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Limited indications of tax stamp discordance and counterfeiting on cigarette packs purchased in tobacco retailers, 97 counties, USA, 2012

Joseph G.L. Lee[a,*], Shelley D. Golden[b], Kurt M. Ribisl[b,c]

[a] Department of Health Education and Promotion, College of Health and Human Performance, East Carolina University, 1000 East 5th Street, Greenville, NC 27858, USA
[b] Department of Health Behavior, UNC Gillings School of Global Public Health, 145 Dauer Drive, Chapel Hill, NC 27599, USA
[c] Lineberger Comprehensive Cancer Center, UNC School of Medicine, Chapel Hill, NC, USA

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ABSTRACT

Increasing the per-unit cost of tobacco products is one of the strongest interventions for tobacco control. In jurisdictions with higher taxes in the U.S., however, cigarette pack litter studies show a substantial proportion of littered packs lack the appropriate tax stamp. More limited but still present counterfeiting also exists. We sought to examine the role of tobacco retailers as a source for untaxed and counterfeit products. Data collectors purchased Newport Green (menthol) or Marlboro Red cigarette packs in a national probability-based sample of tobacco retailers (in 97 counties) from June–October 2012. They made no effort to buy counterfeit or untaxed cigarettes. In this cross-sectional study, we assessed the presence, tax authority, and type (low-tech thermal vs. encrypted) of cigarette pack tax stamps; concordance of tax stamps with where the pack was purchased; and, for Marlboro cigarettes, publicly available visible indicators of counterfeiting. We purchased 2147 packs of which 2033 had tax stamps. Packs missing stamps were in states that do not require them. We found very limited discordance between store location and tax stamp(s) (< 1%). However, a substantial minority of cigarette packs had damaged tax stamps (13%). This occurred entirely with low-tech tax stamps and was not identified with encrypted tax stamps. We found no clear evidence of counterfeit products. Almost all tax stamps matched the location of purchase. Litter studies may be picking up legal tax avoidance instead of illegal tax evasion or, alternatively, purchase of illicit products requires special request by the purchaser.

1. Introduction

One of the best interventions in tobacco control is raising the per-unit cost of tobacco products (Contreary et al., 2015; Golden et al., 2016). The effectiveness of this policy is undermined, however, by legal and illegal strategies to avoid payment of excise taxes. Following Joossens (Joossens and Raw, 2012), legal tax avoidance would include a consumer buying a product in a low-tax jurisdiction and consuming the product in a higher-tax jurisdiction. Reselling that product, however, would constitute illegal tax evasion. Tax evasion includes (a) the sale of smuggled or bootlegged products (i.e., moving products across jurisdictions to evade taxes), (b) the use of counterfeit tax stamps, or (c) the sale of counterfeit and thus untaxed products. All these forms of tax evasion are part of a broader concept of illicit trade in cigarettes that undermines the effectiveness of per-unit pricing policies. The U.S. Institute of Medicine (IOM) estimated that 8.5% to 21% of the U.S. market in cigarettes avoids or evades taxes (i.e., 1.24–2.91 billion packs of cigarettes per year) (Reuter and Majmundar, 2015). Tax evasion in the U.S. is thought to operate largely through smuggling cigarettes from states and reservations with low taxes to states and cities with higher taxes (Reuter and Majmundar, 2015).

In high-tax jurisdictions, cigarette pack litter studies find substantial proportions of littered packs with tax stamps from other jurisdictions. For instance, a 2011 standardized litter collection study in major mid-Atlantic and northeastern cities of the U.S. showed 58.7% of packs lacked the local tax stamp, 30.5–42.1% were estimated to be illicit (Davis et al., 2014). Around a New York City college in 2012–2013, 72.4% of littered packs did not have required joint city and state tax stamps (Consroe et al., 2016), and in a 2011 study from the South Bronx of New York City, 76.2% of littered packs did not have the correct tax stamps (Kurti et al., 2013). These findings are similar to 2007 data from Chicago, IL, (75% not matching) (Merriman, 2010) and 2008–2009 data from New York City (45–52% not having NYC stamp) (Chernick and Merriman, 2013).

Nationally, lower but still substantial rates of untaxed cigarettes are found (Barker et al., 2016). In 2009–2010, approximately 20% of

* Corresponding author at: Department of Health Education and Promotion, College of Health and Human Performance, East Carolina University, 1000 E. 5th St., Mail Stop 529, Greenville, NC 27858, USA.
E-mail address: leejose14@ecu.edu (J.G.L. Lee).

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Fig. 1. Examples of damaged thermal (L) and undamaged encrypted (R) tax stamps.

cigarette packs collected from participants by mail in the International Tobacco Control United States Survey did not have tax stamps matching the residence of the participant (Fix et al., 2014).

