

The Intended and Unintended Consequences of a Legal Measure to Cut the Flow of Illegal Cigarettes Into New York City: The Case of the South Bronx

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In June 2010, as part of an emergency budget measure, New York State raised its cigarette tax from \$2.75 to \$4.35 per pack and, in an effort to prevent smokers from circumventing state cigarette taxes, amended its tax law so that Native American reservations would no longer be able to sell untaxed cigarettes to non-tribal members. Since the 1980s, Native American reservations within New York State have imported billions of premium brand cigarettes, reselling them directly to smokers or to bootleggers who in turn supplied a thriving black market, particularly in New York City. This constituted a considerable challenge to smoking cessation policies that relied on high cigarette taxes as an economic disincentive for smokers. After a legal battle between several Native American tribes and the governor of New York, the tax amendment went into effect in June 2011.

Our goal was to assess the effects of this tax amendment on the illegal cigarette market in economically disadvantaged neighborhoods in New York City, taking the South Bronx as an example. Specifically, we examined whether the measure has been successful in cutting off the supply of untaxed cigarettes from Native American reservations and whether it resulted in a reduction in the overall prevalence of illegal cigarettes, thus preventing a displacement to other sources of illegal cigarettes in response to increased cigarette taxes.

CIGARETTE SALES ON NEW YORK STATE TRIBAL LANDS

In October 2009, before the Senate Standing Committee on Investigations and Government Operations, William Comiskey, then deputy commissioner of the New York State Department of Taxation and Finance, outlined the unprecedented increase in the volume of untaxed cigarettes purchased by Native American reservations in New York between 1988

Objectives. We examined the impact of a change in New York tax law on the numbers of untaxed cigarettes bootlegged from Native American reservations and resold in the South Bronx.

Methods. Discarded cigarette packs were systematically collected in 30 randomized South Bronx census tracts before and after the amended tax law went into effect in 2011. Also, administrative data were gathered on the number of taxed cigarettes sold in New York State, including sales to Native American reservations.

Results. Before the tax amendment, 42% of discarded cigarette packs collected in the South Bronx had no tax stamp. After the tax law went into effect, the percentage of cigarette packs without tax stamps declined to 6.2%. Simultaneously, the percentage of packs with out-of-state tax stamps rose from 18.3% to 66.3%. The percentage of packs with a combined New York State and New York City tax stamp did not change after the tax amendment.

Conclusions. After the tax amendment, the supply of contraband cigarettes appears to have quickly shifted from one lower-priced jurisdiction to another without a change in the overall prevalence of contraband cigarettes. (*Am J Public Health*. Published online ahead of print February 25, 2015; e1–e7. doi:10.2105/AJPH.2014.302340)

and 2008; during this period, the number of cartons sold grew from 5.7 million (1.14 billion cigarettes) to 27.5 million (5.5 billion cigarettes), a 382% increase. These purchases clearly exceeded tribal consumer demand. For example, in 2008, the Poospatuck Reservation on Long Island—with a population of 376—purchased more than 8.4 million cartons of cigarettes, equating to each tribal member purchasing 614 packs (12 280 cigarettes) per day.¹

Because federal law grants sovereign status to Native American tribes, New York State is barred from collecting cigarette taxes from tribal members who reside within tribal territories, as well as Native Americans at large.² However, courts have ruled that collection of taxes on cigarettes sold to non-tribal members or non-Native Americans does not violate Native American sovereignty.³

Prior to the tax amendment of 2010, New York State had unsuccessfully attempted to place restrictions on the supply of untaxed cigarettes to tribal stores and persuade Native Americans to

collect New York State taxes on cigarettes sold to non-tribal members. Tribal stores located on Native American reservations within New York State were able to purchase large quantities of non-tribal brand cigarettes from legitimate wholesale dealers without a New York State tax stamp affixed to the packs. As a result, tribal stores could offer cigarettes at prices that were significantly lower than the prices consumers had to pay outside of the reservations.

