

# The Effect of a Policy to Eliminate Sales of Tobacco in Pharmacies on the Number of Smokers in the Region

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Cigarette smoking represents the greatest source of preventable illness and health care costs in this country. Greater than 480,000 deaths each year are caused by cigarette smoking in the United States.<sup>(1)</sup> The annual costs attributable to cigarette smoking in the U.S. are estimated at over \$289 billion - over \$133 billion for direct medical care of adults and \$156 billion in lost productivity.<sup>(2)</sup> Educational campaigns, efforts to denormalize smoking, advertising limitations, excise taxes and limits on sites where smoking is allowed have all been shown to reduce smoking rates, particularly in youth;<sup>(3)</sup> nonetheless, reducing rates of smoking remains a central national public health priority.

One important policy option is to reduce convenient access to cigarettes. Nine percent of cigarettes are purchased in retailers that also have pharmacies.<sup>(4)</sup> The American Pharmacists Association and other clinical specialty societies have called on pharmacies to eliminate sales of cigarettes, as their availability in these settings runs counter to the stated goal of promoting health. Two cities, San Francisco and Boston, enacted policies eliminating the sale of cigarettes in stores with retail pharmacies. We sought to explore the relationship between these policies and the likelihood that residents in those cities purchased tobacco.

## Methods

The study's population was drawn from the IRI Consumer Network Panel, a continuous longitudinal consumer household panel. To provide representation of the contiguous U.S. household census estimates, the Consumer Network Panel Households are geographically and demographically recruited. Members of this panel, which is also referred to as the National Consumer Panel<sup>(5)</sup>, are incented to record all their Consumer Packaged Goods purchases by scanning or taking a picture of the product's Universal Product Code (UPC or barcode) and also by using a special coding sheet prepared to record Random Weight items such as fresh fruit and vegetables. We fit a segmented linear autoregressive regression model that assumed normally distributed errors to an interrupted time series to estimate the change in level and slope of the number of unique smokers in each region before and after enactment of the policy (10/1/2010 in San Francisco and 2/11/2011 in Boston). We aligned the ban dates and assessed the number of unique smokers within the longitudinal populations in both cities for 25 months before and 36 months after policy implementation. In Boston and San Francisco, we assessed the number of unique purchasers of coffee, soda, and pain relievers, all products thought unlikely to be sensitive to the tobacco purchasing ban, both before and after the tobacco ban as an internal control. As an external control, we assessed the number of unique tobacco smokers in Baltimore and Seattle before and after the tobacco bans in Boston and San Francisco to examine if trends seen in the regions with the ban were present in those without a ban.

## Results

The panel included 512 households in Boston and 377 in San Francisco, followed over the study period. We found a 13.29 percent reduction in the unadjusted mean number of unique tobacco purchasers after the bans as compared to before (mean of 143 vs. 124,  $p < 0.001$ ). Our segmented linear regression model found a 5.5 percent reduction in level (148 vs. 140;  $p < 0.02$ ) of unique tobacco purchasers and a slight but non-significant reduction in the slope (-.34 vs -.35;  $p = 0.96$ ). (**Figure 1**) Reductions in unique buyers were more pronounced in San Francisco than Boston, but directionally similar. In Boston and San Francisco, we found no statistically significant change in the level or slope of use of coffee, soda, or pain relievers to coincide with the reduction seen in use of tobacco products. We also did not see a commensurate reduction in use of tobacco in Seattle and Baltimore that coincided with implementation of the bans.