These findings from litter and pack mail-in studies likely represent some combination of illegal bootlegging and tax avoidance from individual smokers' legal travel to lower-tax jurisdictions (Hyland et al., 2005). Bootlegging of cigarettes may take two forms: sale by individuals and sale by tobacco retailers. Adult smokers in the Bronx, New York City, report a strong preference for purchasing cigarettes that evade taxes from retailers instead of on the street (von Lampe et al., 2016). Purchase studies, in which packs are bought and inspected, can help identify the specific role of retailers in this type of tax evasion, but fewer of these studies exist. In New York City, 15% of cigarette packs purchased had out of state or counterfeit stamps (Silver et al., 2016a), and the press has termed smuggling an “epidemic” (Campbell, 2015). Whether this problem is limited to extremely high tax jurisdictions like New York City or not, however, is unknown. No national study has examined retailer sales of cigarette packs that evade taxes. Given limited resources available for retailer inspection, a national study is needed to best target those resources and inform development of the U.S. Food & Drug Administration's tobacco retailer inspection protocol as well as state efforts to reduce tax evasion.

This study sought to examine the characteristics of two major brands of cigarettes purchased from standard tobacco retailers with no attempt to obtain untaxed or counterfeit cigarettes in 97 U.S. counties. Specifically, we aimed to (a) examine tax stamps for evidence of tax stamp concordance, (b) assess the durability of thermal versus encrypted of tax stamps, and (c) examine packs for visual indications (Altria Client Service, 2015; Kurti et al., 2017) of counterfeiting.

2. Methods

This research was done as part of the ASPiRE: Advancing Science and Policy in the Retail Environment Study conducted by the University of North Carolina at Chapel Hill, Stanford University, and Washington University in St. Louis as part of the National Cancer Institute's State and Community Tobacco Control Research Initiative. We randomly selected 100 (97 unique) U.S. counties in the contiguous U.S.A. with probability of selection based on the population of county using a Chromy technique with minimal replacement. Approximately, one-quarter of the U.S. population lives in these counties. We created a list of likely tobacco retailers in these counties using 2012 business listings from the North American Industry Classification System (NAICS) Association and ReferenceUSA using methods published previously (Ribisl et al., 2017). The codes for likely tobacco retailers were selected based on the 2007 Census of Retail Trade as they covered 98% of tobacco product sales (Census Bureau, 2010). The types were: tobacco stores; supermarkets and grocery; convenience stores; gas stations with convenience stores; other gas stations; warehouse clubs and supercenters; news dealers and newsstands; beer, wine and liquor stores; pharmacies; and, discount department stores. After pilot testing (D'Angelo et al., 2014), only Wal-Mart was retained among the discount department stores. For the pharmacies, only the top 50 pharmacy chains were retained as many independent pharmacies do not sell tobacco products (Hickey et al., 2006). State-owned alcohol retailers and known retailer chains (e.g., Whole Foods) that do not sell tobacco products were removed, and vape shops were included if they met study inclusion criteria (i.e., sold tobacco products).

For each selection of a county, we randomly selected up to 55 likely tobacco retailers and verified them by phone with computer-assisted dialing and a phone script. An average of 56% of retailers in each county was confirmed, and in-person data collection was conducted at up to 24 phone-verified stores per selection of a county. In 2147 of the 2346 stores verified by phone, data collectors purchased a single cigarette pack, alternating between Marlboro Red and Newport Green. Data collection took place between June and October 2012. Packs were not purchased in 199 stores due to store closure, clerk refusal, or data collector error. After purchase, data collectors wrote the store ID number on the pack; due to smudging or coding errors, 48 of these could not be linked to stores. Packs were coded following a standardized protocol; reliability was assessed with Krippendorff's alpha (Hayes and Krippendorff, 2007) using 47 packs from 10 randomly selected counties and two independent coders.

2.1. Pack coding: tax stamps

Packs were coded for presence and number of tax stamps (alpha = 1.00), the state of the state tax stamp (alpha = 0.97), jurisdiction of local tax stamps (alpha = 1.00), and use of encrypted or thermal (heat applied) tax stamps, which use an older technology that is less secure (Chriqui et al., 2015) (alpha = 1.00). Our protocol did not assess the reliability for damage to the stamp. Although we assessed some packs for counterfeit product, as described below, we did not assess stamps for counterfeiting. Fig. 1 shows examples of thermal and encrypted tax stamps.

2.2. State and tribal tax stamp concordance

To verify the state and county of pack purchase, as well as whether the purchase was made on an Indian reservation (U.S. Census Bureau. TIGER/Line Shapefile, 2012), we used store latitude and longitude indicators collected by store auditors with the iSurvey app on an iPad 2 tablet (Apple, Cupertino, CA), and linked matched points to counties in QGIS 2.14. We cross-tabulated the state of the store with the