

# **bridging the gap**

Research Informing Policies & Practices  
for Healthy Youth

## Monitoring and Assessing the Impact of Tax and Price Policies on US Tobacco Use

Frank J. Chaloupka, University of Illinois at Chicago  
SCTC Steering Committee, February 8, 2013

# Project Team

- University of Illinois at Chicago
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- Roswell Park Cancer Institute
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# Project Team

- Consultants
  - Geoffrey Fong, Lloyd Johnston, Patrick O'Malley, Mike Cummings
- Advisory Panel
  - Carolyn Dresler (FDA), Cynthia Hallet (Americans for Nonsmokers' Rights Foundation), David Hankins (Attorney General of Washington), Patricia Henderson (Black Hills Center for American Indian Health), Lois Keithly (Massachusetts Tobacco Cessation and Prevention Program), April Roeseler (California Tobacco Control Program)

# Aim 1: Policy Surveillance

# Specific Aims

Aim 1: Compile a historical data set of codified law (statutes, regulations, and case law) and policies affecting retail tobacco product prices

- cigarette & other tobacco product excise taxes, tax stamps
- Minimum pricing/markup policies
- policies addressing direct purchases/sales
- tribal compacts and other policies targeting reservation sales
- policies limiting price promotions
- policies strengthening tax and MSA administration and enforcement

# Policy Collection Process

- **Initial Research**
  - Relevant statutes and regulations identified in Lexis
  - 8 Pilot states: CA, MA, NY, OK, OR, PA, VA, WA
- **Verification**
  - Sources: Westlaw, State Case Law, Attorney General Opinions, Law Reviews, State Websites, SCLD, STATE
- **Develop Coding Scheme**

## Coding Parameters: 2001-2015

- Year One - Laws in effect as of January 1, 2012

# Progress – Broad View

## Tier 1: Coding Scheme Completed/Year One Coding Initiated

- Cigarette Tax
- Minimum Markup

## Tier 2: Coding Scheme and Law Verification in Progress

- OTP Tax
- Tribal Taxation

## Tier 3: Law Collection and Verification in Initial Stages

- Direct Sales
- MSA

# Cigarette Tax

*State laws related to the use of tax stamps, meter impressions, or other indicia to indicate payment of state and local taxes on cigarettes.*

## Status:

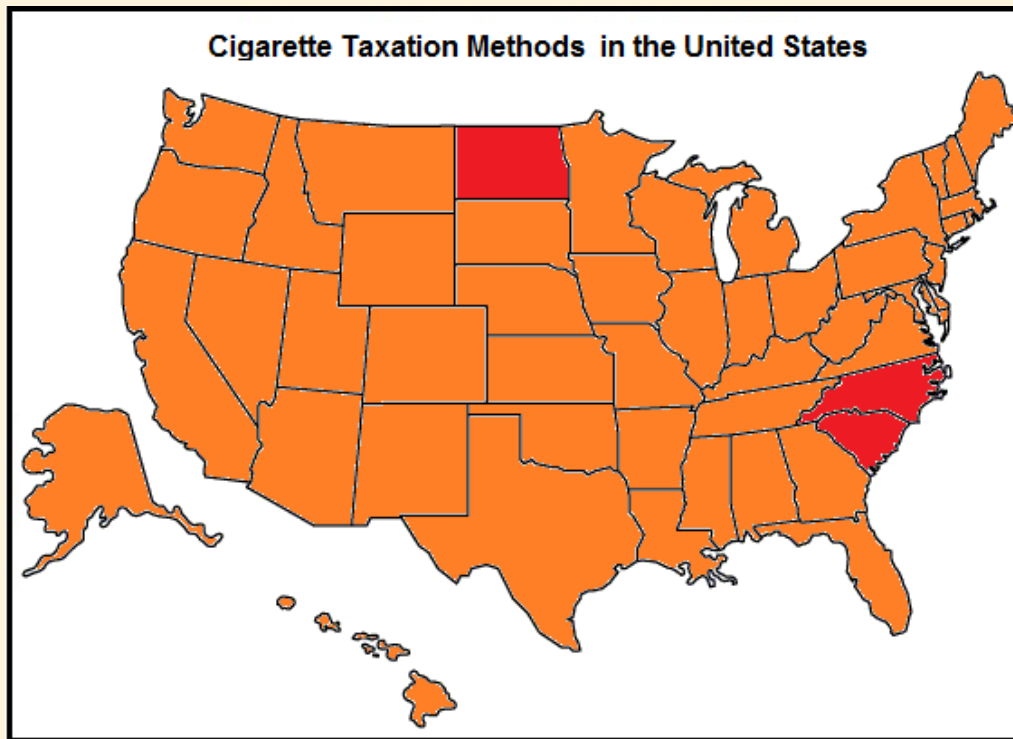
- Coding scheme developed
- Testing scheme against pilot states
- Final adjustments being made to coding scheme as necessary
- Decision Rules document being formed to guide future coding



# Cigarette Tax: Scope

All 51 states tax cigarettes, and 48 of them utilize tax stamps.

- 3 of the 51 states use **recordkeeping** in lieu of tax stamps.



**Tax Stamp  
States**

**Recordkeeping  
States:  
NC, SC, ND**

# Cigarette Tax: Areas of Interest

## Stamps:

- Encryption/Anti-Counterfeit Technology

## Taxation:

- Border Zone Tax Rates
- Enabling/Preemption Laws

## Penalties:

- Broad view of cigarette tax-related penalties

*\*Note: Due to a wide variance of penalties across all states, this category has been simplified to reflect the presence of general enforcement mechanisms in regards to both 1st offenses and graduated penalties. (e.g. Fines, Imprisonment, License Revocation/Suspension)*

# Minimum Markup

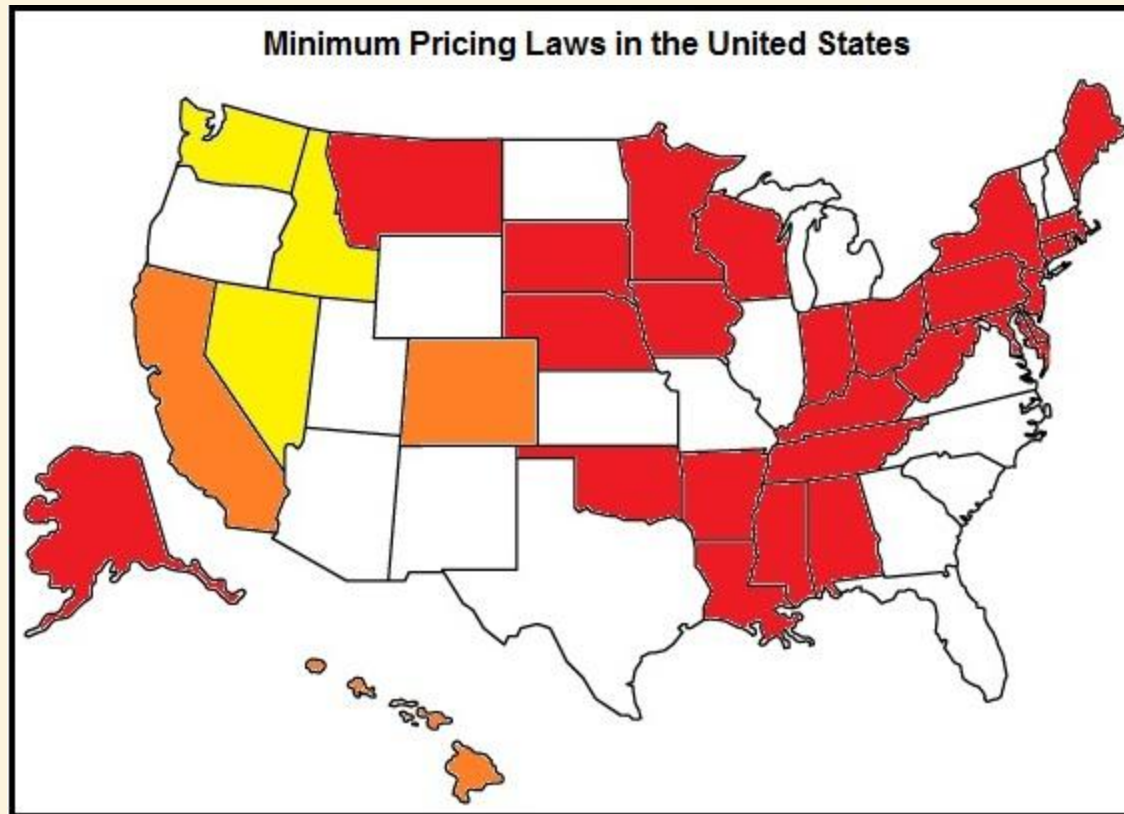
*State laws promoting fair competition through the creation of minimum pricing schemes for cigarettes and OTP.*

## Status:

- Coding scheme complete
- Relevant laws collected and verified
- Illustrative PATH charts being developed for all 32 states

# Minimum Markup: Scope

32 of the 51 states utilize some form of minimum markup laws.



**Minimum  
Markup**

**Minimum  
Pricing**  
(Tobacco Specific)

**Minimum  
Pricing**  
(Non-Tobacco Specific)

# Minimum Markup: Types

## Minimum Markup

Require adding a specific retail or wholesale markup percentage to the basic (or invoice) cost of cigarettes and OTP.

- 26 States: AK, AR, CT, DE, DC, IN, IA, KY, LA, MA, ME, MD, MN, MS, MT, NE, NJ, NY, OH, OK, PA, RI, SD, TN, WV, WI

## Minimum Pricing (Tobacco Specific)

Prohibit selling cigarettes below retail or wholesale cost. No corresponding markup percentage is applied.

- 3 States: ID, NV, WA

## Minimum Pricing (Non-Tobacco Specific)

Prohibit sales below cost, but do not specifically mention tobacco. Included here because these states' courts have applied these general minimum pricing laws to cigarettes. No corresponding markup percentage is applied.

- 3 States: CA, CO, HI

# Minimum Markup: Illustrations

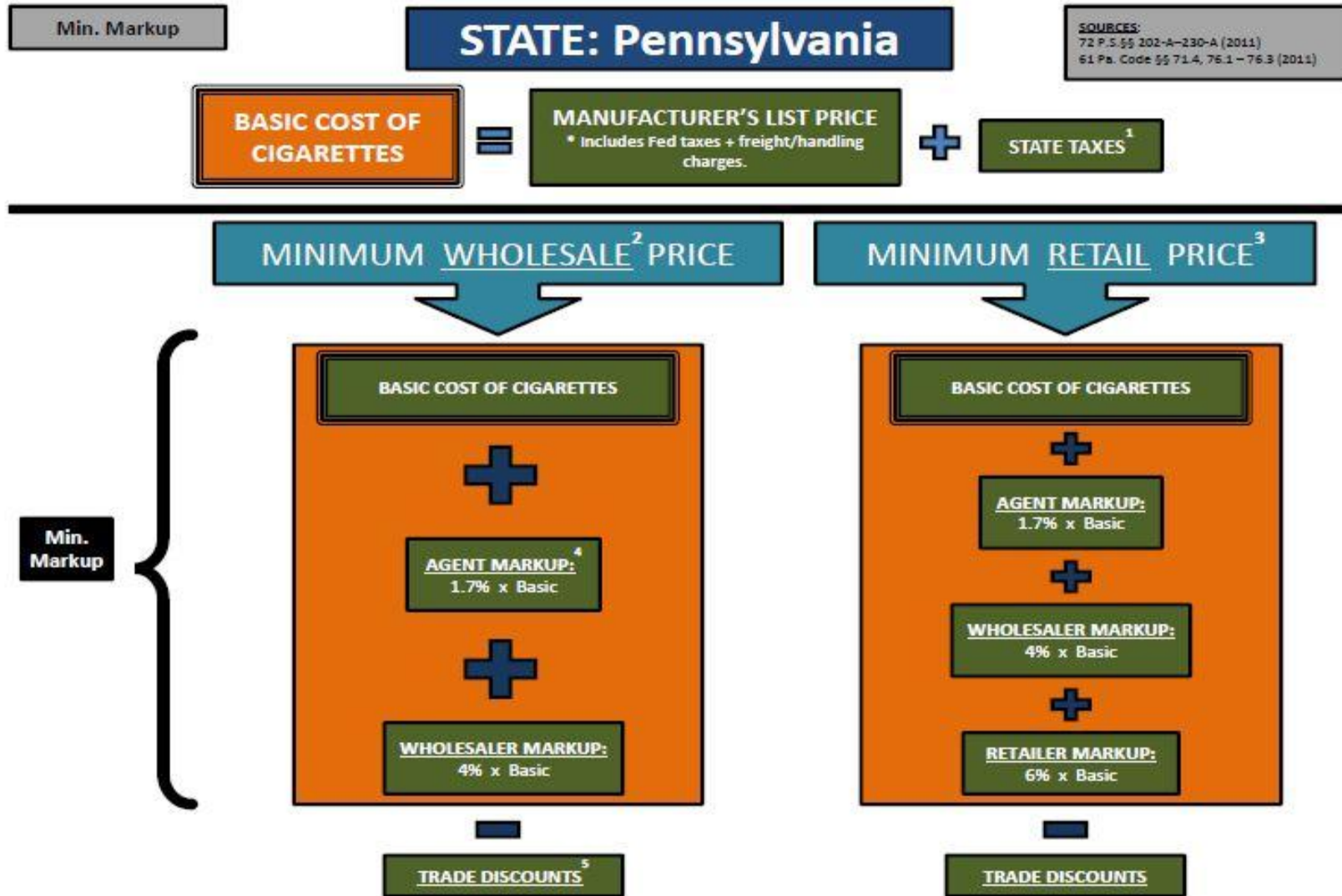
Minimum Pricing<sup>1</sup>

STATE: Washington

SOURCES:  
ARCW § 19.91.300 (2011)  
ARCW § 2.24.510 (2011)

