

May 2010

Ad Hoc Report #7: The Impact of the July 1, 2009, \$1 Florida State Tobacco Tax Increase

Prepared for

Florida Bureau of Tobacco Prevention Program
Division of Health Access and Tobacco
Florida Department of Health
4052 Bald Cypress Way
Tallahassee, FL 32399-1735

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EXECUTIVE SUMMARY

On July 1, 2009, the state of Florida raised its cigarette excise tax by \$1.00, to \$1.34 per pack. After years of having one of the lowest tobacco tax rates in the country, Florida's tobacco tax rate was elevated on par with the national state tobacco tax rate average and significantly higher than the tax rates in neighboring states. Florida's state tax increase followed a federal tax increase of \$0.62 in April 2009.

Increasing cigarette prices has the potential to make a significant impact on tobacco use behaviors. Increases in cigarette prices have been shown to prevent smoking uptake and to encourage those who do smoke to quit or cut back. However, higher cigarette prices also prompt some smokers to seek out low-cost alternatives, by switching to cheaper brands, by shopping online or from Indian reservations, or by purchasing tobacco products in lower-taxed neighboring states.

This report examines the impact of the July 2009 Florida state cigarette tax increase on a range of smoking outcomes among Florida adult smokers, including cigarette sales, price paid, consumption, and cessation behavior.

This report presents the following key findings:

- In the 6 months since the tax increase, from July to December 2009, monthly wholesale cigarette package sales were 25.0% lower than during the same 6 months in the year before the tax increase.
- In 2009, smokers in Florida State reported paying \$4.13 per pack of cigarettes, with lower prices in northern Florida markets.
- A minority of smokers reported purchasing discount or generic cigarettes (30.9%), purchasing cigarettes from another state (19.1%), and purchasing cigarettes from Indian reservations (9.7%).
- Calls to the Florida Quitline increased steadily in 2009.

1. INTRODUCTION

In July 2009, the state of Florida raised its cigarette excise tax from \$0.34 to \$1.34 per pack. Florida smokers had previously enjoyed one of the lowest cigarette excise tax rates in the nation. This tax increase was in addition to a \$0.62 federal tax increase in April 2009, creating an increase of \$1.62 in cigarette taxes per pack in 4 months.

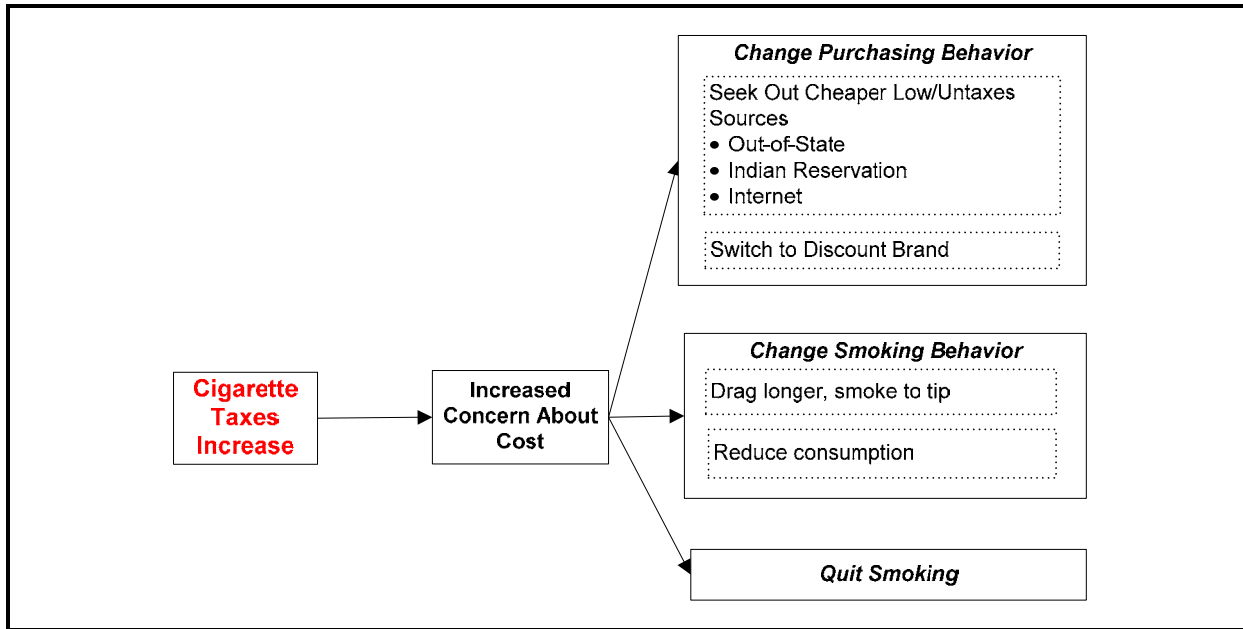
Changes in cigarette prices that result from tax increases are known to reduce cigarette sales and use, impact purchasing behavior, and influence smoking cessation. Smokers may respond to a tax or price increase by changing their purchasing behavior to accommodate the increased cost using several strategies (Figure 1-1), including

- switching from premium to discount brands;
- buying fewer cigarettes overall but smoking those cigarettes more intensively; or
- seeking out low- or untaxed sources of cigarettes, such as Indian reservations, Internet vendors, or out-of-state retailers.

