



**Colorado Tobacco Tax Revenues:  
Factors Impacting Sustainability after the  
Amendment 35 Tax Increase**

**Staff Report  
For the Board of Directors of the Health District of Northern  
Larimer County**

**Prepared by Katherine Young**

**April 14, 2005**

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## Executive Summary

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### **Staff Report on Colorado Tobacco Tax Revenues: Factors Impacting Sustainability after Amendment 35 Tax Increase**

**For the Board of Directors of the Health District of Northern Larimer County**

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Amendment 35 was passed by Colorado voters in November 2004, raising the State cigarette tax to \$0.84 per pack and distributing the tax revenues to the following health-related areas: health care expansion fund (46%); primary care fund (19%); tobacco education, cessation and prevention fund (16%); prevention, early detection and treatment fund (16%); and, general fund, old age pension fund and local governments (3%).

During the 2005 session of the Colorado General Assembly, enabling legislation for Amendment 35 will be enacted. Several pieces of legislation that potentially fulfill this function have been introduced during the 2005 legislative session. Legislative debate has centered on the issue of **whether or not tobacco tax revenues will decline over time, and the impact that revenue decline, in particular, will have on the sustainability of proposed program expansions.** On February 22, 2005, the Board of Directors for the Health District of Northern Larimer County directed staff to analyze key Amendment 35 legislation. In response to this request, staff examined the potential forecast for tobacco tax revenues in Colorado.

The findings of this study were used by Health District staff to evaluate the sustainability of expansions proposed in Amendment 35 legislation.

### **Findings**

Health District staff found:

- ❖ Since nicotine is addictive, the price elasticity for cigarette smoking is low, dictating that change in demand will be slow in response to price change.
- ❖ Colorado's cigarette tax is average when compared with other states. The new price of cigarettes in Colorado is not high enough to price consumers out of the market.
- ❖ The combination of cigarette price elasticity and actual cigarette price in Colorado suggests that Colorado smokers will generally continue to buy their cigarettes in state and pay the tax.
- ❖ Of Colorado's neighboring states, two (Arizona and New Mexico) have a higher cigarette tax, and four (Wyoming, Kansas, Nebraska and Utah) have lower cigarette taxes. When averaged, the taxing level for Colorado's border states is \$0.80 per pack. Wyoming's taxing level (\$0.60 per pack) is the lowest of the border-states.
- ❖ Given the relatively close taxing levels between Colorado and its border states, transaction costs associated with bootlegging cigarettes from these states may be higher than the actual tax savings per pack.
- ❖ In 2002, Internet sales accounted for 2% of the national cigarette market. There is not enough information available to predict the percentage of Internet cigarette sales for Colorado. However, transaction costs must

also be taken into account for these types of purchases. In particular, a March 2005, federal, state and private initiative to enforce existing laws that regulate Internet cigarette sales may work to heighten the transaction costs for purchasing cigarettes online as well as reduce the outlets.

## Conclusions

Based on these findings, Health District staff determined that:

- ❖ Without a dynamic model with which to assess the impact of the tobacco tax change on Colorado tobacco tax revenues, we can only speculate on the potential tobacco tax revenue forecast.
- ❖ With this caveat, we can point to several potential indicators that work to portray the cigarette tax climate in the State: the price elasticity of cigarettes; the potential for bootlegging cigarettes from other states; and, the potential for bootlegging cigarettes via the Internet.
- ❖ **We can infer that although there will be marginal demand loss, the low price elasticity of cigarettes in tandem with revenue generated from the new tax will likely work to increase and then stabilize tobacco tax revenues in the future.**
- ❖ Although we cannot say with certainty how bootlegging will impact cigarette consumption in Colorado, we can infer that the transaction costs associated with bootlegging cigarettes from other states and via the Internet may negatively impact the decision of some consumers to purchase and transport cigarettes via these means.
- ❖ Finally, since cigarette consumption patterns and cigarette taxes vary across the country, we can conclude that transposing national data and data from other states onto Colorado is problematic and unreliable.