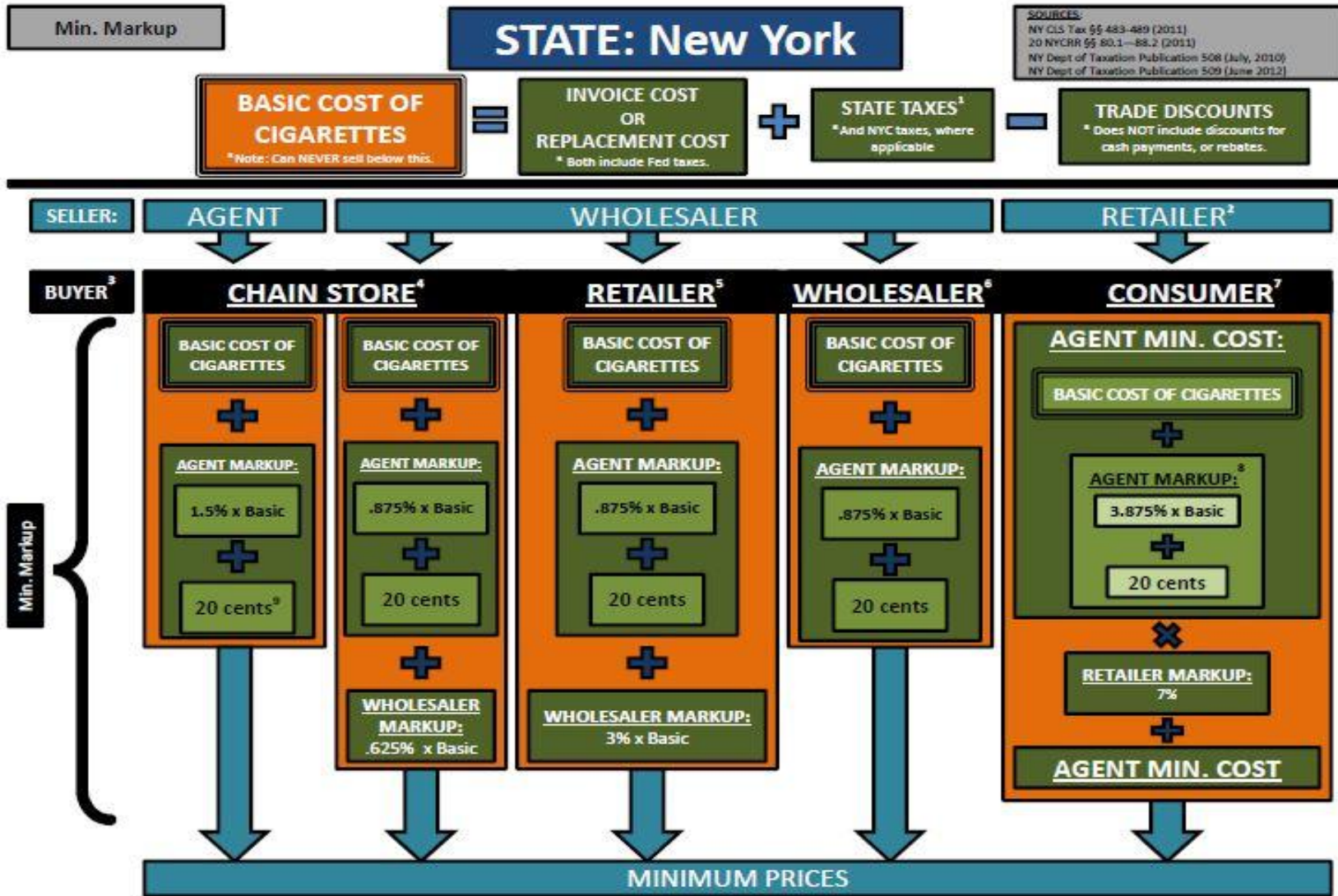


# Minimum Markup: Illustrations





# Minimum Markup: Illustrations





# Minimum Markup: Areas of Interest

- OTP Application
  - Only **three** states apply their minimum pricing laws to OTP:
    - Oklahoma, Rhode Island, Wisconsin
- Complexity of pricing formulas
- Trade Discounts:
  - Who may use them?
  - Where are they located within the pricing formula?
- Coupons, Rebates, and Concessions

# OTP Tax

*State laws related to the distribution and application of tax stamps, meter impressions, or other indicia used to indicate payment of state excise taxes on OTP.*

## Status:

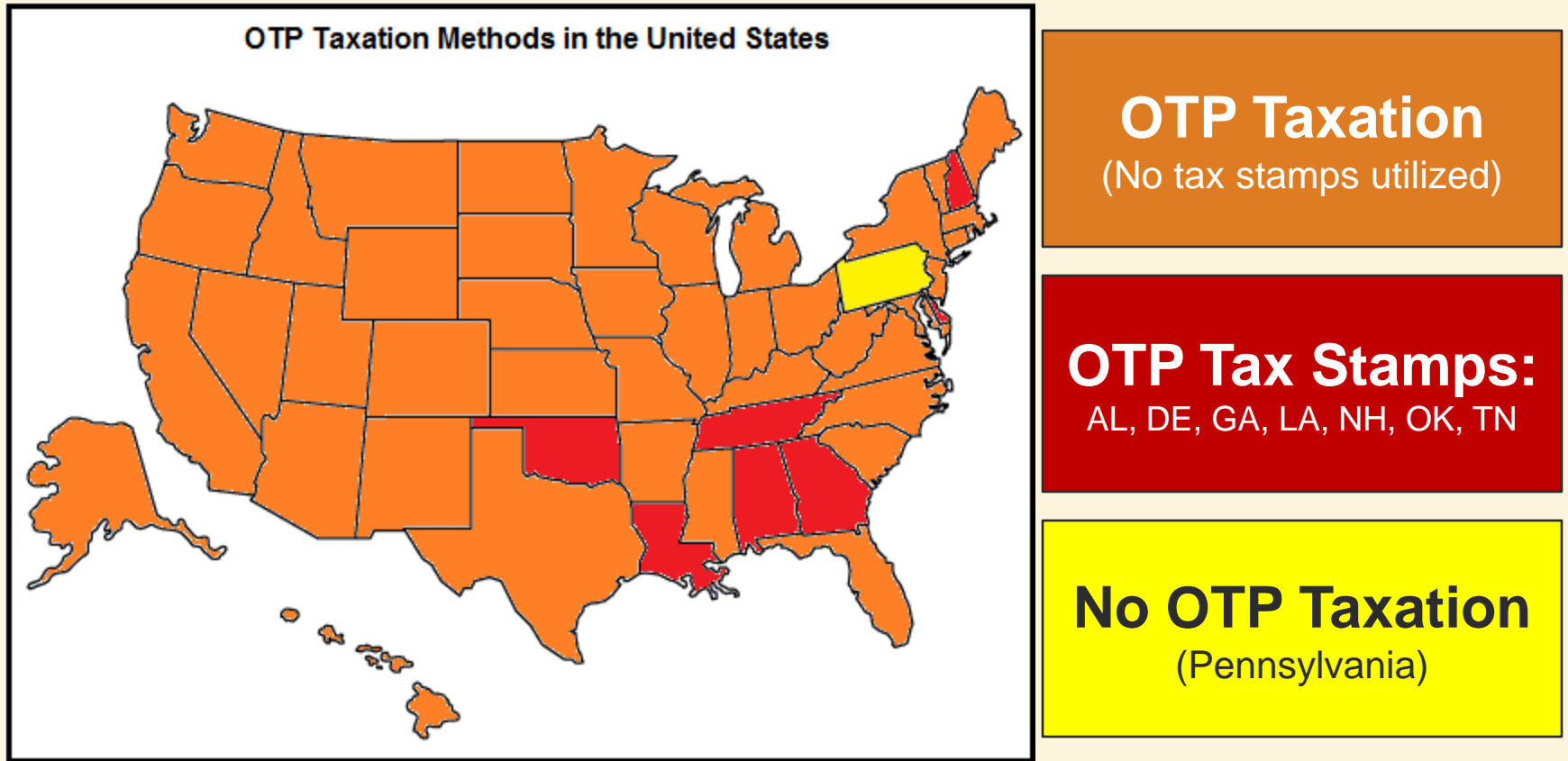
- Laws collected
- Verification in progress
- Coding scheme in initial stages.

## Areas of Interest:

- Differential treatment of OTP types
- Emerging products (e.g. e-cigarettes, dissolvables, etc.)
- Roll-Your-Own machines

# OTP Tax: Scope

50 of the 51 states tax OTP; only 7 states use tax stamps.



# Tribal Taxation

*State and tribal laws related to the taxation of cigarette and OTP on tribal lands.*

## Status:

- State laws collected
- Verification of state laws in progress
- Tribes targeted for internal law collection; some internal tribal laws collected.
- Coding scheme in initial stages

Scope: 22 of the 51 states have laws related to tribal tobacco taxation

- AK, AZ, CA, FL, ID, IA, KS, MI, MN, MT, ND, NE, NM, NV, NY, OK, OR, SD, UT, WA, WI, WY

## Areas of Interest:

- State's jurisdiction over tribal sales
- State laws touching on state-tribe relationship
- Internal tribal laws governing taxation of cigarettes and OTP.

# Direct Sales/MSA

## Direct Sales

*State laws either prohibit or restrict the sale of cigarettes through the mail, by phone, online, or through other non-face-to-face means. Most are in conjunction with the PACT Act, a federal law enacted in 2010 to curb widespread state cig tax evasion.*

- Scope: 41 of the 51 states have Direct Sales laws.
  - States without direct sales laws: CO, DC, GA, IA, KY, MS, NE, NH, NC, SC

## MSA

*State laws requiring compliance with the Master Settlement Agreement's reporting and monetary requirements. Distinguishes between "participating" or "non-participating" manufacturers.*

- Scope: All 51 states have MSA laws.

**Status:** Laws for both categories have been collected and are awaiting verification.

# Aim 2: Tobacco Pricing & Promotion

# Specific Aims

Aim 2: Assess the impact of price-related policies on retail prices and price-reducing promotions for tobacco products

- Combines policy data from Aim 1 with data from:
  - BTG-COMP observational data collections
  - Self-reported data on prices and price promotions from multiple surveys
  - Store-based scanner data on prices and price promotions

# Point of Sale Observations

- Engaged in analyzing retail outlet observational data in 150+ nationwide communities per year
  - 1999-2003 (available for comparative trend analysis)
  - 2010-2012 (n=154,157,161 communities)
- Several descriptive analyses underway
- POS Data will be merged with tobacco policies to:
  - Assess the impact of price-related policies on retail prices and price-reducing promotions (Aim 2)
  - Assess the impact of tobacco product prices, price reducing promotions, and related policies on tobacco product purchasing behaviors (Aim 3)
  - Examine the impact of tobacco product prices, price-reducing promotions, and related policies on tobacco use behaviors from MTF and expanded ITC survey (Aim 5)



# BTG-COMP 2012 Tobacco Instrument

- **Product Availability and Placement**
  - Traditional products, including loose/rolling tobacco and moist snuff
  - New products: snus, e-cigarettes, dissolvable products by brand
  - Flavored and unflavored cigar products
- **Product Pricing and Promotion**
  - Marlboro, Camel, Newport, Cheapest cigs
  - Marlboro and Camel snus
  - Cheapest pipe tobacco (no promotion data)
- **Interior Marketing**
  - Presence of cigs, snus, moist snuff, dissolvable product ads
  - Type and characteristics of tobacco ads, including health content
- **Exterior Marketing on Building Exterior and Property**
  - Counts of cigs, snus, moist snuff, dissolvable product ads
- **OTC NRT Availability and Store Exterior Characteristics**

# BTG-COMP Tobacco Instrument Reliability Analysis (preliminary)

- Convenience sample in 120 food stores in 50-mile buffer around Chicago MSA conducted in January, 2010
- Two raters coding independently in each store

Item Category	# Items with calculated Kappa or ICC	% with substantial agreement (Kappa or ICC .61 – 1.00)
Product Availability	15	87%
Product Pricing	10	100%
Product Promotions	13	31%
Interior Marketing	23	78%
Exterior Marketing	13	38%

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# BTG-COMP Tobacco Outlets (preliminary, 2012)

