., Balfour, D., Curran, H. V., Dockrell, M., Foulds, J., et al. (2014). Estimating the harms of nicotine-containing products using the MCDA approach. *European Addiction Research*, *20*(May), 218–225.

Patja, K., Hakala, S. M., Boström, G., Nordgren, P., & Haglund, M. (2009). Trends of tobacco use in Sweden and Finland: Do differences in tobacco policy relate to tobacco use? *Scandinavian Journal of Public Health*, *37*(2), 153–160 (03).

Ramström, L. (2011). Commentary on Lund et al. (2011): Consolidating the evidence on effectiveness of snus for smoking cessation–implications for public health. *Addiction*, *106*(1), 168–169.

Ramström, L. M., & Foulds, J. (2006). Role of snus in initiation and cessation of tobacco smoking in Sweden. *Tobacco Control*, *15*(3), 210–214.

Rodu, B., & Godshall, W. T. (2006). Tobacco harm reduction: An alternative cessation strategy for inveterate smokers. *Harm Reduction Journal*, *3*(01), 23–37.

Roth, D. H., Roth, A. B., & Liu, X. (2005). Health risks of smoking compared to Swedish snus. *Toxicology*, *17*(13), 741–748 (December 1).

Royal College of Physicians, Tobacco Advisory Group. (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*. London: RCP. http://www.tobaccoprogram.org/pdf/4fc74817-64c5-4105-951e-38239b09c5db.pdf (accessed 09.03.11)

Savage, L. (2007). Experts fear Swedish snus sales in the U.S. could thwart anti-tobacco measures. *JNCI: Journal of the National Cancer Institute*, *99*(18), 1358–1359 (09/19).

Savitz, D. A., Meyer, R. E., Tanzer, J. M., Mirvish, S., & Lewin, F. (2006). Public health implications of smokeless tobacco use as a harm reduction strategy. *American Journal of Public Health*, *96*(11), 1934–1939 (11).

Stenbeck, M., Hagquist, C., & Rosén, M. (2009). The association of snus and smoking behaviour: A cohort analysis of Swedish males in the 1990s. *Addiction*, *104*(9), 1579–1585.

The European Smokeless Tobacco Council in Brussels (ESTOC). Nordic tobacco statistics 1970–2004. Statistical report from statistical bureau VECA.

World Health Organization "European health for all" database. WHO Regional Office for Europe, Copenhagen, Denmark.

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