Changes in cigarette purchasing behavior (cigarette tax avoidance) not only reduce smokers' intentions to quit smoking (Hyland et al., 2005) but can also result in a substantial loss of tax revenue to the state.

Smokers may also respond to cigarette price increases by reducing their cigarette consumption (Warner, 2006). Some studies have shown that after a cigarette excise tax increase, retail prices increase more than the amount of the tax increase itself, further amplifying the price hike (Keeler et al., 1996). Price increases provide an incentive for smokers to quit smoking altogether, although estimates of the impact of this incentive are debated. Historically, a 10% increase in the price per pack of cigarettes is found to be associated with a 3% to 5% decline in overall consumption among adults, with approximately half of this decline resulting from smokers quitting altogether (Chaloupka and Warner, 2000). However, recent work suggests that the reduction in cigarette consumption following a tax increase may be smaller than this historical estimate because cigarette prices and taxes are now much higher, on average, than the historical norm and because consumer demand may be less elastic with regard to prices (Farrelly and Engelen, 2008; Farrelly et al., 2008; Gallet and List, 2003).

Figure 1-1. Impact of Cigarette Tax Increase on Purchasing and Smoking Behaviors



This report explores the impact of the July 1, 2009, state tax increase in Florida on cigarette package sales, including evidence of tax avoidance behavior and smoking cessation. We first examine cigarette sales trends and describe cigarette prices and evidence of changes in purchasing behaviors after the tax, such as frequent out-of-state cigarette purchases, because we expect those outcomes to show the fastest response to the tax increase. We then examine trends in smokers' intentions to quit smoking by evaluating changes in call volume to the Florida Quitline.

2. DATA AND METHODS

This report relies on data from a number of sources, including data from the 2003–2009 Florida Adult Tobacco Survey (FL-ATS), Florida monthly wholesale cigarette sales as reported by the Florida Department of Business & Professional Regulation (July 2006–January 2010), ScanTrack™ retail scanner data from the Nielsen Company, and the Florida Quitline (2009). Since 2003, the Florida Department of Health has monitored statewide tobacco use, exposure, and attitudes with the annual FL-ATS. FL-ATS is a representative household survey of Floridians aged 18 or older living in residential housing units in the state. Each adult interview includes questions about participants' demographic characteristics and their smoking behaviors. One adult is randomly selected in each responding household and is assigned a statistical weight based on age, gender, and race/ethnicity to ensure that the final sample is representative of Florida's adult population. The sample includes list-assisted random-digit-dial and directory-listed numbers. The survey is conducted using computer-assisted telephone interviews and includes items that measure the prevalence of smoking behaviors, attitudes and beliefs about tobacco and tobacco control legislation, exposure to secondhand smoke, and perceptions of pro- and antitobacco advertising. We pooled data across 6 years in the pre-tax period to enable reliable comparisons for population groups of interest.

Other data used in this report include monthly wholesale reports on tax-paid cigarette package sales in Florida from July 2006 to January 2010. These data are publicly available through the Florida Department of Business & Professional Regulation (DBPR) and were downloaded from their Web site (<http://www.myfloridalicense.com/dbpr/abt/auditing/WholesaleReports.html>).

We examined differences in wholesale cigarette package sales stratified by three geographic regions that would potentially have different access to lower-cost cigarettes. Table A-1 in Appendix A provides a breakdown of the county groupings.

1. The first grouping of smokers lives in counties within approximately 50 miles of a state border. Because Georgia and Alabama have considerably lower state tax rates, smokers may choose to substitute cigarettes purchased in these states as cheaper alternatives. Thirty-two counties are included in this group.
2. The second grouping of smokers lives in or within counties approximately 50 miles of an Indian reservation. Twenty-six counties fall into this population group. Coincidentally, this group of counties includes most counties in southern Florida and several in central Florida so this indicator may pick up effects other than just habits of smokers living near Indian reservations.
3. The third grouping of smokers lives in counties that fall into neither of the above categories and have the lowest access to low-cost cigarette alternatives. Nine counties fall into this population group.