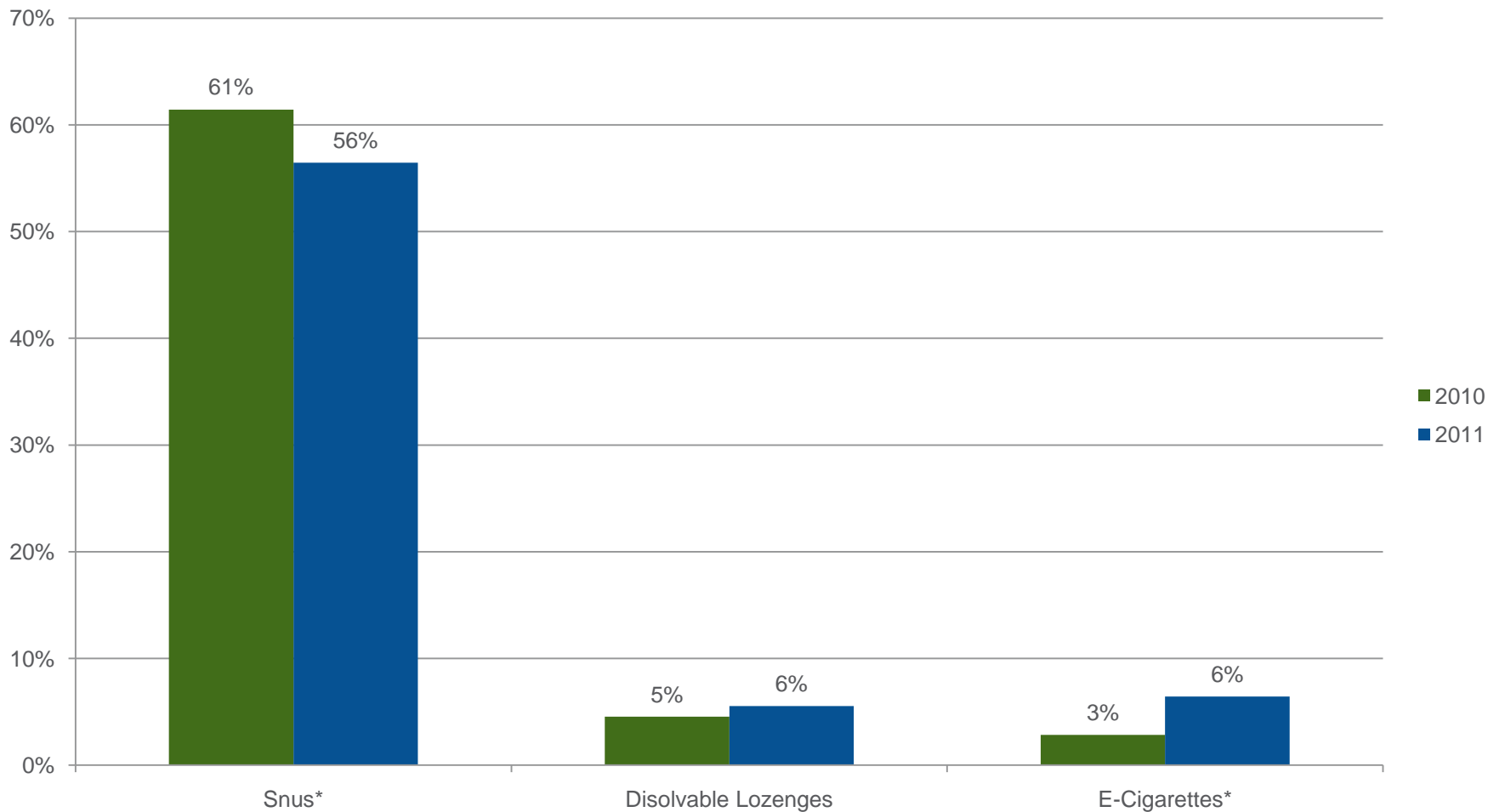
## Food Stores with Tobacco Sales (n=2,429)

- Supermarket (n=274)
- Grocery (n=132)
- Limited Service (n=2023)
  - Convenience
  - Gas
  - Pharmacy
  - Small Discount Store (e.g., Dollar General, 99cent Store)
  - Liquor store if sells drinks and snacks and 5 or more food items

## Tobacco Stores (n=215)

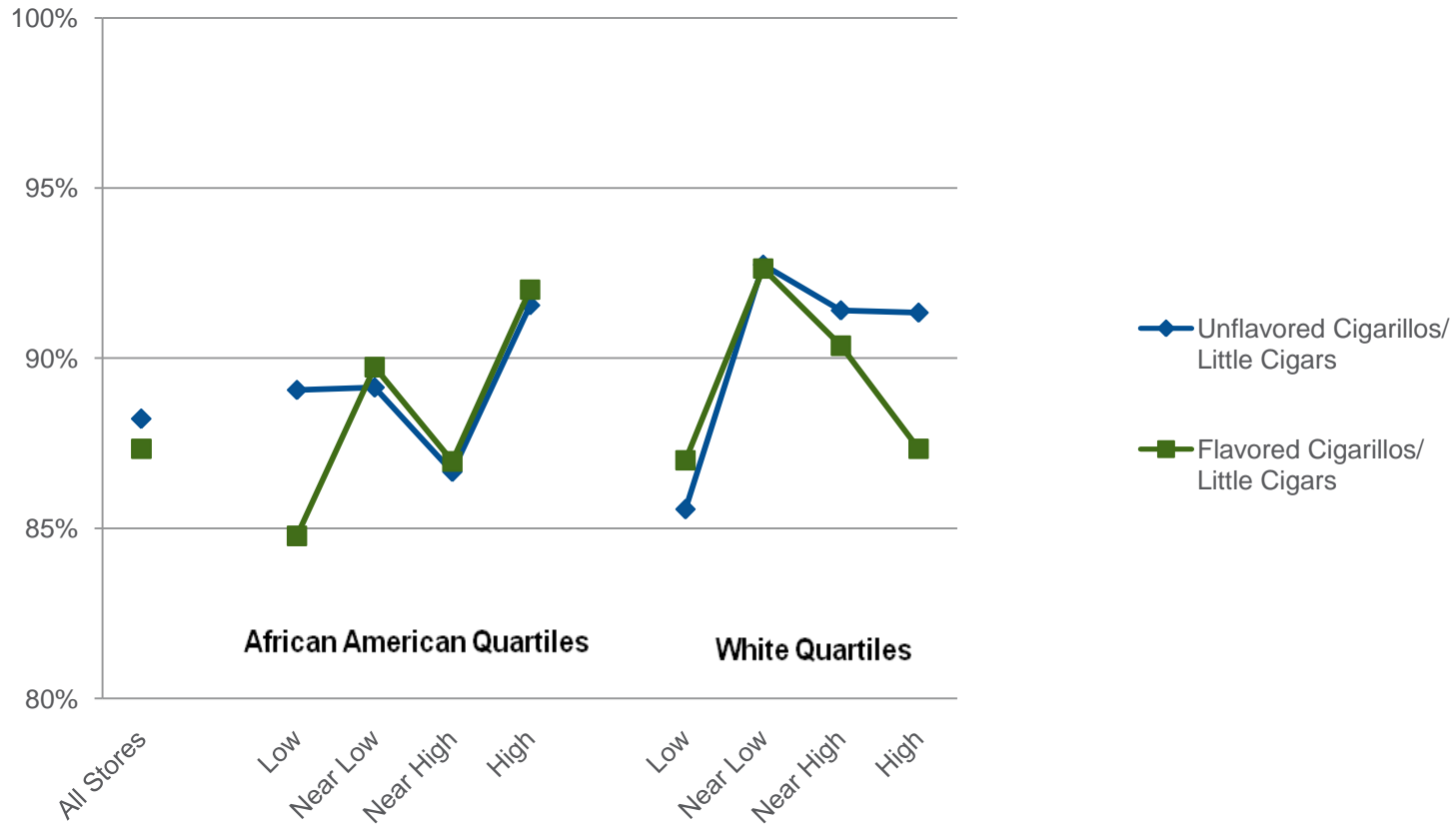
- Primarily engaged in retail sales of cigarettes, cigars, tobacco and other smokers' supplies. At least 50% of its merchandise is tobacco or smoking-related.
- Not a food store, cigar/tobacco/hookah club or lounge

# Availability of Emerging Tobacco Products, % Retail Stores with Tobacco Products, 2010 and 2011 (weighted)



## Percentage of Stores Which Sell Flavored and Unflavored Cigarillos / Little Cigars

By African American and White Quartiles, 2011



Notes: The following comparisons are significantly different at  $p < 0.05$   
 African American Quartiles: flavored cigarillos / little cigars: Overall and Low vs. High  
 White Quartiles: no significant difference

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## Cigarette Pricing Differs by U.S. Neighborhoods

This brief describes and assesses how cigarette pricing varies by neighborhood race and ethnicity. The analyses are based on data collected in 2011 from 2,387 retail stores in a nationally representative sample of 157 communities where public middle and high school students live.

The data presented in this brief show that cigarette pack prices vary with the racial and ethnic compositions of the neighborhoods where they are sold.

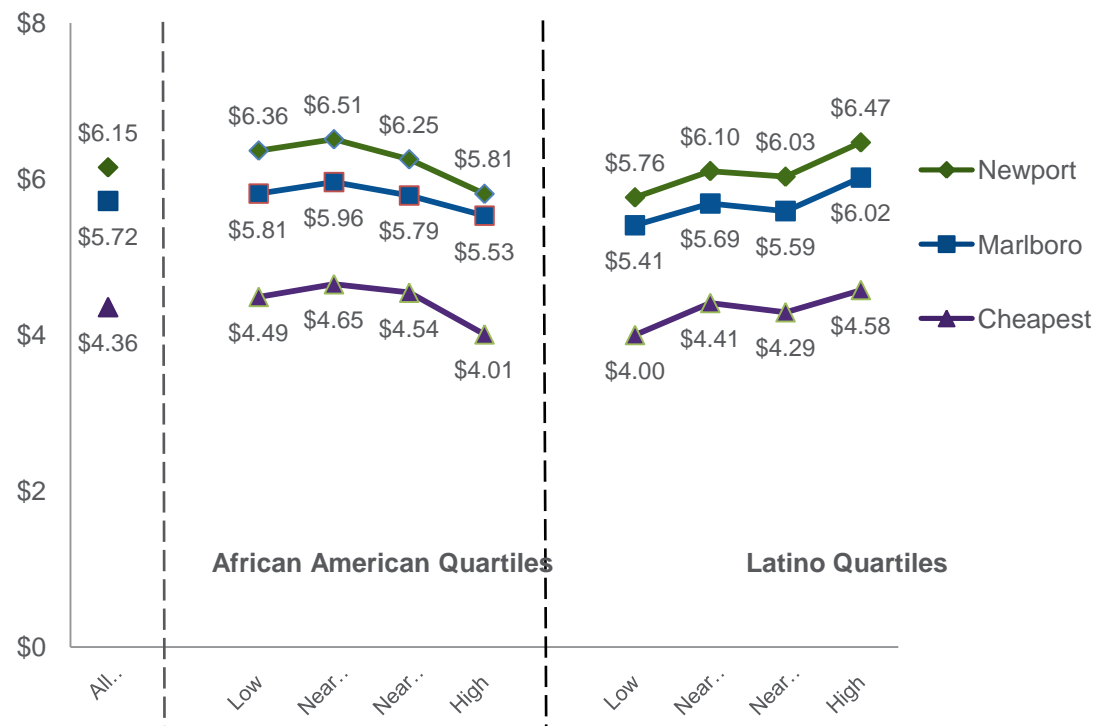
### Introduction

In the United States, approximately 3,500 youths under 18 years of age smoke their first cigarette, and 1,000 youths become daily smokers each day. The Healthy People 2020 objectives include the reduction of tobacco use by adolescents and adults and the reduction of the initiation of tobacco use among children, adolescents, and young adults.<sup>1</sup> As most tobacco use begins during adolescence, efforts to prevent initiation among adolescents will likely lead to a reduction in overall smoking rates among adults.<sup>2</sup>

A major factor that impacts youth smoking rates is cigarette pricing. Higher cigarette prices reduce the initiation, prevalence, and intensity of smoking among youths.<sup>3,4</sup> A 10% increase in cigarette pricing decreases the probability of a youth initiating daily smoking by approximately 10%.<sup>5</sup> Price also appears to have a greater impact on smoking prevalence among African American young men than among white young men.<sup>6</sup>

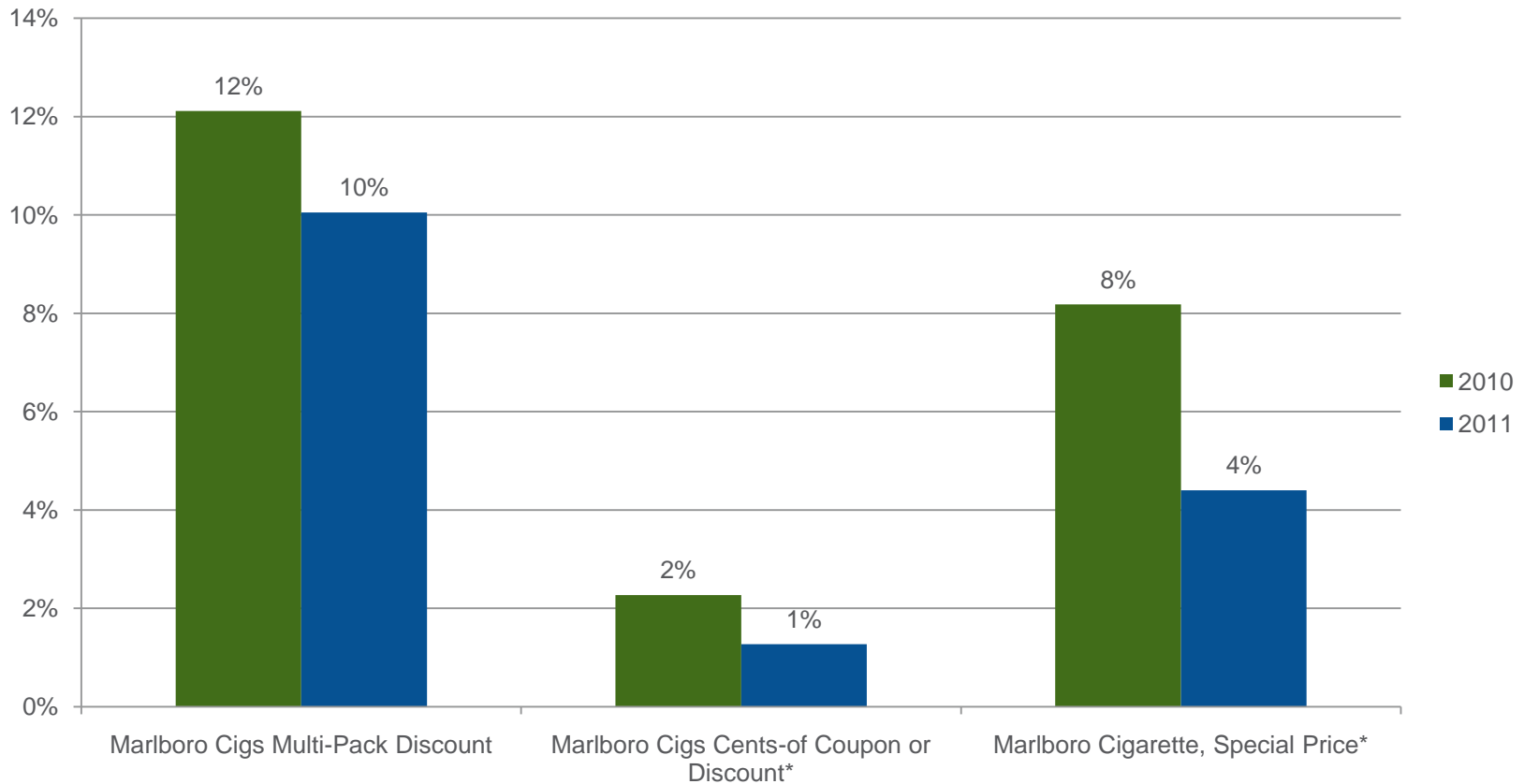
This brief describes cigarette pricing in retail stores across the United States in 2011. It documents how cigarette pricing varies by the racial and ethnic composition of the neighborhoods where these retail stores are located. Finally, this brief suggests opportunities to reduce these disparities, and ultimately, reduce the number of youth who smoke.