In June 2010, New York State amended its tax law, specifying that Native American reservations would be required to collect state taxes on cigarettes sold to non-tribal members and that wholesale dealers would be required to affix tax stamps on all cigarette packs shipped to reservations (even on tax-exempt cigarettes to be sold to tribal members).^{4,5} Native American reservations were given 3 options to legally purchase tax-free cigarettes: they could do so through an “Indian tax exemption coupon system” or a “prior approval system,” or they could negotiate a customized system.^{6,7}

Under the coupon system, Native American reservations could receive tax exemption coupons for a specified number of cigarettes each quarter (December, March, June, and September) according to a probable demand calculation in which reservations' population statistics were multiplied by the nationwide per capita consumption of cigarettes.⁸ Tribal retailers could use these coupons to purchase tax-free cigarettes from wholesale dealers. In turn, the wholesale dealers could present the coupons to the New York State Department of Taxation and Finance to receive a refund on the prepaid taxes.⁹ Under the prior approval system—the default system if none of the other options were chosen—wholesale dealers were allowed to sell a specified allotment of cigarettes to Native American reservations with the prior approval of the New York State Department of Taxation and Finance.¹⁰

The amendment was scheduled to take effect on September 1, 2010.¹¹ However, the amendment was met with legal strife when 3 separate court cases^{12–14} were filed challenging the legislation. The courts rejected 2 of the suits while granting a preliminary injunction against the amended tax law in the case of *Oneida Nation of New York v. Paterson* (2010).¹³

New York State appealed the ruling, and on May 9, 2011, the United States Court of Appeals affirmed New York Tax Law §471 and §471-e, arguing that it did not interfere with the sovereignty of Native American reservations because Native Americans would still be able to purchase tax-free cigarettes. The court also asserted that New York State would not be placing undue harm on Native Americans' economy by stipulating that they prepay taxes on cigarettes they intended to sell to non-tribal members.¹¹ The amendment went into effect on June 21, 2011, putting an immediate stop to untaxed cigarettes being supplied to tribal stores. Meanwhile, tribal brand cigarettes produced on tribal land could still be sold on Native American reservations without a New York State tax stamp.

METHODS

In examining the effects of the change in law in New York, we relied on 2 separate data sources: collection of discarded cigarette packs and administrative data on the sale of cigarettes in New York State.

Littered Pack Survey

To determine the prevalence and nature of illegal cigarettes in New York City before and after the tax amendment went into effect in June 2011, we drew on littered pack surveys conducted in the South Bronx in March 2011, March 2012, and March 2013. We selected the South Bronx as a research site to study the prevalence of illegal cigarettes in New York City because it features several factors commonly assumed to contribute to the existence of a local illegal cigarette market.

First, the smoking prevalence in the South Bronx is relatively high by New York standards; 18.2% of adults in the South Bronx smoke, as compared with 15.5% of adults in New York City as a whole.¹⁵ Second, 38.9% of the population in the South Bronx lives below the poverty line, as compared with 20.1% of the total New York City population.¹⁶ Finally, the South Bronx is located in relatively close proximity to a number of lower tax jurisdictions, including upstate Native American reservations and the states of New Jersey and Pennsylvania. Thus, although the South Bronx cannot necessarily be viewed as representative of New York City as a whole, there is an expectation that any changes in the supply of illegal cigarettes to New York City would be particularly prevalent in this area.

Littered pack surveys are an established methodology involving the systematic collection and analysis of discarded cigarette packs.¹⁷ The packs themselves and the tax stamps affixed to them indicate the brand, the state and city of purchase, and whether the cigarettes were legally purchased in the jurisdiction where the pack was discarded and, most likely, consumed. The methodology was limited because it is not known to what extent those littering cigarette packs are representative of the general population of smokers who reside in the South Bronx. This limitation and others, however, are mitigated in before-and-after comparisons such as that of the present study.¹⁸

All 163 census tracts within the boundary of the South Bronx, as defined by the New York City Department of Health and Mental Hygiene's District Public Health Offices, were evaluated for inclusion in the study.¹⁹ The census tracts were matched with population size parameters extracted from the 2000 US

census. Probability proportional to sample size methodology was used to select 30 census tracts covering 371 blocks. This sampling method is preferable to simple random sampling because higher probability levels are afforded to census tracts with the highest population parameters, ensuring that residential areas are sampled.

The 3 consecutive surveys in 2011, 2012, and 2013 followed identical methodological routines, covering all of the 371 blocks within the selected 30 census tracts. All discarded cigarette packs were collected from the streets, curbs, and sidewalks within each block. Cigarette packs in public and private trash receptacles were not collected because of potential health hazards, as well as legal prohibitions against such activity.