We present ScanTrack™ retail scanner data from grocery stores and supermarkets in designated market areas (DMAs) in Florida from the Nielsen Company (Nielsen). ScanTrack™ retail scanner data are collected at the store checkout register when a smoker purchases cigarettes. A computer reads the universal product code (UPC) (i.e., bar code) printed on the package when the checkout clerk scans the cigarettes. The UPC is looked up in a database that resides on a server at the store; and the price, type of cigarettes, and any promotional information is recorded. Nielsen provides aggregate sales, prices, and promotional activity projections for all similar stores by DMA.

The number of calls to the Florida Quitline from January 2008 to December 2009 by month and county were provided by Florida's Quitline evaluator, Professional Data Analysts.

The \$1.00 state tax increase took effect on July 1, 2009; we therefore define the pre-tax period to be any time up to and including June 30, 2009, and the 2009 post-tax period as beginning on July 1, 2009. We tested for statistically significant trends over time in each outcome using a full range of FL-ATS data, pooling the data from 2003–2008 and comparing the estimates with the 2009 post-tax survey data. The 2009 FL-ATS was conducted in July and August 2009, which allows for analysis of smokers' responses in the 2 months immediately following the tax increase compared to the previous 6 years (2003–2008). We also tested for and report on significant differences by race, age group, and smoking intake for a select set of measures. With regard to smoking intake, a smoker is classified as a heavy smoker if he/she reports smoking more than 20 cigarettes per day.

The most recent federal cigarette excise tax increase, of \$0.62 on April 1, 2009, occurred in the pre-tax period in Florida. Unfortunately, this may have the effect of reducing the contrast between the pre and post periods as we have defined them.

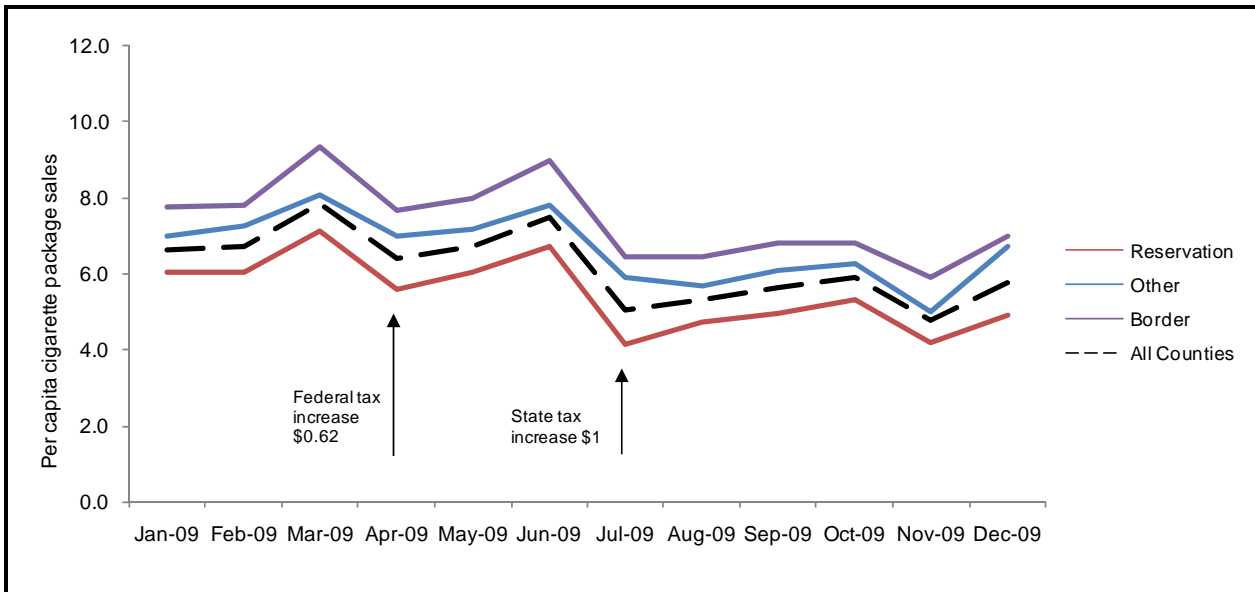
3. RESULTS

3.1 Cigarette Sales

In the months since the tax increase, cigarette prices have risen, whereas per capita package sales have fallen. Per capita package sales jumped in the month before the tax increase as retailers sought to stock up on cigarettes at still low prices (Figure 3-1). In July 2009 when the tax increase went into effect, per capita wholesale package sales dropped 33.7% over the same month in the previous year and continue to remain low. Package sales were 24.8% lower in the 6 months following the tax increase (July through December 2009) compared to the same period in the previous year (Figure 3-2).