FIGURE 1 Average Price of Cigarette Packs By African American and Latino Quartiles, 2011



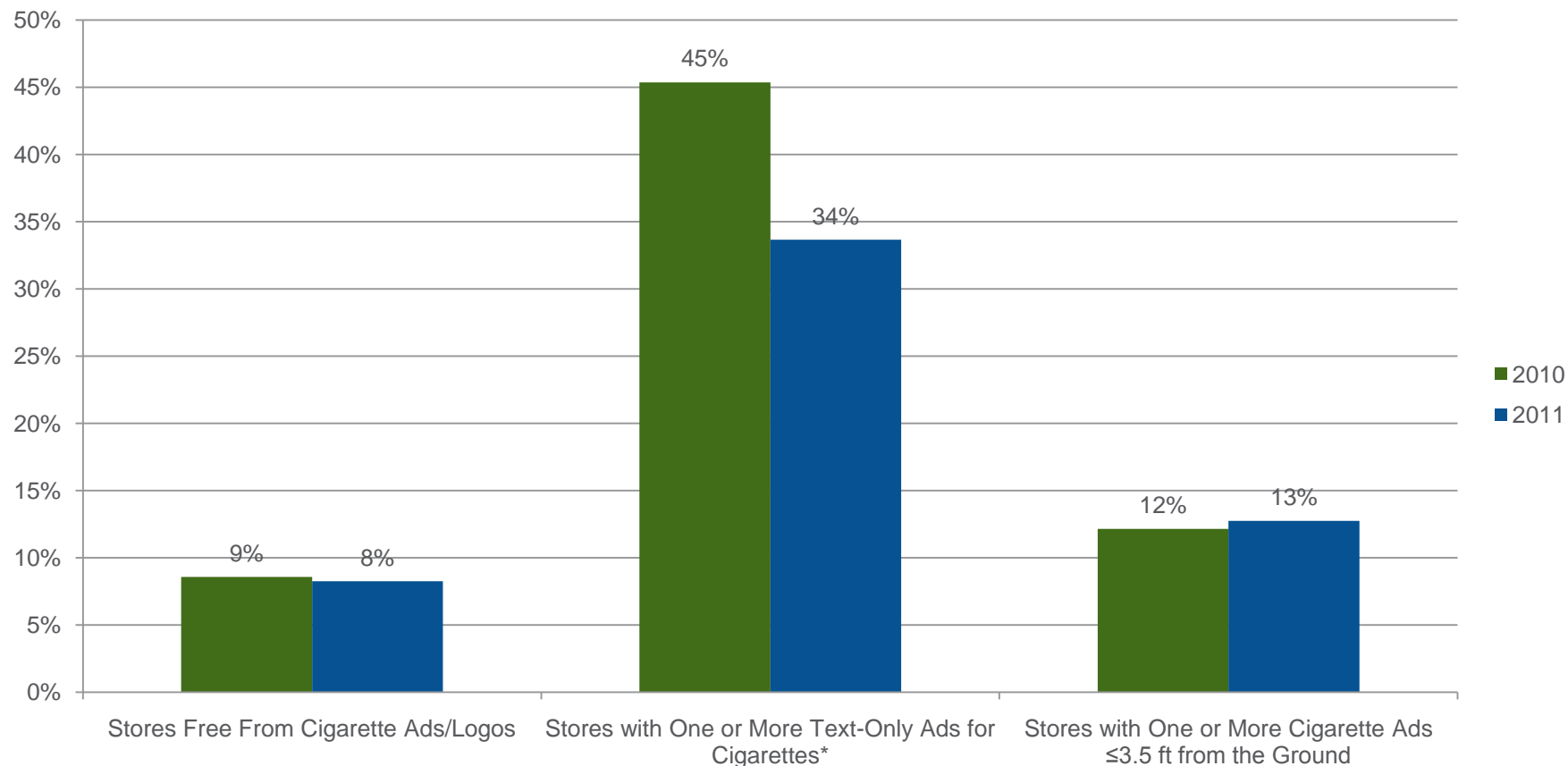
Notes: The following comparisons are significantly different at  $p < 0.05$ :  
 African American Quartiles: Newport: Low vs. High  
 Latinos Quartiles: Newport and Marlboro: Low vs. High

# Presence of In-Store Promotions, % Retail Stores with Tobacco Products, 2010 and 2011 (weighted)



# Presence of Interior Cigarette Advertising

## % Retail Stores that Sell Tobacco Products, 2010 and 2011 (weighted)



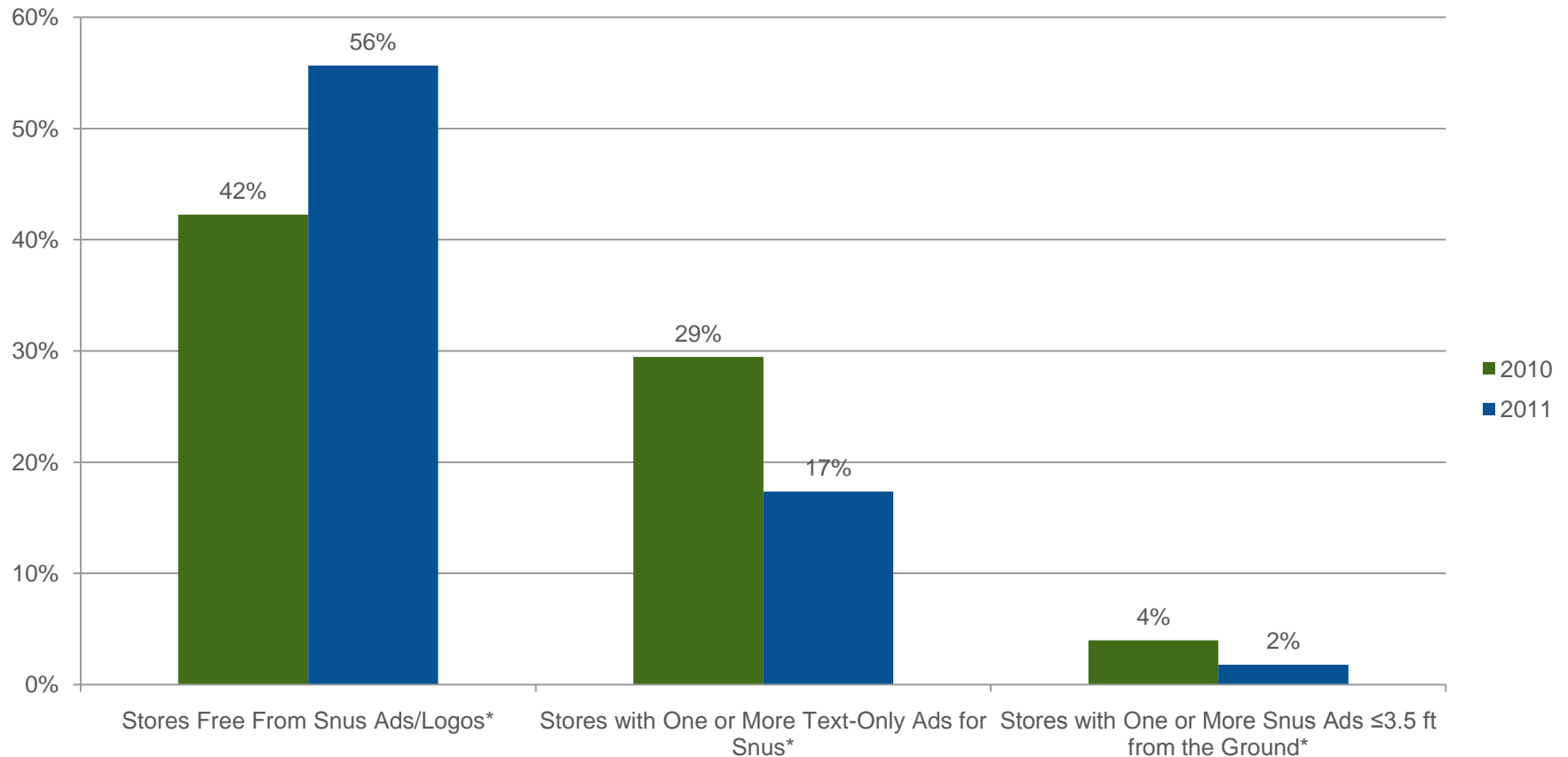
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\*p <.0001



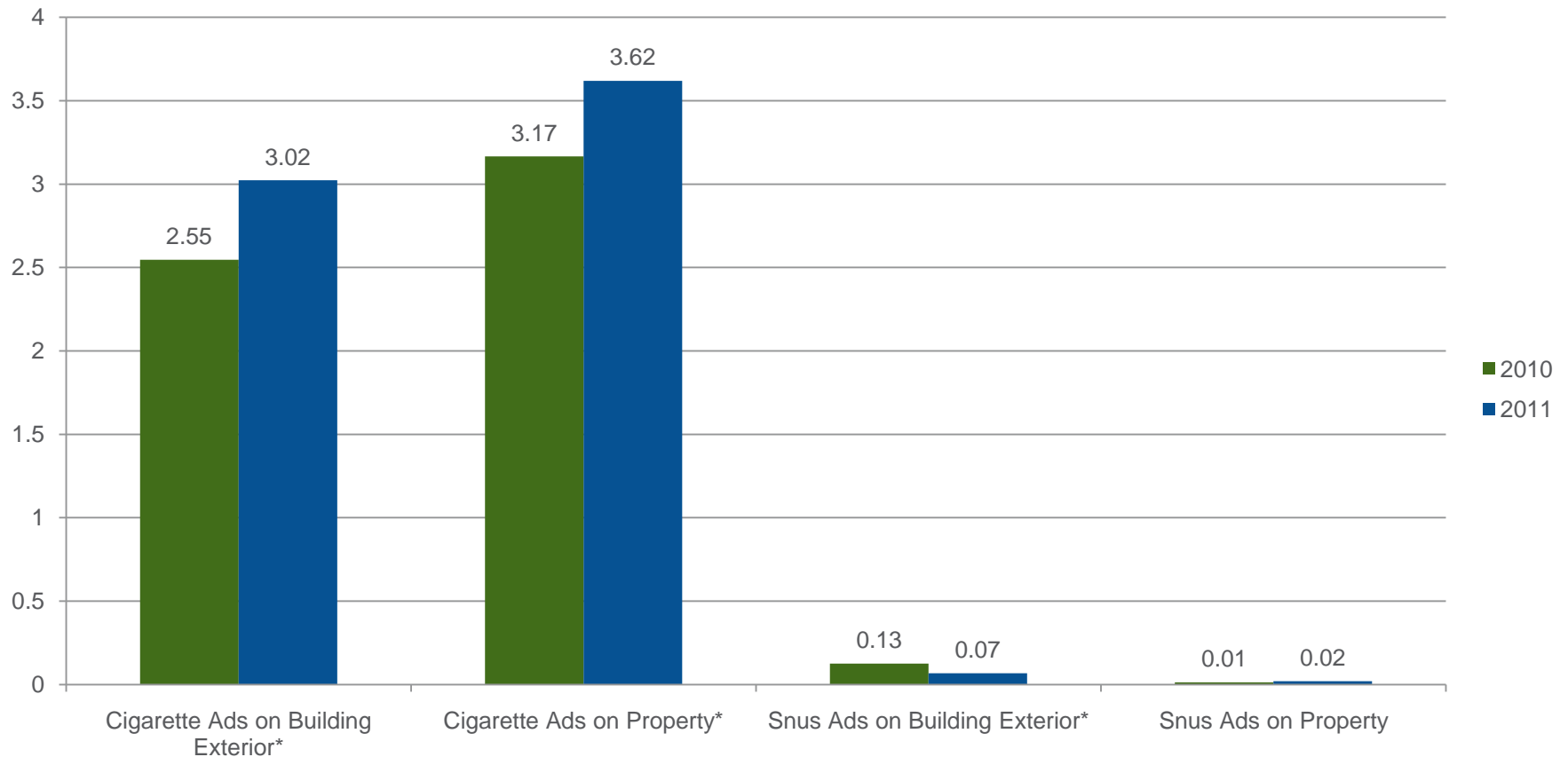
# Presence of Interior Snus Advertising

## % Retail Stores that Sell Tobacco Products, 2010 and 2011 (weighted)



# Presence of Exterior Advertising

## % Retail Stores that Advertise Cigarette and Snus Products, 2010 and 2011 (weighted)



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\*p <.001

# Aim 3: Purchase Behaviors

# Specific Aims

Aim 3: Assess the impact of tobacco product prices, price reducing promotions, and related policies on tobacco product purchasing behaviors

- Combines policy data from Aim 1 and price data from Aim 2 with various survey data on:
  - tobacco product and brand choices (substitution, switching-down, etc.)
  - purchase type and location (single pack vs. carton; discount outlets; reservations and cross-border; etc.)
  - use of price-reducing promotions ( e.g. multi-pack offers, coupons)
  - differences by age, gender, SES, race/ethnicity, tobacco use

# Adult Tobacco Survey

- The adult tobacco survey is currently being conducted with a target accrual of approximately 1,400 adult tobacco users in the US.
- The goal is to improve our understanding of the impact of tobacco tax and price policies on tobacco use, purchase behavior, tax avoidance and related outcomes.
- We are administering telephone surveys to assess associations between tobacco product pricing/marketing and adult tobacco use.