# Introduction

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In the midst of the debate over Amendment 35 legislation, considerable attention has been directed toward the projection of tobacco tax revenues over time and the related issue of program sustainability. Outlined below are some of the potential indicators that conceptualize the tobacco tax revenue forecast in Colorado. **Please note that the information provided is conceptual and, therefore, is not a model for predicting revenue change.** Rather, a review of pertinent economic and policy literature allows for the identification of some factors that may potentially influence the decision-making processes of Colorado smokers.<sup>1</sup>

## Basic economic argument

Since increases in taxes will drive up cigarette costs, the law of supply and demand suggests that demand will decrease and cigarette consumption will fall.<sup>2</sup> Importantly, price elasticity of cigarettes is low because cigarettes are addictive commodities. However, higher prices should reduce demand at the margins.<sup>3</sup>

## Price elasticity

Overall, the elasticity of cigarette sales is somewhat sluggish to price change because of the addictive component of cigarettes. We can, however, look at choke prices for cigarettes; that is, how high cigarette prices would have to rise in order to completely choke off demand in the state.<sup>4</sup> For Colorado, a lower limit of \$3.24 and an upper limit of \$4.69 have been calculated (*please note that these are 1994 dollars – numbers for 2005 should be higher*) for the choke price. Within these limits, the choke price is calculated at \$3.97. Importantly, in 2005 dollars this price would be significantly higher, as would be the lower and upper bounds of the choke price range. Right now the price of cigarettes in Colorado is roughly \$4.00. Accounting for inflation, the estimated price range as well as choke price for Colorado appear to indicate that cigarette prices in Colorado will not choke consumers out of the market.

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<sup>1</sup> Please note that a journal article review of the impact of tobacco taxes in relation to bootlegging and the sustainability of tobacco tax revenue over time yielded narrow results with the regard to the number of articles located.

<sup>2</sup> Price elasticity of demand measures the responsiveness of quantity demanded to a change in price, all other factors held constant.

<sup>3</sup> Michael J. Licari and Kenneth J. Meier, “Regulatory Policy when Behavior is Addictive: Smoking, Cigarette Taxes and Bootlegging” in *Political Research Quarterly*, Volume 50, No.1 (March 1997).

<sup>4</sup> Jackson and Saba estimate a cigarette demand function in which the consumer can be priced out of the market. This price is referred to by the authors as a “choke” price. They model this price by integrating a rational addiction model of smoking behavior with bootlegging (smuggling) predictions. See John Jackson and Richard Saba, “Some Limits on Taxing Sin: Cigarette Taxation and Health Care Finance” in *Southern Economic Journal*, Volume 63, No. 3 (January 1997).

## **Tobacco Taxes & Bootlegging Activities**

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Since cigarette taxes are not uniform across the states, the permeability of state boundaries makes it difficult to clearly determine the effectiveness of taxes in reducing cigarette use. Tax revenues will suffer from consumer opportunities to avoid tax costs. This type of avoidance (of a high tax in a state) is called bootlegging.<sup>5</sup> Examples include traveling to another state to purchase cigarettes and buying cigarettes on the Internet. For this reason, bootlegging can bias state-level analyses of the effectiveness of cigarette taxes since data on consumption is measured as actual cigarettes sold in the state rather than actual cigarettes smoked.<sup>6</sup>

There are no State studies of cigarette bootlegging in Colorado. However, some speculation can be made using the price range listed above. If we account for inflation, the pack price of cigarettes in Colorado is within range and under the choke price. If this is correct, smokers would be less inclined to quit or bootleg cigarettes because the price is not so high that they will seek alternative markets in which to purchase their cigarettes.

Importantly, the effect of cigarette taxes on consumption also depends on a state's cigarette tax level relative to neighboring states. Therefore, a tax increase may or may not serve to substantially decrease consumption (cigarette sales) in that state. Rather, consumption change depends on the tax levels of neighboring states as well as the transaction costs for bootlegging from these states.<sup>7</sup>

### **Where does Colorado fall on the cigarette tax spectrum?**

Colorado is right at the national tobacco tax average (\$.845). Listed below are the cigarette taxes in Colorado and neighboring states.<sup>8</sup>

<u>State</u>	<u>Tax (per pack)</u>	<u>National Ranking</u>
Arizona	\$1.18	13th
New Mexico	\$.91	20th
Colorado	\$.84	22nd
Kansas	\$.79	24th
Utah	\$.695	26th
Nebraska	\$.64	27th
Wyoming	\$.60	28th

Two of Colorado's neighboring states, Arizona and New Mexico, have higher taxes, while the remaining four have lower taxes. None, however, are substantially lower than the Colorado tax; that is, all rank in the 20s and are within the middle band of states for tobacco taxes. When averaged, the taxing level for Colorado's border states is \$0.80.