The surveys yielded a total of 1737 cigarette packs (497 in March 2011, 639 in March 2012, and 601 in March 2013). Because tax stamps are affixed to the cellophane wrappers of cigarette packs, only packs that still had a cellophane wrapper were included in the subsequent analysis ($n = 1111$). As a means of differentiating between counterfeit and genuine tax stamps, cigarette packs collected in the first round that bore a joint New York City/New York State or a New York State tax stamp were analyzed by the New York State Department of Taxation and Finance, and the packs collected in the second and third rounds were analyzed by the Office of the Sheriff of the New York City Department of Finance. Both of these agencies are able to differentiate between counterfeit and genuine tax stamps through the use of a specialized forensic instrument provided to them by Meyercord Revenue Inc, the manufacturer of the joint New York City/New York State and New York State tax stamps.

In accord with past littered pack studies,^{17,18,20,21} we weighted the proportions of each tax stamp category by the inverse number of packs found in each census tract to represent the South Bronx population. This measure weighted all of the census tracts equally.

Cigarette Sales Data

The Freedom of Information Law (New York Public Officers Law §§ 84-90) was used to obtain official sales data from the New York State Department of Taxation and Finance in February 2014. These data captured the

TABLE 1—South Bronx Littered Pack Survey Results, by Presence of Cellophane Wrapper and Type of Brand: 2011–2013

Brand	March 2011		March 2012		March 2013	
	Wrapper Present (n = 329), %	Wrapper Not Present (n = 168), %	Wrapper Present (n = 420), %	Wrapper Not Present (n = 219), %	Wrapper Present (n = 362), %	Wrapper Not Present (n = 239), %
American Spirit	0.3	0.0	0.2	0.5	0.3	0.0
Benson and Hedges	0.0	0.0	1.0	0.0	0.6	0.4
Camel	0.3	0.0	0.2	0.0	0.0	0.0
Cheyenne Classic	0.0	0.0	0.5	0.0	0.3	0.0
Cheyenne Menthol	0.0	0.0	0.2	0.0	0.0	0.0
Constanza	0.0	0.6	0.2	0.0	0.0	0.0
Couture	0.0	0.0	0.0	0.0	0.3	0.0
Double Happiness	0.0	0.0	0.2	0.0	0.0	0.0
Dunhill	0.0	0.0	0.0	0.0	0.3	0.0
Fortuna	0.0	0.0	0.2	0.0	0.0	0.0
Hongtashan	0.0	0.0	0.0	0.0	0.3	0.0
Kool	0.9	0.0	0.2	0.0	0.3	0.0
Liggett & Myers (L&M)	0.0	0.0	0.0	0.0	0.0	0.4
Marlboro (Red)	6.7	3.6	7.6	1.4	4.7	5.4
Marlboro Light	3.3	4.1	5.5	0.0	3.6	2.5
Marlboro Menthol	0.0	1.2	0.2	0.0	0.5	0.4
Marlboro Menthol Light	0.3	0.0	0.2	2.3	0.0	0.0
Marlboro Smooth	0.3	0.0	0.0	0.0	0.0	0.0
Marlboro Ultra Light	0.3	0.0	0.0	0.0	0.0	0.0
Maverick	0.3	0.0	0.2	0.5	0.0	0.0
Nat Sherman	0.0	0.6	0.0	0.0	0.0	0.0
Newport	85.7	88.1	80.7	94.0	84.5	90.0
Palermo	0.0	0.0	0.2	0.0	0.0	0.0
Pall Mall	0.0	0.0	0.0	0.0	0.5	0.0
Parliament	0.0	0.0	0.7	0.9	1.4	0.0
Salem	0.6	0.6	0.2	0.5	0.5	0.8
Seneca	0.3	0.0	0.0	0.0	0.3	0.0
Vaquero	0.0	0.0	0.2	0.0	0.0	0.0
Virginia Slims	0.3	0.0	0.0	0.0	0.5	0.0
Winston	0.3	0.0	0.7	0.0	1.1	0.0
Zhongnanhai	0.0	0.0	0.2	0.0	0.0	0.0

number and share of untaxed cigarettes sold to Native American reservations between January 1, 1984, and May 31, 2013; the combined number of taxed cigarettes purchased in New York City and New York State during the same period; and the number of cigarettes purchased under the coupon system and the prior approval system between June 21, 2011, and May 31, 2013.