# Methods

- Probability sampling methods are used to generate a pool of phone numbers from which Computer-Assisted Telephone Interviewing (CATI) staff call.
- The interviewer asks screening questions regarding the size of household, and asks to speak to the adult whose birthday is coming up next.
- The interviewer conducts a short tobacco use screening survey to determine whether the selected adult has used any tobacco products in the past 12 months.

# Methods

- The interviewer indicates that, to thank the respondent for his/her time, we will send a check for \$20.
- The survey takes approximately 45 minutes.
- Survey questions include:
  - Tobacco product use history and current tobacco product use
  - Beliefs about tobacco use, for example, beliefs about the health effects of smoking
  - Warning labels: salience, perceptions of effectiveness, and reports of respondent's reactions to the labels
  - Price of tobacco products and location/frequency of product purchases

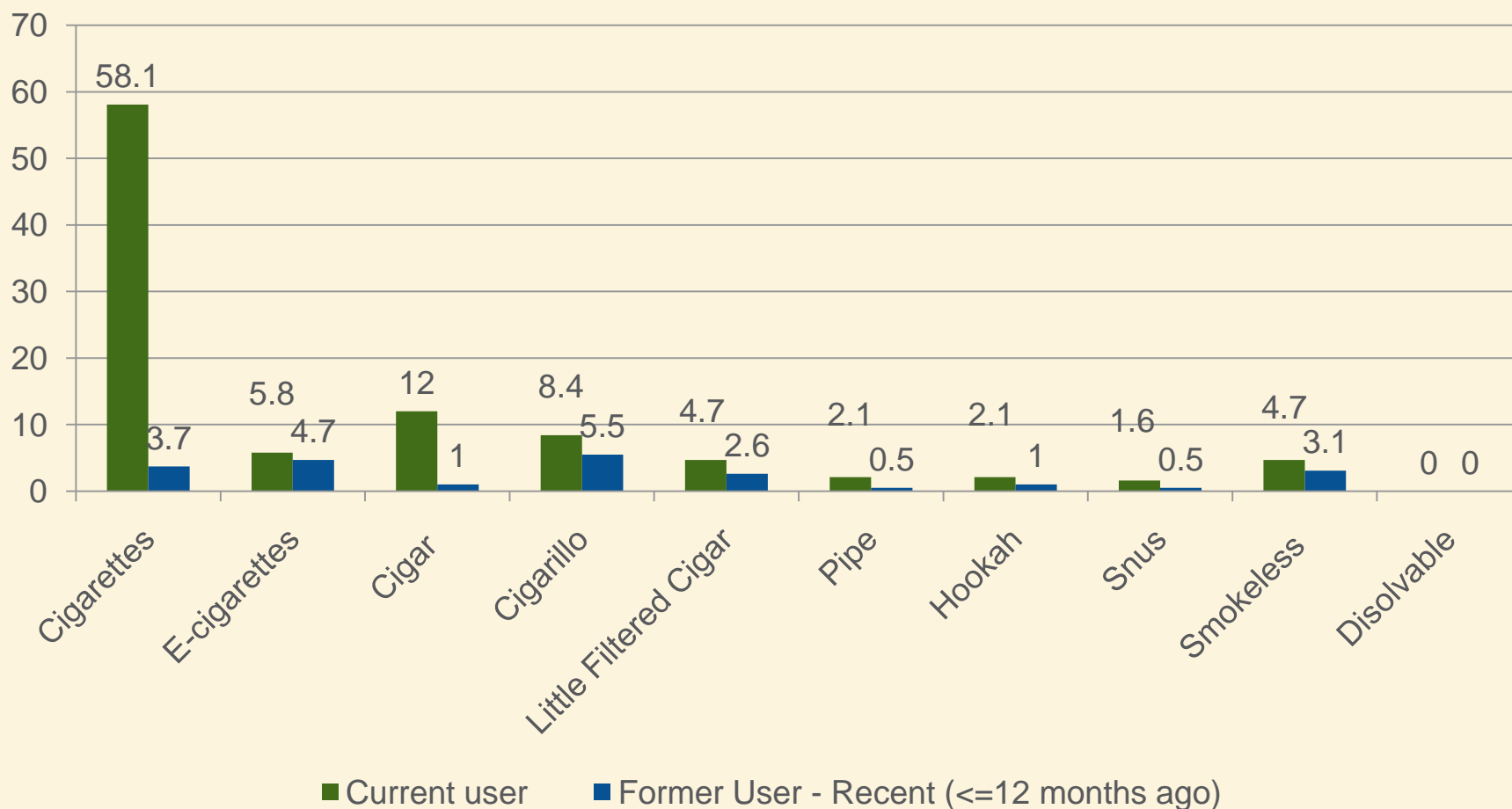
# Preliminary Results

- A preliminary analysis of the data was done after 225 surveys were completed. Some initial results from that analysis are presented in the following slides. They include:
  - Data on use of the different tobacco products
  - Data on reasons for use of tobacco products other than cigarettes.



# Preliminary Results (among 225 completes interviews as of 12/10/12)

Percent of current or recent former users of any product (n=191) who report using each product in the past 12 months



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# Preliminary Results (among 225 completes interviews as of 12/10/12)

## Reasons for Use - Percent who responded 'Important to me':

	N*	Cost less	People in media	Can use where smoking not allowed	Less harmful	Come in appealing flavors	Help quit	Don't smell	Feels like smoking	More acceptable to non-smokers	People important to me use it
E-Cigarettes	38	52.6	2.6	55.3	68.4	34.2	73.7	73.7	73.7	57.9	23.7
Regular cigars	36	5.6	0.0	-	19.4	27.8	16.7	8.3	8.3	5.6	5.6
Cigarillos	39	30.8	7.7	-	28.2	38.5	20.5	20.5	17.9	7.7	12.8
Little Filtered Cigars	21	42.9	9.5	-	14.2	28.6	23.8	14.3	33.3	9.5	4.8
Pipes	15	13.3	0.0	-	13.3	26.7	20.0	13.3	-	6.7	20.0
Hookah	22	0.0	0.0	9.1	22.7	40.9	9.1	18.2	-	27.3	9.1
Snus	15	13.3	0.0	33.3	20.0	26.7	20.0	26.7	-	20.0	13.3
Smokeless	43	25.6	4.7	23.3	20.9	16.3	16.3	23.3	-	7.0	18.6
Disolvable	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0

\*Note: questions were asked among current users, try users, and recent (12-month) former users of each product

# Current Status

- As of February 5, 2013, 995 surveys have been conducted.
- We expect to complete data collection by early April, 2013.
- Data analysis will begin by June 1, 2013.

# Aim 4: Tax Avoidance & Evasion

# Specific Aims

Aim 4: Estimate the extent of and determinants of tax avoidance and tax evasion

- uses multiple methods including:
  - littered cigarette pack collections
  - individual self-reports
  - archival data
  - econometric modeling
- identifies key individual and policy influences on tax avoidance and evasion and differential impact on key subpopulations

# Using littered cigarette packs to detect tax avoidance and evasion

## Methodology:

- Data collection teams used a strict protocol to collect littered cigarette packs at each BTG-COMP data collection site
- Packs were returned to UIC and about 15 items of information relating to each pack were coded
- Most important items were
  - Location found
  - Brand
  - Whether cellophane was present and
  - Type of tax stamp found, if any

# Overview

- Total number of packs: 3,840
- Number of catchment area: 139
- Number of states: 36
- % of packs with cellophane: 55.5%

# Tax Compliance

- Among all packs with cellophane:

Pack with:	Mean	Standard Deviation
A state tax stamp	92.12%	26.95%
the state tax stamp matches the state in which pack was found	81.89%	



# Local Cigarette Tax

State and local governments issue joint stamps reflect two layers of tax rate on one stamp.

## Joint Stamp

State	# of Packs
New York (with NYC)	50
Missouri (with St. Louis)	18
Maryland (locality unknown)	1
Kansas (locality unknown)	1
Virginia (with 17 municipalities)	1
<b>Total</b>	<b>71</b>

# Local Cigarette Tax

There are cigarette tax stamps issued by county/municipal governments in addition to state stamps

## County/City Stamp

County/City	# of Packs
Jefferson County, AL	23
Cook County, IL	5
Kansas City, MO	5
Chicago, IL	2
Alabama County, AL	2
Cannot identify	14
<b>Total</b>	<b>51</b>

# Statistics by Catchment

	Mean	Std. Dev.	Min	Max
# of packs	65.13	42.75	0	172
# of packs with cellophane	35.41	21.97	0	82
# of packs with tax stamps	32.66	20.28	0	71
# of packs with tax stamps that match the state in which they were found	29.51	19.42	0	71

# Compliance with FDA Ban on Flavors

Flavor	# of Packs	Percentage
No Flavor	3,073	80.03%
Menthol	755	19.66%
Fruity (illegal)	6	0.16%

# Key Preliminary Findings

- We found 9 or more packs with cellophane (so stamp can be identified) in 50% of catchment areas. For these catchment areas we can estimate “population” compliance with reasonable statistical confidence.
- 25% of catchment areas had perfect (100%) compliance
- 15% of catchment areas had compliance of less than 50%

# Next Steps

- Clean and benchmark the data
  - Check for data anomalies/miscoding
  - Compare brand distribution in our data to expected brand distribution
- Map the geographical variation in tax compliance and provide more descriptive statistics
- Investigate determinants of cigarette tax avoidance
  - Rate of tax
  - Availability of alternative supplies
  - Economic and demographic characteristics of community
- Compare our results with other measures/predictions

# Aim 5: Tobacco Use

# Specific Aims

Aim 5: Examine the impact of tobacco product prices, price-reducing promotions, and related policies on tobacco use behaviors

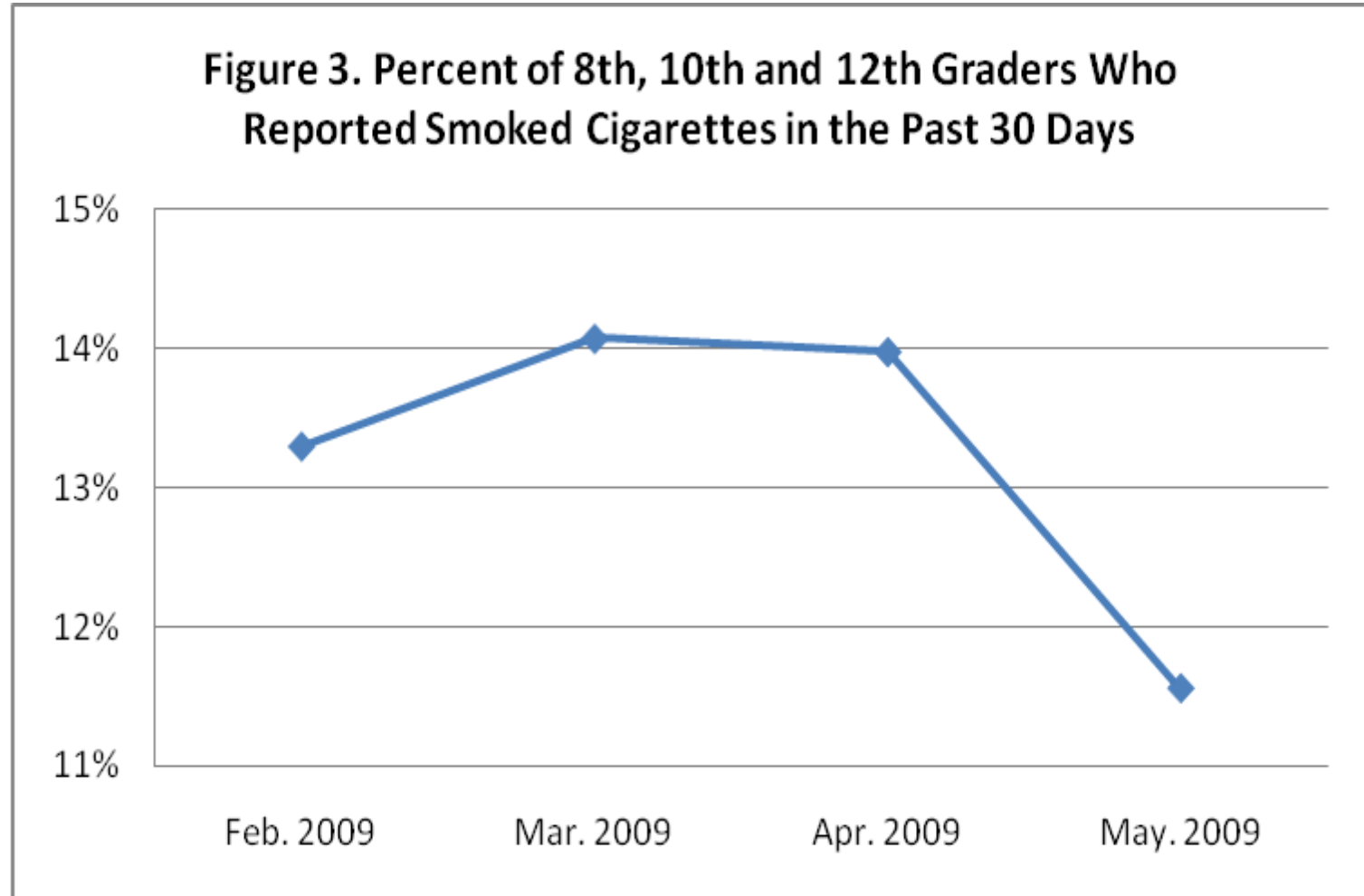
- extends Aims 3 and 4 by estimating impact on:
  - prevalence, frequency, and intensity of tobacco use
  - substitution among tobacco products
  - uptake and cessation
- assesses differential impact by age, gender, SES, race/ethnicity, and tobacco use
- identify non-linearities in the impact of price on tobacco use