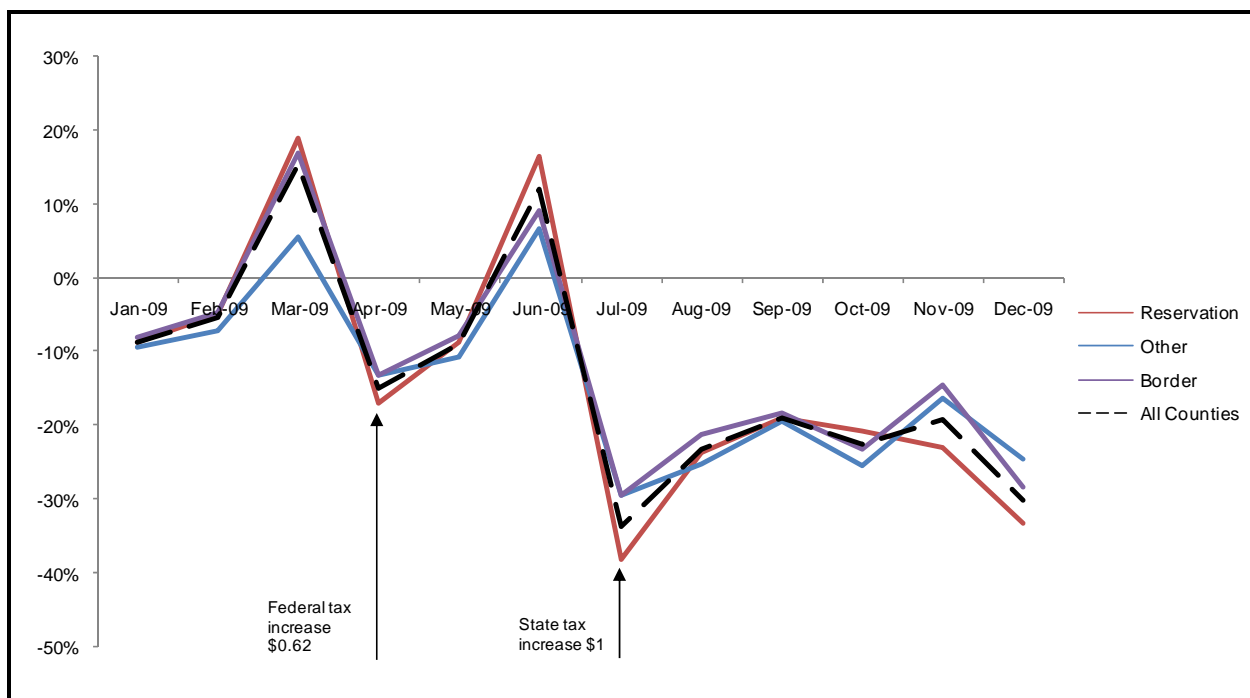
If Floridians were successfully avoiding the new state sales tax by purchasing cigarettes across state lines, we would expect package sales in counties bordering Alabama and Georgia to decline compared to other counties and remain low. This would occur as smokers in these border areas substitute cigarette purchases from other states for their previously in-state purchases. Evidence of this behavior is not clear when examining changes in wholesale package sales in counties within 50 miles of a state border; per capita package sales trends for the border county group are similar to per capita package sales trends in other counties (see Figures 3-1 and 3-2).

Figure 3-1. Per Capita Monthly Tax-Paid Cigarette Sales in Florida, 2009



Source: Florida DBPR

Figure 3-2. Year-Over-Year Percentage Change in Per Capita Monthly Tax-Paid Cigarette Package Sales, 2009