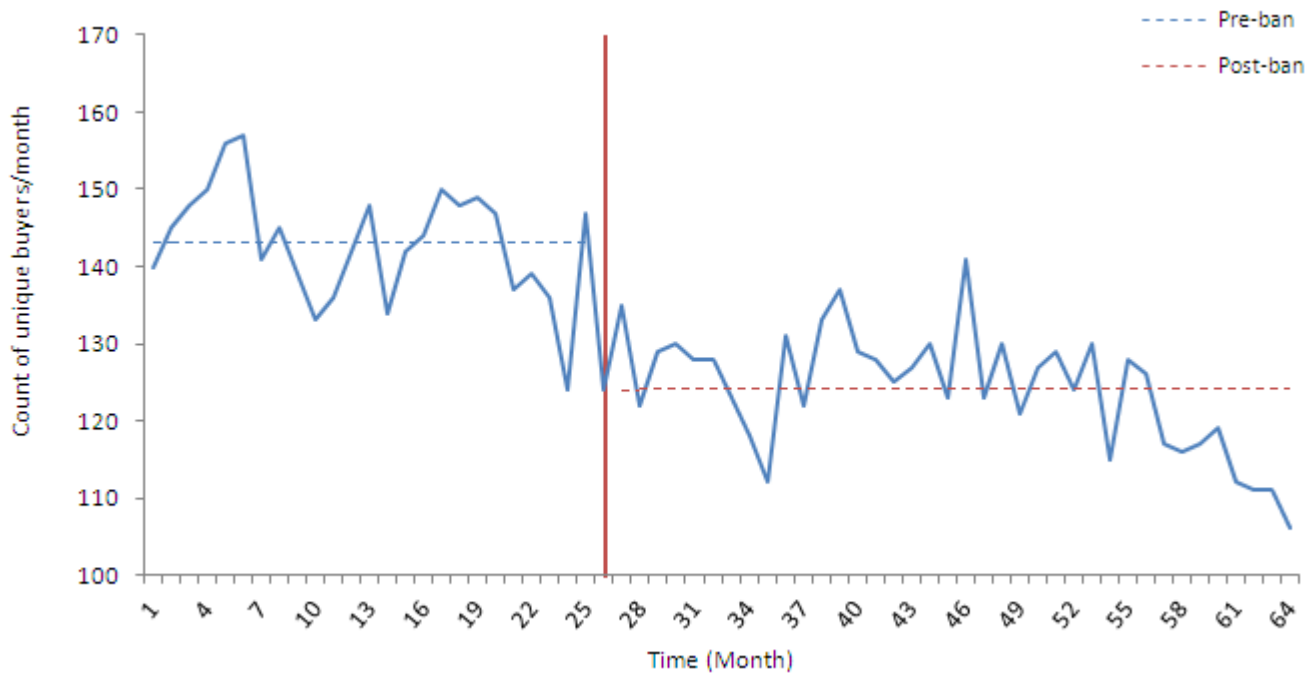
## Discussion

This preliminary analysis, using a unique data source, suggests that the enactment of policies to eliminate the sale of tobacco products in any retail outlet with a retail pharmacy was associated with reductions in the number of people that purchased tobacco products in Boston and San Francisco. The findings are bolstered by the fact that reductions were not seen in the number of people purchasing other products in these cities, and reductions in tobacco purchasing were more pronounced in Boston and San Francisco and than other cities without a ban.

Our analysis should be considered preliminary as it is limited by small sample sizes in both cities. There likely were other policies enacted during the time period that aimed to reduce smoking, and may have amplified our results. In addition, the generalizability of the panel is unknown, and there was likely modest replacement in the panel studied, that may have led to biased results.

These preliminary findings highlight the need for more formal study of the effects of policies to eliminate tobacco sales in pharmacies. Most developed nations do not permit the sale of tobacco products in pharmacies. Some pharmacies in the U.S. have voluntarily chosen to stop selling tobacco products, and many public health and medical societies have called for other pharmacies to follow suit.<sup>(6)</sup> These results suggest that more broad enactment of such policies may have a meaningful effect on the number of smokers in this country.

**Figure 1.** Unique buyers per month in Boston and San Francisco



Segmented regression analysis of interrupted time series model  
Source of Data: IRI Consumer Network National Consumer Panel

## References

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