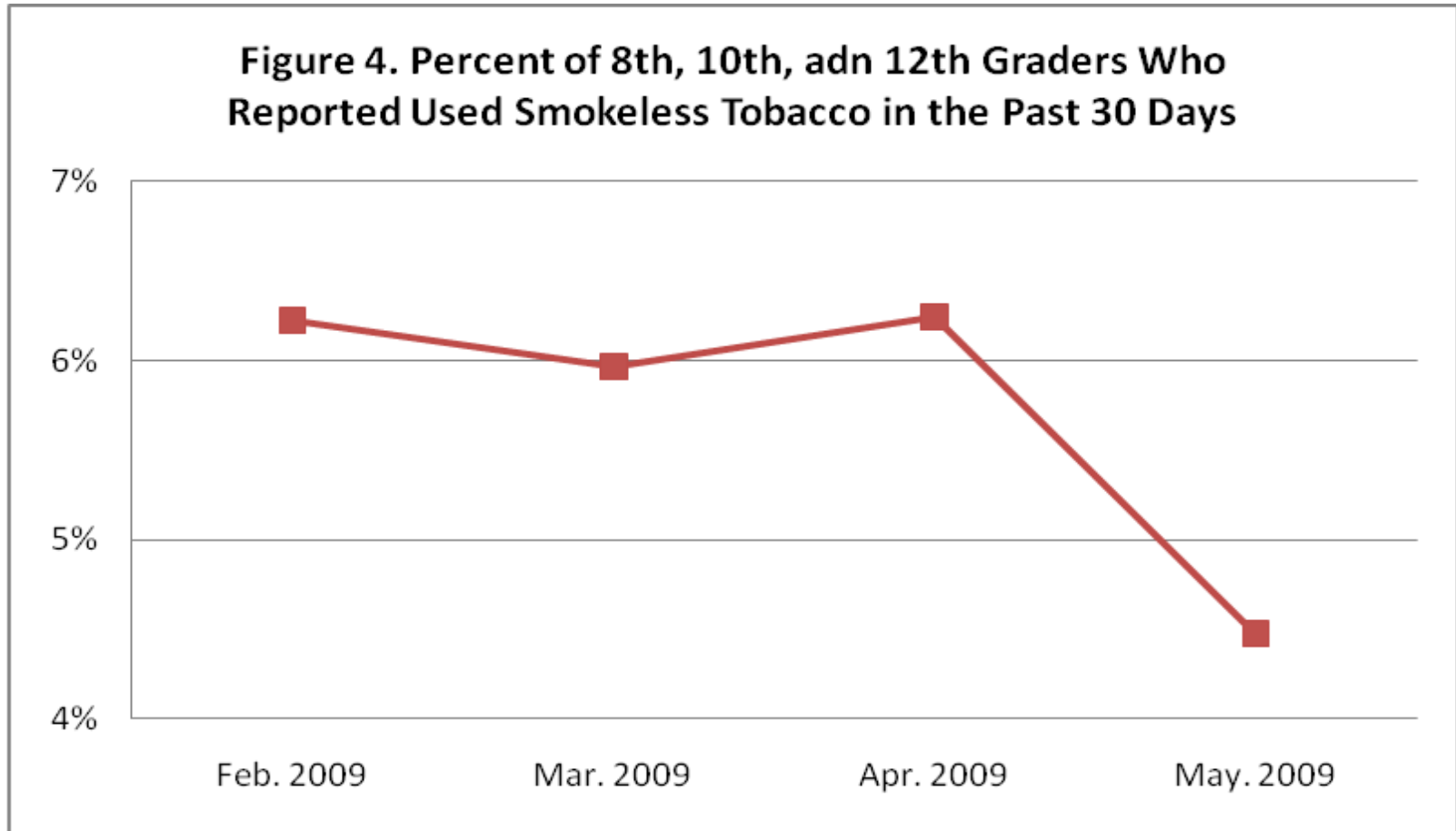
# 2009 Federal Tax Increases

- 2008 & 2009 Monitoring the Future Surveys
  - compare within 2009
  - compare same schools 2008-2009
  - alternative cut points
  - cigarette smoking & smokeless tobacco use
  - control for variety of individual, school, state factors
  - alternative estimation strategies

# Results



# Results

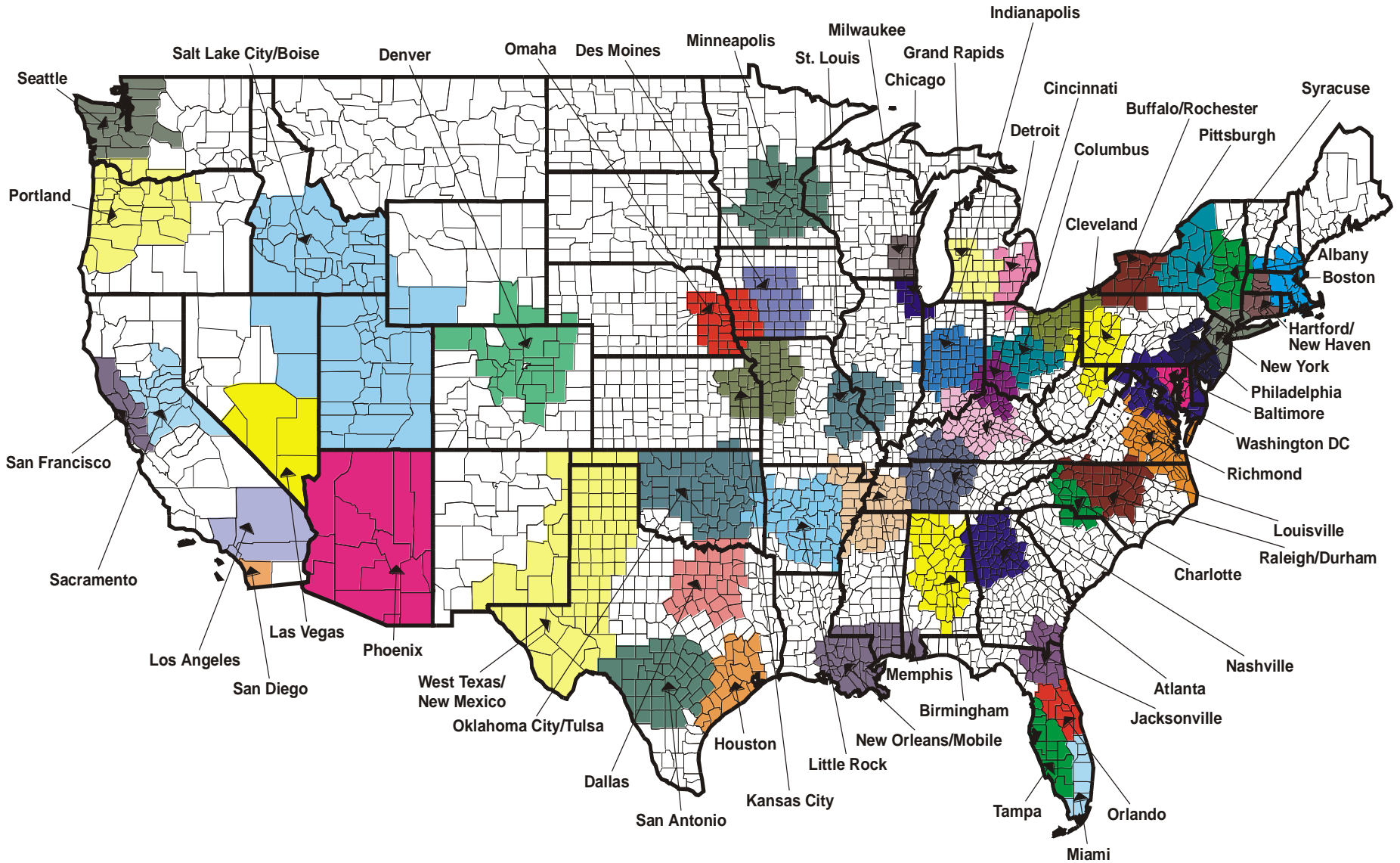


# Results - Summary

Cigarette Smoking (Pre-tax: before April 1, 2009; Post-tax: on or after May 1, 2009)	2009 MTF Model 2	2008 and 2009 MTF Model 2	DD Model 2
Pre Tax Increase Mean (%)	13.4%	12.8%	12.8%
Estimated Percentage Point Decrease after Tax Increase	-1.3	-1.4	-1.7
Estimated Percent Decrease in Smoking after Tax Increase	-9.7%	-11.0%	-13.3%
Estimated Price Elasticity	-0.44	-0.50	-0.60
Number of FEWER Students (age 14 - 18) Smoking in the Past 30 Days Due to the Tax Increase (in 1,000)	220	237	287
Smokeless Tobacco (Pre-tax: before April 1, 2009; Post-tax: on or after May 1, 2009)	2009 MTF Model 2	2008 and 2009 MTF Model2	DD Model 2
Pre Tax Increase Mean (%)	6.1%	5.0%	5.0%
Estimated Percentage Point Decrease after Tax Increase	-1.2 <sup>1</sup>	-1.2	-0.8 <sup>1</sup>
Estimated Percent Decrease in Use of Smokeless Tobacco after Tax Increase	-19.8%	-24.0%	-16.0%
Estimated Price Elasticity <sup>2</sup>	-1.46	-1.84	-1.23
Number of FEWER Students (age 14 - 18) Using Smokeless Tobacco in the Past 30 Days Due to the Tax Increase (in 1,000)	203	203	135

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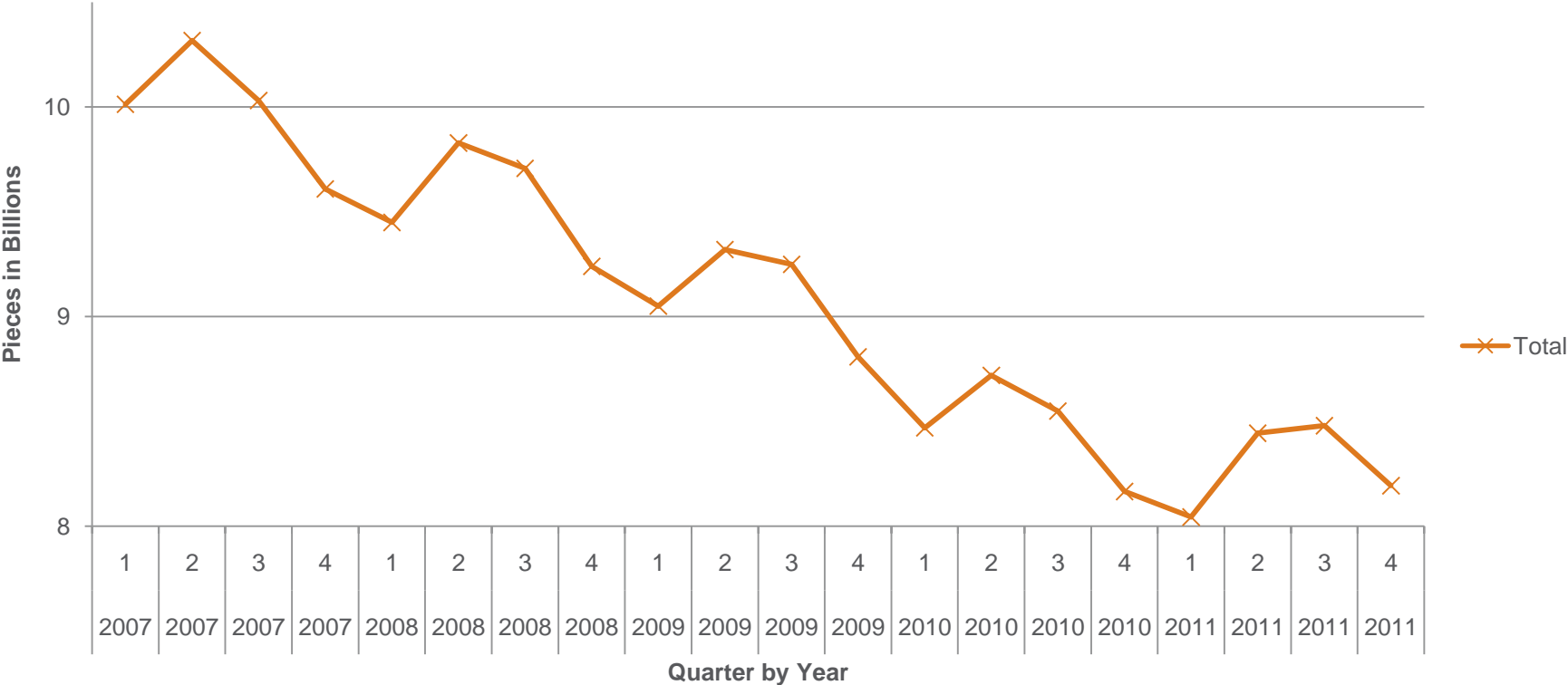
# Nielsen Store Scanner Data



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# Total Cigarette Sales – Food, Drug, and Mass Stores (FDM)