RESULTS

The analysis of the cigarette packs for each year allowed us to assess the relative importance of specific brands. According to this analysis, the

cigarette market in the South Bronx is dominated by one brand: Newport. The share of Newport remained at an extremely high level throughout the 3 collection rounds: 85.7% in 2011, 80.7% in 2012, and 84.5% in 2013. In comparison, the next most prevalent brand, Marlboro (Red), reached shares of only 6.7%, 8.0%, and 4.7%, respectively. The dominance of Newport would have been even more pointed if the packs without cellophane wrappers had been included in the analysis (Table 1).

Interestingly, 2 types of brands that could have been expected to have some prevalence, especially in the 2012 and 2013 collection

rounds, were largely absent from the sample: tribal brands and so-called “illicit whites.”

Tribal brands such as Seneca are manufactured on Native American reservations and are still sold in tribal stores without a New York State tax stamp. Illicit whites, also called “cheap whites,” are cigarettes that are legally produced under unique brand names (e.g., Jin Ling, Raquel, Richman).²² They are destined primarily for illicit distribution, as typically no efforts are made to market these cigarettes through legal distribution channels. Illicit whites have become an important feature of the illegal cigarette trade in Europe.²³

TABLE 2—South Bronx Littered Pack Survey Results, by Tax Categories: 2011–2013

	Study Round			Test of Equality P^a	
	March 2011 (n = 329), % (SE)	March 2012 (n = 420), % (SE)	March 2013 (n = 362), % (SE)	March 2011 vs March 2012	March 2011 vs March 2013
Tax stamp classification					
Untaxed					
No tax stamp	42.0 (0.031)	8.8 (0.017)	6.2 (0.014)	≤ .001	≤ .001
Counterfeit tax stamp ^b	15.9 (0.023)	8.0 (0.016)	6.9 (0.015)	.006	.001
Total	57.9 (0.030)	16.8 (0.023)	13.1 (0.020)	≤ .001	≤ .001
Taxes paid outside of New York City					
Northeastern states					
New York State	2.3 (0.009)	4.1 (0.015)	3.3 (0.009)	.3	.412
New Jersey	4.4 (0.014)	2.0 (0.007)	2.0 (0.007)	.151	.114
Other ^c	0.6 (0.004)	2.8 (0.009)	1.7 (0.006)	.31	.101
Total	7.3 (0.017)	8.9 (0.019)	7.0 (0.013)	.506	.922
Southern states					
Virginia	9.1 (0.017)	48.6 (0.031)	52.1 (0.029)	≤ .001	≤ .001
Other ^d	0.6 (0.004)	3.6 (0.009)	6.5 (0.017)	.004	.001
Total	9.7 (0.018)	52.2 (0.032)	58.6 (0.029)	≤ .001	≤ .001
Midwestern states ^e	1.1 (0.007)	0.6 (0.003)	0.0	.571	...
Dominican Republic	0.2 (0.001)	0.8 (0.004)	0.7 (0.004)	.234	.322
New York City taxes paid					
Joint New York City/New York State	19.4 (0.023)	19.8 (0.030)	18.0 (0.024)	.911	.634
Tax stamp of unknown origin					
Unknown origin total	4.4 (0.013)	1.0 (0.004)	2.5 (0.008)	.015	.245

^aTest of whether the percentage of packs in the comparison year was equal to the percentage in March 2011.

^bCounterfeit joint New York City/New York State tax stamp or counterfeit New York State (only) tax stamp.

^cConnecticut, Delaware, Pennsylvania, or Massachusetts.

^dGeorgia, Mississippi, Florida, or Kentucky.

^eTennessee, Ohio, Missouri, or Indiana.

The analysis of the packs with cellophane wrappers indicated that the share of cigarettes that were legally sold in New York City (bearing a genuine New York City/New York State tax stamp) remained relatively constant; there were no significant changes between 2011 and 2013, with a share of 19.4% in March 2011, 19.8% in March 2012, and a slightly lower share of 18.0% in March 2013 (Table 2). In contrast, the share of untaxed cigarette packs (i.e., packs with no tax stamp or only a counterfeit tax stamp) significantly decreased, and the share of cigarettes with an out-of-state tax stamp significantly increased.

The overall percentage of untaxed cigarettes (packs with no tax stamp or a counterfeit tax stamp) dropped from 57.9% in March 2011 to 16.8% in March 2012 and 13.1% in March 2013. The share of packs with no tax stamp significantly decreased from 42% in March

2011 to 8.8% in March 2012 and 6.2% in March 2013 (Table 2). There was also a significant decrease in the number of packs with counterfeit joint New York City/New York State and New York State (only) tax stamps from 15.9% in March 2011 to 6.9% in March 2013.