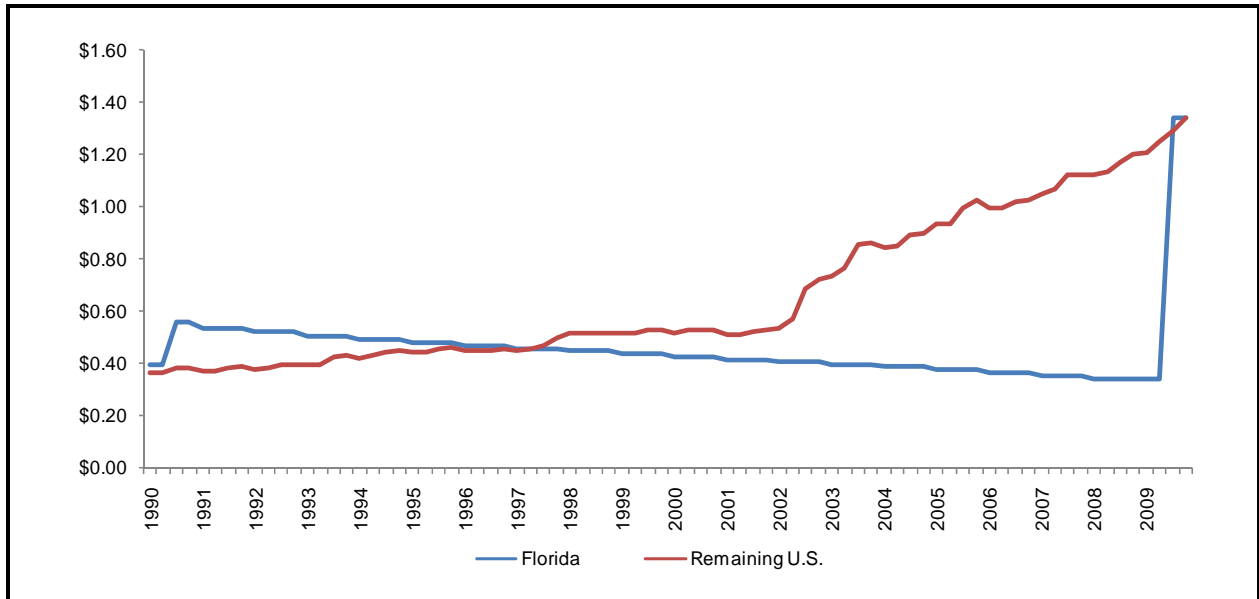
Source: Florida DBPR

3.2 Cigarette Prices

The state excise tax on cigarettes affects the price paid for cigarettes by smokers. Until 2009, Florida’s cigarette excise tax had remained constant at 33.9¢ per pack since 1990. Between 1990 and 2008, inflation had eroded the average value of the tax by 29%, as shown in Figure 3-3. The 2009 Florida state tax increase raised Florida’s cigarette excise taxes at or above the remaining U.S. states’ average for the first time since 1997 (see Figure 3-3).

The state-level ATS-reported price per pack was \$4.13 in Florida in July–August 2009, while the price per pack in counties within 50 miles of a state border was \$3.65 (results not shown). Lower prices in border counties may be due to trends that show retailers partially mitigate the impact of tax/price increases by lowering retail prices (Keeler et al., 1996), especially when facing nearby lower cost competition (e.g., in Georgia and Alabama). Consistent with ATS estimates, retail cigarette prices in supermarkets obtained from Nielsen retail scanner data are lower on average in the Jacksonville market (Figure 3-4).

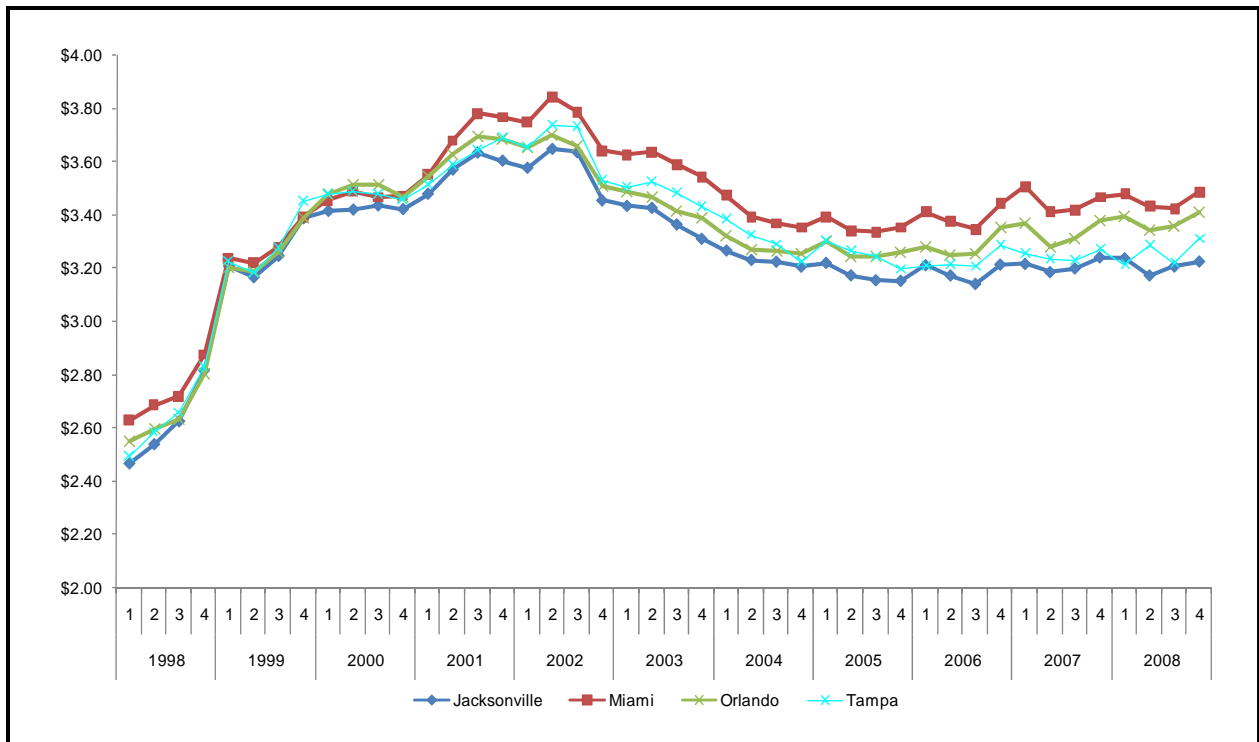
Figure 3-3. State Cigarette Tax Per Pack in 2009 Dollars, Florida and Remaining U.S. States, Quarterly 1990–2009