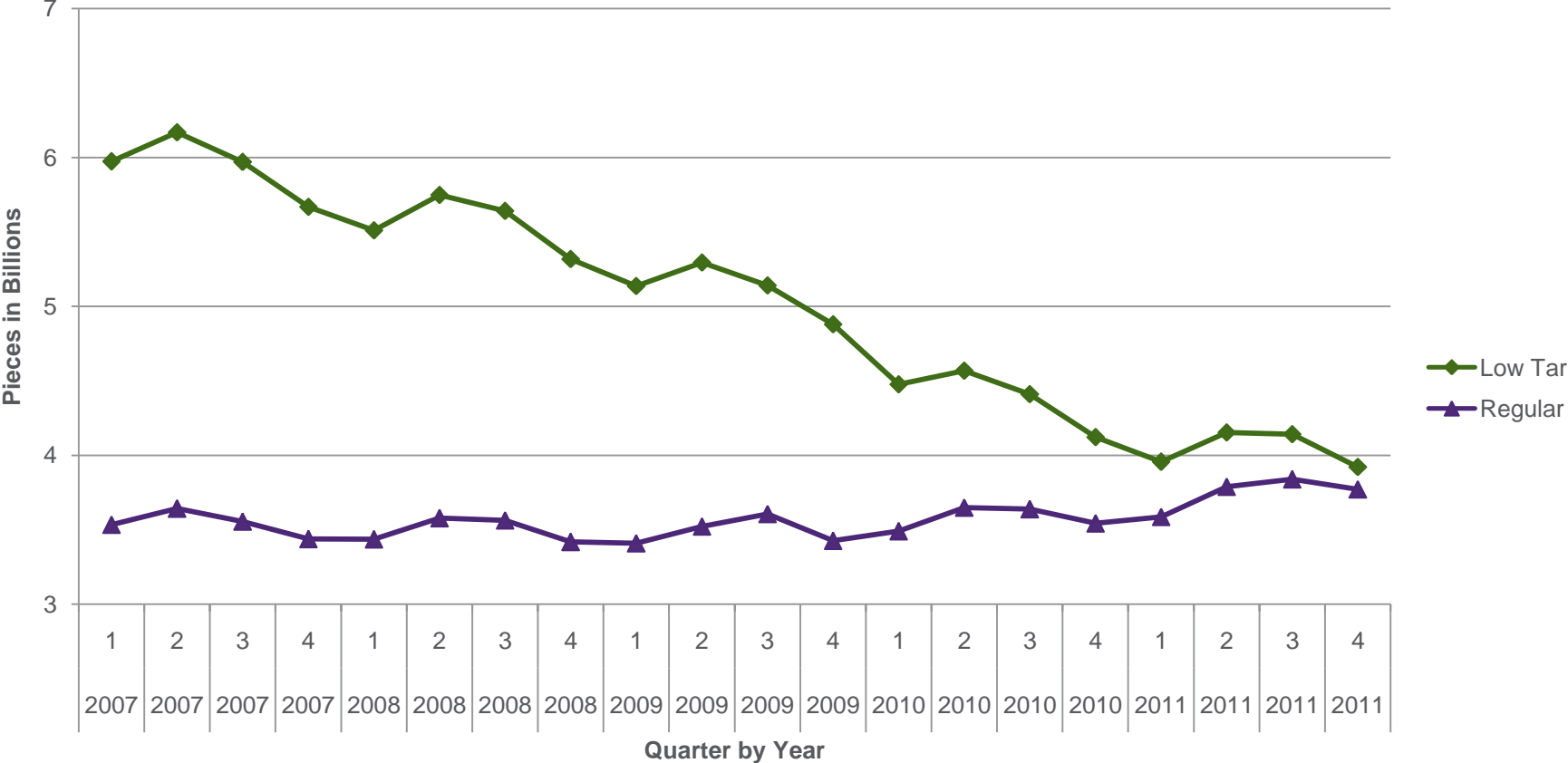
The Trend of Total Cigarettes Sales in FDM (2007 - 2011)



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# Sales Volume by Type: Regular, Low Tar, Low Nicotine

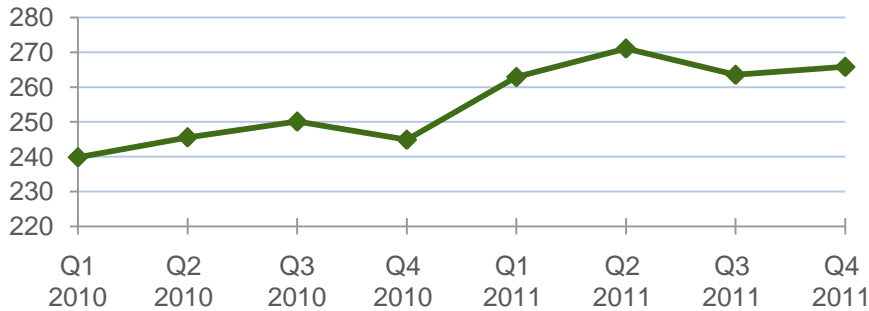
## Total US Market – FDM Stores Low Tar and Regular



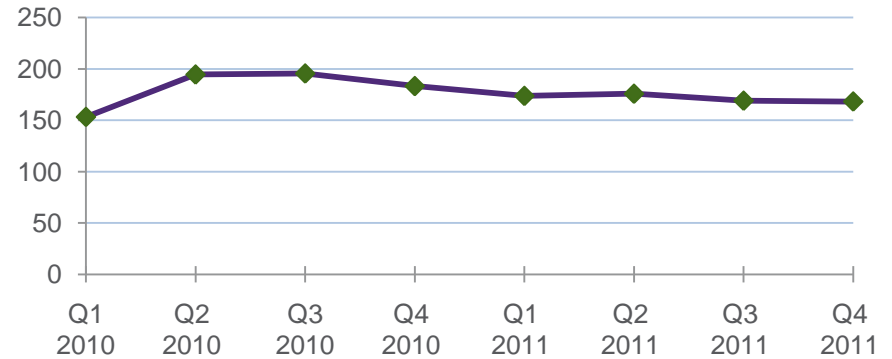
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# Smokeless Tobacco Products: Sales Volume

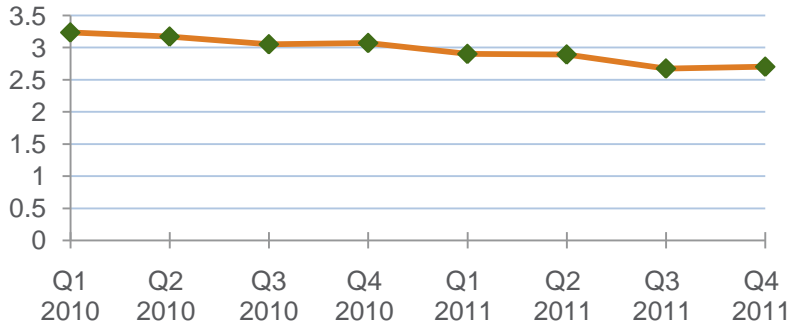
**Moist Snuff:** (in millions of ounces)



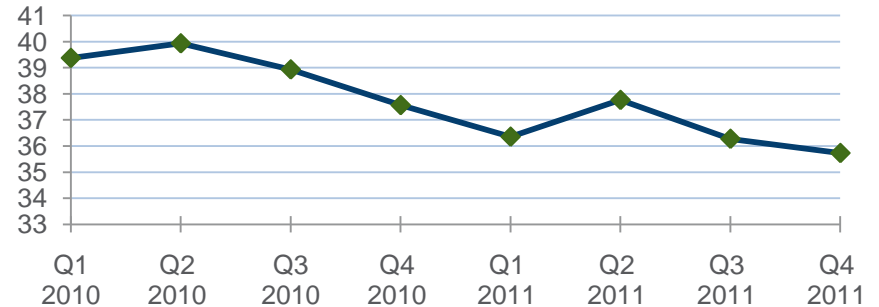
**Snus:** (in millions of pieces)



**Dry Snuff:** (in millions of ounces)



**Loose leaf:** (in millions of ounces)

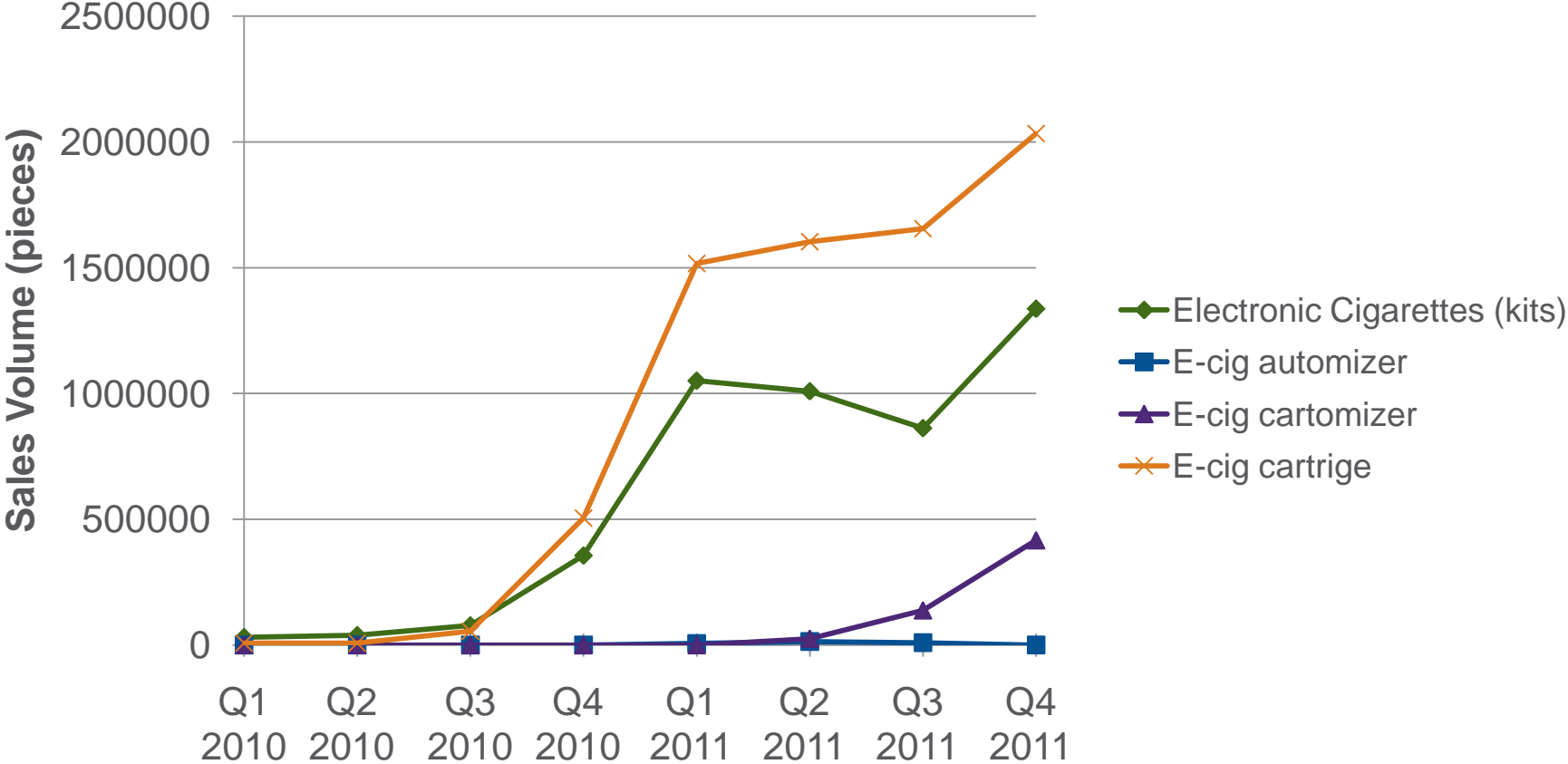


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# Sales Volume - Electronic Cigarette Products

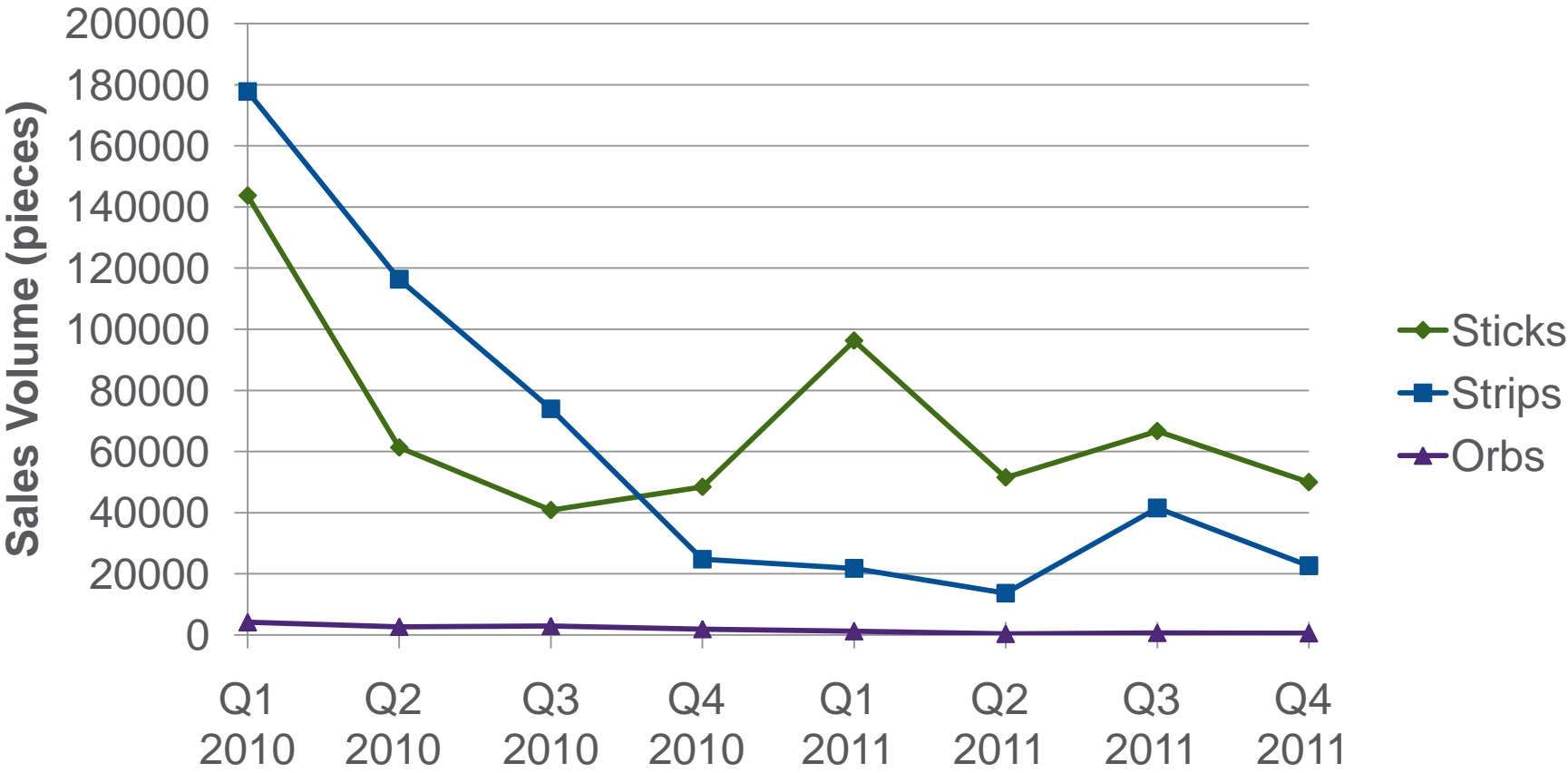
## US Market



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# Sales Volume – Dissolvable Tobacco Products