Another notable change was the overall increase in the percentage of cigarette packs with a tax stamp other than the combined New York City/New York State stamp. These are packs for which taxes were paid outside of New York City, including northeastern, southern, and midwestern states and foreign countries. The share of these packs increased from 18.3% in March 2011 to 62.5% in March 2012 and 66.3% in March 2013 (Table 2). Within this category, southern states exhibited the most significant increases across the study years. Specifically, the largest increase was the number of cigarettes that bore a Virginia tax

stamp. The percentage of Virginia-stamped cigarette packs was 9.1% in March 2011, as compared with 52.1% in March 2013.

The sales data obtained from the New York State Department of Taxation and Finance indicate that the number of untaxed cigarettes purchased by Native Americans drastically decreased after the incorporation of New York Tax Law §471 and §471-e. Cigarette sales had already declined after peaking in 2004 and 2005, presumably as a result of decreasing smoking prevalence and increased pressure exerted by the New York State government on tobacco manufacturers. But in the course of the year 2011, during which the tax amendment took effect, sales to tribal stores became almost nonexistent. New York State Department of Taxation and Finance official sales data show that Native American reservations with a total population of 30 609 tribal members

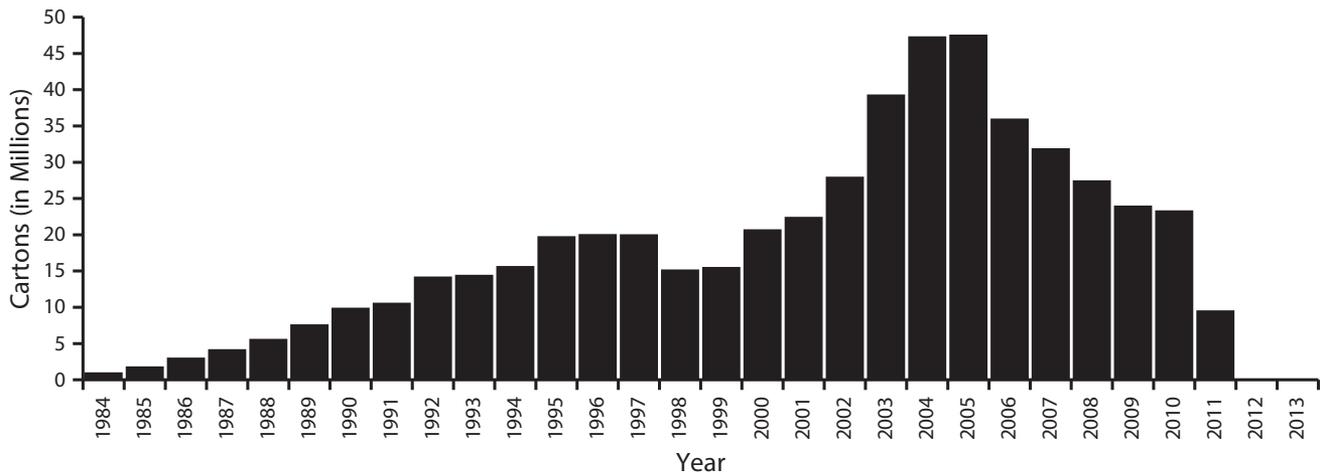


FIGURE 1—Untaxed cigarette purchases by Native American reservations in New York State: January 1, 1984, to May 31, 2013.

(according to the 2000 US census) purchased 27.5 million cartons of untaxed cigarettes in 2008, 24 million in 2009, 23.3 million in 2010, 9.5 million in 2011, and only slightly more than 12 000 in 2012 (Figure 1). Consequently, of the entire volume of cigarette sales recorded in New York City and New York State (both taxed and untaxed), the shares of untaxed

cigarettes purchased by Native American reservations were 34.1% in 2008, 33.9% in 2009, 36.4% in 2010, 21.1% in 2011, 0.04% in 2012, and 0.14% as of May 31, 2013 (Figure 2). In 2012, only 12 405 cartons of tax-free cigarettes were purchased under the prior approval system, representing only 26% of the allotted amount of 47 910 cartons prescribed

for that year by the New York State Department of Taxation and Finance.