Source: Orzechowski and Walker, 2009; and RTI calculations.

Note: Tax values have been adjusted for inflation (2009 dollars).

Figure 3-4. Average Price Per Pack of Cigarettes in Supermarkets by Market Area, Florida, Quarterly 1998–2008



Note: All prices have been adjusted for inflation (2008 dollars).

Furthermore, when evaluating ATS-reported price per pack by race, non-Hispanic whites report paying significantly less than Hispanic (\$3.69 versus \$5.27, respectively) ($p = 0.000$) and black smokers (\$3.69 versus \$4.89, respectively) ($p = 0.002$). Heavy smokers also reported paying significantly less than non-heavy smokers (\$3.09 versus \$4.26, respectively) ($p = 0.016$). Young adults aged 18 to 24 also pay significantly more per pack than do adults aged 25 or older (\$4.93 versus \$3.99, respectively) ($p = 0.020$).

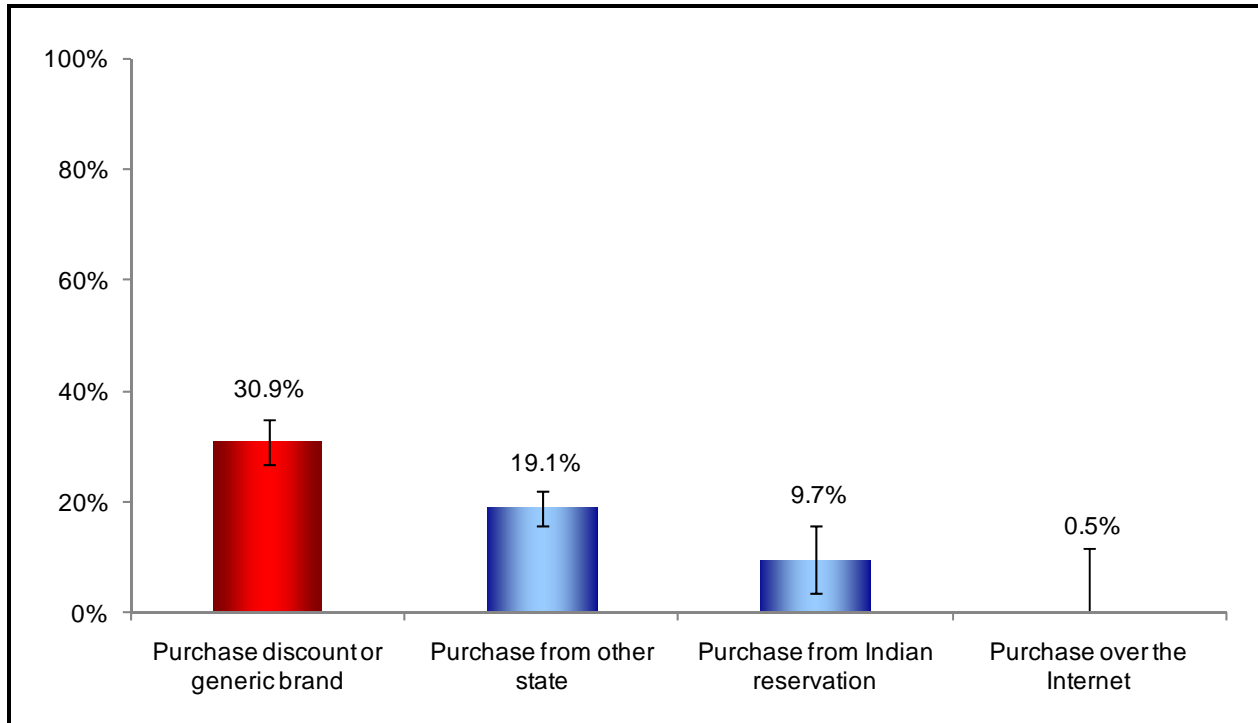
3.3 Cigarette Purchasing Behavior

Increasing cigarette prices may encourage smokers to switch to discount or generic brands of cigarettes (Hyland et al., 2005). Smokers may also alter their purchasing behavior through tax avoidance activities, such as purchasing cigarettes from another state or Indian reservations with cheaper cigarettes or from the Internet. In Florida, the potential for tax avoidance is high with Alabama (\$0.34) and Georgia (\$0.44) both having considerably lower state tobacco tax rates than Florida. Additionally, several federally recognized Indian reservations are located in Florida. In 2009, the FL-ATS included items related to tax avoidance, including the following four measures: smoking discount or generic cigarettes purchasing cigarettes from another state, purchasing cigarettes from an Indian reservation, or purchasing cigarettes from the Internet.