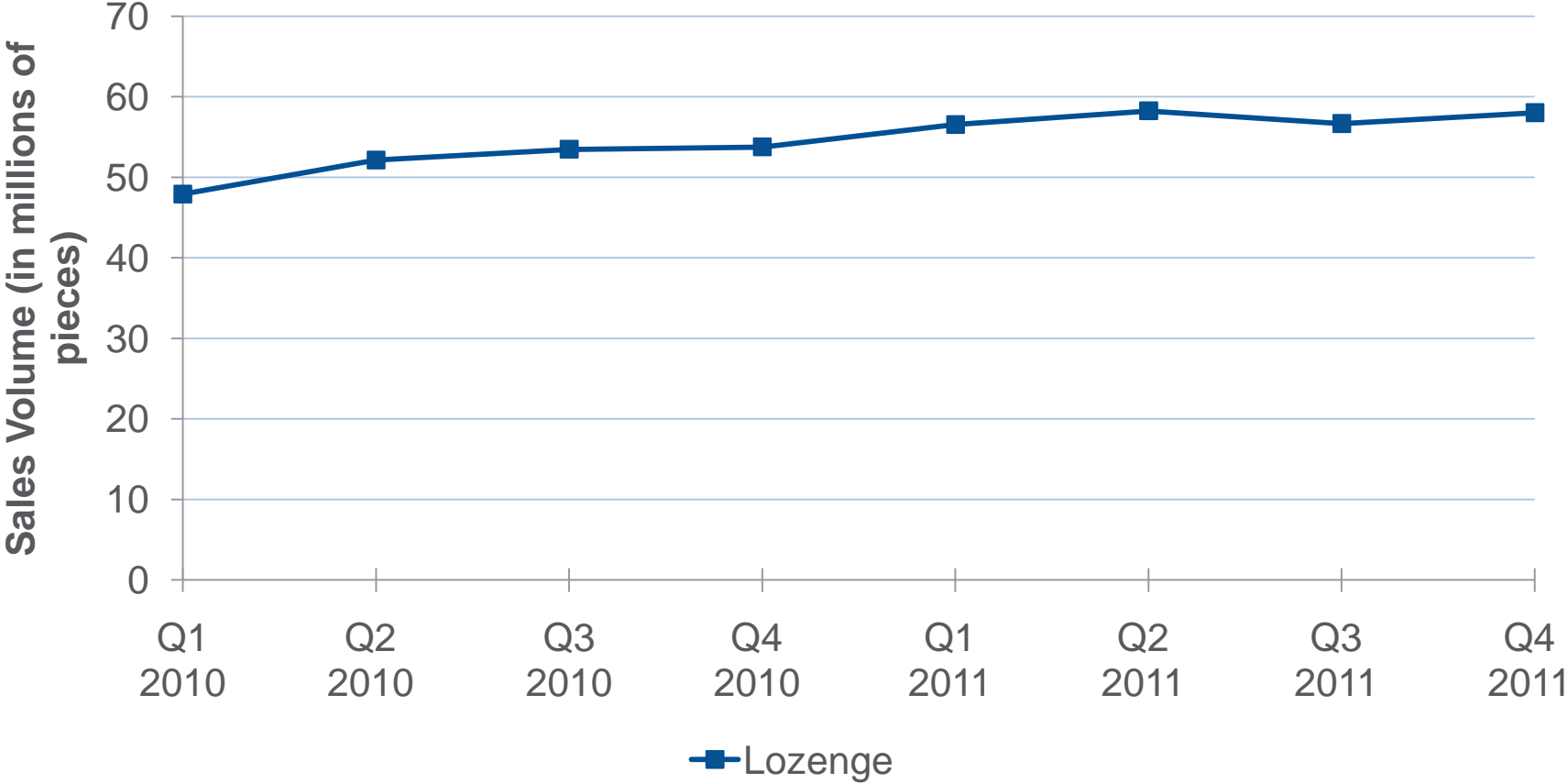
## US Market



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# Sales Volume – Dissolvable Lozenge

## US Market



# Own Price Elasticity – FDM Stores

(Aggregated quarterly sales volume in each market) Preliminary and unchecked

Product	Price Elasticity for Select Standard Tobacco Products: FDM stores									
	Cigarette	Cigar	Cigarillo	Little Cigar	Pipe Tobacco	Loose Tobacco	Chewing Looseleaf	Dry Snuff	Moist Snuff	
<u>Model with Market, Year, and Quarter Dummies</u>										
Price Elasticity	-1.626*** (0.0682)	-1.035*** (0.0559)	-0.572** (0.290)	-1.637*** (0.0979)	-1.813*** (0.123)	-1.766*** (0.118)	-0.863*** (0.191)	-0.550 (0.352)	-0.844*** (0.130)	
R-squared	0.971	0.946	0.893	0.965	0.948	0.923	0.984	0.957	0.979	
<u>Model with Market Level SFA Policy and Demograp</u>										
Price Elasticity	-1.543*** (0.0767)	-0.831*** (0.124)	0.0911 (0.370)	-1.959*** (0.120)	-3.160*** (0.159)	-2.566*** (0.139)	-2.776*** (0.274)	-1.422*** (0.371)	-2.049*** (0.235)	
SFA Index	-0.00618 (0.00500)	-0.0299*** (0.00971)	0.000690 (0.0105)	0.0109 (0.00943)	-0.0297*** (0.00957)	0.0310*** (0.0102)	-0.0209** (0.0102)	-0.0509** (0.0207)	0.00365 (0.0114)	
R-squared	0.677	0.434	0.356	0.709	0.607	0.597	0.813	0.741	0.711	
Observations	1,024	1,040	1,037	1,040	1,040	1,038	1,025	792	1,033	
Robust standard errors in parentheses										

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# Own Price Elasticity – FDM Stores

(Aggregated quarterly sales volume in each market) Preliminary and unchecked

Price Elasticity for Select Non Traditional Tobacco Products: FDM stores						
Product	Snus	Lozenge	Tablet	NRT Gum	NRT Patch	E-Cig
<u>Model with Market, Year, and Quarter Dummies</u>						
Price Elasticity	-0.359 (0.335)	-1.434*** (0.245)	-0.598** (0.273)	-1.578*** (0.0959)	-0.974*** (0.174)	-0.949* (0.514)
R-squared (Dummy)	0.636	0.960	0.645	0.978	0.977	0.787
<u>Model with Market Level SFA Policy and Demographic</u>						
Price Elasticity	-1.269*** (0.244)	-5.021*** (0.372)	-0.632*** (0.208)	-4.155*** (0.160)	-4.548*** (0.214)	-0.916** (0.434)
SFA Index	0.0766*** (0.0258)	-0.0277*** (0.00952)	-0.0911*** (0.0345)	-0.0301*** (0.00857)	-0.0145* (0.00861)	-0.126 (0.0817)
R-squared (Policy and Demographic)	0.440	0.647	0.502	0.735	0.693	0.481
Observations	557	1,040	306	1,040	1,040	108
Robust standard errors in parentheses						
*** p<0.01, ** p<0.05, * p<0.1						

# Cross Price Elasticity – FDM Stores

(Between cigarettes and other selected tobacco products. Aggregated quarterly sales volume in each market) Preliminary and unchecked

Cross Price Elasticity between **Cigarettes** and Select Tobacco Products: FDM stores

Product	Cigarillo	Little Cigar	Rose Tobacco	ewing Loose	Dry Snuff	Moist Snuff	Lozenge	Tablet	NRT gum	NRT patch	Ecig
<u>Model with Market, Year, and Quarter Dummies</u>											
Cross Price Elasticity	0.162*** (0.0569)	0.0735*** (0.0201)	-0.206*** (0.0491)	-0.0846* (0.0438)	-0.288*** (0.0526)	-0.232*** (0.0511)	-0.0723 (0.0501)	0.0747*** (0.0226)	0.210*** (0.0383)	0.104* (0.0598)	0.0301*** (0.0102)
R-squared	0.971	0.971	0.971	0.970	0.969	0.971	0.971	0.971	0.972	0.971	0.998
<u>Model with Market Level SFA Policy and Demographics</u>											
Cross Price Elasticity	0.376*** (0.125)	-0.0144 (0.0411)	-0.675*** (0.0807)	-0.290*** (0.104)	-0.976*** (0.0817)	-0.249*** (0.0964)	-0.776*** (0.106)	0.0906* (0.0504)	-0.580*** (0.0741)	-0.417*** (0.0836)	0.126 (0.147)
SFA Index	-0.00884* (0.00484)	-0.00623 (0.00499)	-0.0121** (0.00497)	-0.0144*** (0.00491)	-0.0307*** (0.00452)	-0.00952* (0.00500)	-0.00764 (0.00502)	-0.0465*** (0.00730)	-0.00847* (0.00479)	-0.00613 (0.00503)	-0.0107 (0.0210)
R-squared	0.681	0.677	0.701	0.689	0.733	0.685	0.690	0.848	0.698	0.682	0.729
Observations	1,021	1,024	1,022	1,009	776	1,017	1,024	304	1,024	1,024	108

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

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# Aim 6: Household Spending

# Specific Aims

Aim 6: Evaluate the impact of prices, price-reducing promotions, and related policies on other household spending

- builds on Aims 3, 4 and 5 to examine impact of spending on tobacco products on:
  - household spending on food, housing, clothing, health care, education, transportation, and other goods/services
  - focuses on impact of tax changes on low-income households
  - assess differential impact based on use of tobacco tax and other tobacco revenues to support programs targeting low-income populations
- planning to start in 2014



# Aim 7: Communication & Dissemination

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# Specific Aims

## Aim 7: Disseminate and communicate findings widely

- target multiple audiences including policy makers, tobacco control advocates, public health professionals, researchers, and general public
- use multiple tools including peer-reviewed publications, special reports, policy and research briefs, press releases, websites
- Key activities to date:
  - developing new web-site “[tobacconomics.org](http://tobacconomics.org)” that will feature products from this and other projects
  - developing social media presence (twitter, facebook)

## Report Claims SCHIP Cut Smokers, Increased Revenues

Minnesota anti-tobacco group using findings to push for tax hike

CSP Daily News | May 10, 2012

CHICAGO -- A new study by researchers at the University of Illinois at Chicago claims that a large national tax increase "can influence youth tobacco use prevalence within a very short time period."

One anti-tobacco group, the ClearWay Minnesota/Raise It for Health coalition, is already using the report to call for a tobacco price increase in Minnesota of \$1.50 per pack.

Implemented on April 1, 2009, the State Children's Health Insurance Program Reauthorization Act (SCHIP) increased the federal tax rate on cigarettes by 61.66 cents per pack (from 39 cents to \$1.0066 per pack) and on moist snuff, the most common form of smokeless tobacco, by 92.5 cents per pound (from 58.5 cents to \$1.51 per pound). It also increased taxes on other forms of smokeless tobacco.



SCHIP reduced the number of youth smokers by at least 220,000 and the number of youth smokeless tobacco users by at least 135,000 in the first two months, according to the report, published online by the National Bureau of Economic Research.

The study also found that federal tobacco tax revenues increased by 147% in the 12 months following the increase, it said—from \$7.1 billion in the 12 months before to \$17.5 billion in the 12 months after.



## 2009 Federal Tobacco Tax Increase Cut Number of Youth Smokers by At Least 220,000 in First Two Months Alone, New Study Shows

RALEIGH, N.C., May 17 /PRNewswire-USNewswire/ -- As the legislative session begins, a report released today by a tobacco policy expert at the University of Illinois at Chicago confirms that a significant cigarette tax increase in North Carolina will produce a large, sustained increase in state tobacco tax revenues. Several states, including South Carolina, have recently raised tobacco taxes to deal with budget shortfalls.

THURSDAY, MAY 10, 2012

## New Study Shows Higher Tobacco Taxes Greatly Reduce Youth Smoking

Health advocates today urged Illinois leaders to increase the cigarette tax by \$1/pack following a new national study that confirms higher tobacco taxes are very effective at reducing smoking and other tobacco use, especially among kids.



## Tax hike cuts tobacco consumption

By Dennis Cauchon, USA TODAY

Updated 9/13/2012 11:12 AM

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A giant federal tobacco tax hike has spurred a historic drop in smoking, especially among teens, poor people and those dependent on government health insurance, a USA TODAY analysis finds.

# Press on the Impact of the 2009 tobacco tax hike article



## Fewer kids might start smoking, if Quinn's cigarette-tax hike to help Medicaid passes

BY LILI TAN  
MAY 10, 2012



"Part of the purpose of the increase in federal tobacco taxes that went into effect in 2009 was to generate revenues, and a big part was the public health impact, and it's certainly having that with respect to kids," said Frank Chaloupka, paper co-author and an economics professor at the University of Illinois at Chicago.

Chaloupka found a 16 to 24 percent drop in youth smoking immediately after the tax increase. He and his researchers culled data from Monitoring the Future surveys, which asked eighth-, 10th- and 12th-graders about their tobacco use, and have tracked youth substance use since the 1970s.

Chaloupka also projected that roughly 78,000 fewer youths would start smoking in Illinois if Gov. Quinn's \$1 cigarette tax hike passes.

"Where price really matters is for kids who are making the transition between experimenting with cigarettes – getting them from their friends or sneaking them from their parents – to buying their own and moving into more regular smoking," he said.

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Research Informing Policies & Practices  
for Healthy Youth

[www.bridgingthegapresearch.org](http://www.bridgingthegapresearch.org)

coming soon: [www.tobacconomics.org](http://www.tobacconomics.org)