DISCUSSION

The findings from our littered pack survey indicate that the amended tax law in New York was effective in curbing the flow of untaxed

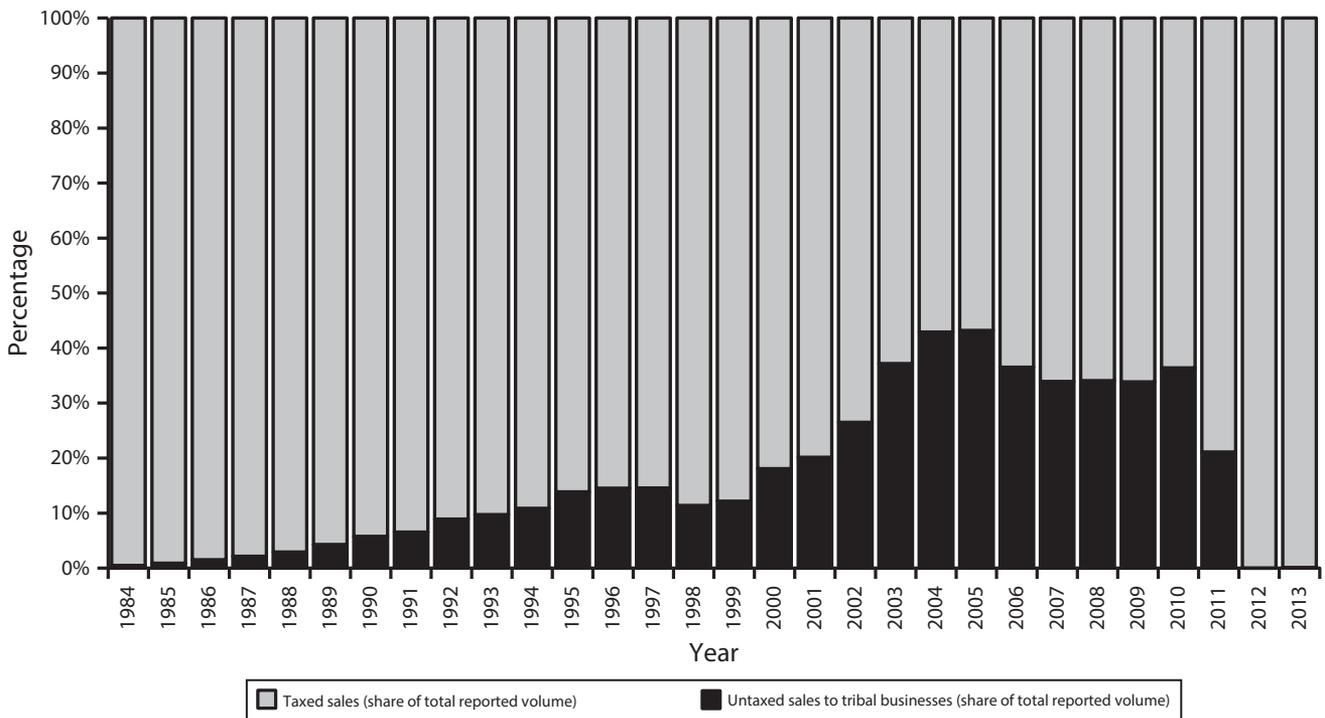


FIGURE 2—Percentages of taxed and untaxed cigarettes purchased in New York State and New York City: January 1, 1984, to May 31, 2013.

cigarettes from Native American reservations into the South Bronx but that it was not successful in preventing displacement to other sources of illegal cigarettes in the wake of a significant increase in cigarette taxes. Before the tax amendment, cigarettes from Native American reservations would have appeared in packs with either no tax stamp or a counterfeit stamp. The combined share of these categories among collected packs decreased significantly between 2011 and 2013, from 57.9% to 13.1%. That the share did not approach zero may be reflective of stockpiling, whereby bootleggers purchased and stored an abundant amount of untaxed cigarettes from tribal stores in anticipation of the amended tax law.

Another plausible explanation is that the cigarettes were bootlegged from southern states such as North Carolina and South Carolina or from duty-free shops, given that these locations do not affix tax stamps to cigarette packaging. Nonetheless, official sales data provided by the New York State Department of Taxation and Finance confirm the inferences drawn from the littered pack survey by illustrating that, once the new tax law went into effect in June 2011, Native American reservations no longer purchased untaxed cigarettes by the billions. In fact, under the prior approval system, only 29 315 cartons (5 863 000 cigarettes) were shipped to tribal stores between June 21, 2011, and May 31, 2013.