Figure 3-5 shows that 30.9% of all smokers reported usually smoking a discount or generic brand of cigarette in July and August 2009. Other than smoking discount or generic brands of cigarettes, the most common type of tax avoidance behavior in Florida is purchasing cigarettes from another state. More than 19% of smokers indicated they had purchased cigarettes from another state within the past 12 months. Purchasing cigarettes at Indian reservations appears to be a less popular tax avoidance method with an estimated 9.7% of smokers having purchased cigarettes on a reservation in the 12 months leading up to July and August 2009. Less than 1% of Floridians are estimated to have purchased cigarettes from the Internet.

No significant differences are evident when stratifying discount and generic cigarette purchases by race/ethnicity. However, heavy smokers are significantly more likely than non-heavy smokers to purchase cigarettes from another state (38.2% versus 17.2%, respectively) ($p = 0.049$). Non-Hispanic whites are also more likely to purchase cigarettes from another state or from an Indian reservation than Hispanics (22.1% versus 7.8% from another state, respectively [$p = 0.002$]; and 11.9% versus 3.4% from an Indian reservation, respectively [$p = 0.039$]).

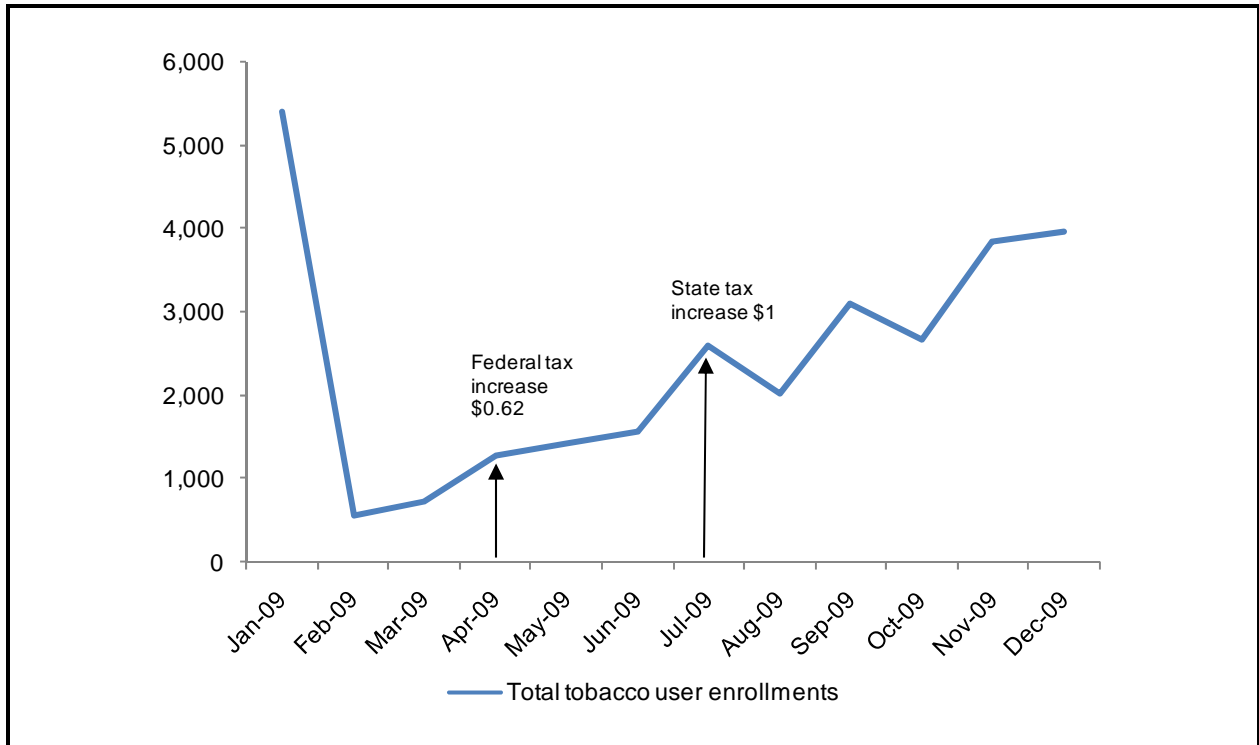
Figure 3-5. Percentage of Smokers Who Usually Smoke Discount or Generic Brand Cigarettes or Who Have Made an Out-of-State, Indian Reservation, or Internet Cigarette Purchase in the Past 12 Months, FL-ATS 2009