The littered pack survey also shows that the major brand cigarettes previously funneled through Native American reservations have not been replaced by untaxed tribal brand cigarettes manufactured on tribal lands. Native American brands such as Seneca were only marginally represented among the collected cigarette packs. This finding can be interpreted in different ways. The continued absence of Native American brands may indicate that tribal dealers have no control over illegal distribution channels in the South Bronx. It may also suggest that smokers in the South Bronx have high brand loyalty, creating an entry barrier for other brands. The consistently high share of Newport packs in the 3 collection rounds (above 80%) lends support to the latter hypothesis. This high share of discarded Newport packs corresponds to the percentage of packs that were contraband (untaxed packs and packs for which taxes were paid outside of New

York City). For example, 78% of the Newport packs collected in 2011 were contraband, as were 83% in 2012 and 81% in 2013.

The sharp increase in the share of packs for which taxes were paid outside of New York City or New York State suggests that a shift in the main source of supply of illegal cigarettes was triggered by the tax amendment. That is, the source of illegal cigarettes in the South Bronx appears to have shifted from Native American reservations to Virginia, which, as of 2013, had the second lowest cigarette tax rate in the country at \$0.30 per pack.²⁴ The shift is proportionate given that the percentage of genuine New York City/New York State tax-stamped cigarettes remained relatively unchanged throughout the 3 study years.

Although we are not able to generalize these findings to the greater New York City region, the trends we observed were similar to those reported by Davis et al.²⁰ They compared the findings of their 2011 littered pack survey conducted in New York City with the results of a similar littered pack study carried out by Chernick and Merriman in 2008 and 2009.¹⁸ Davis et al. found that the proportion of untaxed cigarettes was considerably lower in 2011 and that cigarette packs from Virginia had become the most prevalent nonlocal stamp in New York City, essentially documenting the same patterns we observed.

Our findings indicate that bootleggers were able to quickly adapt to the new situation created by amended New York Tax Law §471 and §471-e. Such a development had not been foreseen by lawmakers. Concerns regarding the effectiveness of the measure had been voiced in the legislature, but they pertained to a possible increase in cross-border shopping, especially along the border with Pennsylvania.^{25,26} This highlights the difficulties New York State faces in effectively controlling the supply of illegal cigarettes via a single mechanism.

In light of these difficulties, additional measures to control the supply of legal cigarettes in New York City have been petitioned for and implemented in the aftermath of the 2011 law. The Enforcement Division of the New York City Department of Finance now requires cigarette agent jobbers (stamping agents) and subjobbers (wholesale dealers) who sell joint New York City/New York State taxed cigarettes

to disclose the identity of cigarette retailers and the quantity of cigarettes sold to them via the New York City Cigarette Activity Report.²⁷ The goal of this form is to aid enforcement agencies in identifying cigarette retailers residing in neighborhoods where there is an increased demand for cigarettes that is not being met through legal channels. More comprehensive control of the supply chain has been proposed by the New York City Department of Health and Mental Hygiene and other public health agencies; these organizations cite the need for a track and trace system of tobacco products that includes monitoring their movement throughout the supply chain from production to retail sales.²⁸

Future research should evaluate the level of control (i.e., comprehensive, front end, or tail end) that is most effective in managing the legal supply chain of tobacco products. It may also be worthwhile to compare the effectiveness of the approach taken in New York with approaches in other areas, namely agreements between states and Native American tribes that allow the sale of cigarettes on reservations to non-tribal members at reduced tax rates.²⁹ ■

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This article was accepted September 17, 2014.

Contributors

M. Kurti and K. von Lampe designed the study and analyzed the data. All of the authors collected the data and wrote and edited the article.

Acknowledgments

We thank David Merriman and Howard Chernick for inspiring the design of the study and assisting in the analysis of the data. Thanks to Wendy Johnson-Askew and Victoria Grimshaw for reviewing a draft of the article. We also thank the New York State Department of Taxation and Finance and the Office of the Sheriff of the New York City Department of Finance for assisting with the forensic analysis of the discarded cigarette packs. Finally, we thank the anonymous reviewers for their valuable comments and advice.

Human Participant Protection

No protocol approval was needed for this study because individual-level data were not collected.

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