3.4 Cessation

Smokers' intentions to quit are influenced by many factors, including cigarette price. In this section, we examine potential changes in intentions to quit smoking in the 6 months before and after the state tax increase through Quitline calls. Figure 3-6 shows that call volume to the Florida Quitline has increased steadily and slowly since March 2009, with small spikes in volume in July, September, and November. The heaviest call volume occurred in January, with more than twice as many calls as the average month, as smokers attempt to keep New Year's resolutions to quit smoking.

Figure 3-6. Number of Calls Per Month to the Florida Quitline, January 2009–December 2009



4. SUMMARY AND CONCLUSIONS

The July 2009 \$1.00 state tax increase raised Florida State's excise tax on par with other states' average tax levels for the first time since 1997. This report examines the impact of the tax increase on cigarette sales; cigarette prices; purchasing behaviors, including tax avoidance behaviors; and cessation.

In July 2009, the month of the tax increase, wholesale package sales were 33.7% lower than in July 2008. Although Quitline call volume did not respond dramatically to implementation of the tax in July, Quitline calls have increased steadily over time in 2009. The Florida Bureau of Tobacco Prevention Program (BTPP) may want to consider strengthening programmatic efforts that encourage smoking cessation to capture this momentum.

A small minority of smokers report purchasing cigarettes from low-taxed sources, especially white non-Hispanic and heavy smokers. The low prevalence of cross-border sales may be due in part to low population density in counties bordering other states. Historically lower cigarette prices in northern markets could also play a role in the behavior of these smokers. However, prices in northern market areas (Jacksonville DMA) may be lower because of cost of living differences; the north/south price differential pre-dates large differences in state tobacco taxes between Florida, Georgia, and Alabama. When retail scanner data become available for 2009, further evaluation of post-tax changes in prices by DMA may show more detailed retail reaction to tax increases.

This report provides a preliminary look at changes in cigarette sales and cessation behavior before and after the Florida state tax increase went into effect. It also provides a brief description of cigarette prices and smokers' purchasing behavior after the July 2009 Florida state tax increase. Because pre-tax data are not available on price and purchasing behavior, evaluation of changes due to the tax with regard to prices and individual purchasing behavior is not possible. Over time as smokers adapt to the price increase, longer-term trends may be evaluated.

Absent evidence of major tax avoidance activities, these results may indicate that Florida smokers have been reducing consumption of cigarettes. BTPP may take this opportunity to increase the intensity of its cessation campaign and available resources to encourage additional quit attempts among those smokers especially receptive to the tax increase.

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APPENDIX A: COUNTY GROUPINGS

Table A-1. List of County Groupings

Border Counties (within 50 Miles of a State Border)	Reservation Counties (within 50 Miles of an Indian Reservation)	All Other Counties
Alachua	Broward	Brevard
Baker	Charlotte	Citrus
Bay	Collier	Dixie
Bradford	De Soto	Flagler
Calhoun	Glades	Levy
Clay	Hardee	Marion
Columbia	Hendry	Orange
Duval	Hernando	Seminole
Escambia	Highlands	Volusia
Franklin	Hillsborough	
Gadsen	Indian River	
Gilchrist	Lake	
Gulf	Lee	
Hamilton	Manatee	
Holmes	Martin	
Jackson	Miami-Dade	
Jefferson	Monroe	
Lafayette	Okeechobee	
Leon	Osceola	
Liberty	Palm Beach	
Madison	Pasco	
Nassau	Pinellas	
Okaloosa	Polk	
Putnam	Sarasota	
Santa Rosa	St. Lucie	
St. Johns	Sumter	
Suwannee		
Taylor		
Union		
Wakulla		
Walton		
Washington		