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<sup>5</sup> Licari and Meier

<sup>6</sup> Licari and Meier

<sup>7</sup> Licari and Meier

<sup>8</sup> Campaign for Tobacco-Free Kids [www.tobaccofreekids.org](http://www.tobaccofreekids.org)

Since the price difference between Colorado and its neighboring states is not considerable we need to look carefully at transaction costs for bootlegging from these states to determine whether the transaction costs are actually higher than the tax savings. Possible transaction costs include travel time and gas costs for bootlegging. Additionally, sanctions could occur in the case of large purchases made for distribution in Colorado. Admittedly, it is difficult to estimate and generalize actual transaction costs. However, anecdotal analysis can help to portray potential transaction costs. In this latter vein, listed below is a possible scenario for an individual purchaser (not for distribution) in Fort Collins who travels to Wyoming to purchase cigarettes. The price gap between a pack of cigarettes in Colorado and Wyoming is 24 cents.

Fort Collins, CO to Cheyenne, WY:	92 miles round trip
Travel time round trip:	98 minutes
2004 Honda Civic:	40 miles per gallon highway
Total gallons:	2.3 @ \$2.15 per gallon
Total cost of travel:	\$4.95
Total tax savings on a carton (10 packs):	\$2.40

In order to roughly break even on the cost of gas (this does not include opportunity costs associated with the travel time expended), a smoker would need to buy 2 cartons of cigarettes. For a heavy smoker (2 packs per day) a carton would last 5 days, demanding either that several cartons be purchased at a time (increasing the savings, relative to transactions costs, but also demanding a much greater up front expenditure) or that the smoker travel to Wyoming every 5 days to purchase cigarettes.

Notably, these are estimates for cigarette purchase and transport from a relatively close border state with the lowest neighboring tax rate. Logically, transaction costs would increase or decrease depending on the distance a smoker lives from a state border and the tax level in that border state.

### **Internet Sales**

In 2000, there were 50 domestic Internet sellers of tobacco products and in 2002, there were approximately 200 U.S. based and 200 foreign-based websites that sell cigarettes to U.S. smokers. In 2002, Internet vendors sold 2% of cigarettes consumed in the United States; and, a study by Forrester research, Inc. predicted that Internet sales of tobacco products would represent 14% of the total U.S. market in 2005.<sup>9</sup>

However, it is difficult to transfer these numbers to Internet sales in Colorado because we do not know the distribution of these sales across the states (for example, Internet sales in New York might make up a greater portion of overall Internet tobacco sales). Transaction costs also need to be taken into consideration, as in the example above. Internet sales require shipping fees and minimum purchase orders, increasing the transaction costs for purchasing cigarettes online. Buyers must weigh the costs and benefits of their purchase methods: traveling to the nearest store and paying 84 cents in taxes for a pack of cigarettes or getting online (which demands computer access), paying for several orders of cigarettes (tax-free), paying for shipping, and waiting for the shipment to arrive.

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<sup>9</sup> Campaign for Tobacco-Free Kids, "Internet Sales of Tobacco Products – Reaching Kids and Evading Taxes," [www.tobaccofreekids.org](http://www.tobaccofreekids.org)

## Criminal Sanctions & Other Regulations

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- (1) *The Contraband Cigarette Trafficking Act* (Title 18, Chapter 114 USC) makes it unlawful for any person other than “exempt” persons to ship, transport, receive, possess, sell, distribute or purchase contraband cigarettes (defined as a quantity of more than 60,000 cigarettes or approximately 300 cartons bearing no evidence of state cigarette tax payment in the state in which they are found). Penalties range from fines and/or 3-5 years imprisonment per offense.
- (2) *The Jenkins Act* (Title 15, Section 375 USC) requires that any person who advertises cigarettes for sale (including on the Internet) or who ships cigarettes into a State to any person other than a cigarette distributor licensed by the state to file a statement with the tobacco tax administrator and requires that person to report those sales to the tobacco tax administrator. Vendors are also required to report the name and address of the persons to whom shipments are made, the brands shipped, and the quantities shipped. There are misdemeanor penalties for failure to report information to state authorities. However, the Jenkins Act does not forbid Internet sales and does not impose any taxes. As of 2002, no Internet cigarette vendors had been penalized for violating the Act and no penalties had been sought for violators.<sup>10</sup> However, on March 17, 2005 state attorneys general, the ATF and credit card companies joined forces in a public-private initiative to prevent illegal sales of cigarettes over the Internet, agreeing to work with law enforcement to close down illegal operations.

Please note that sales or shipments of cigarettes from reservations *are not* exempt from the requirements of either the Contraband Cigarette Trafficking Act or the Jenkins Act. The ATF has ancillary enforcement power for both laws.

### Other Regulations

As an article in *Political Research Quarterly* notes, “Taxes do not operate in a vacuum; they are likely to be affected by the public health efforts to discourage smoking.”<sup>11</sup> What this means is that the impact of a tobacco tax can be affected by other governmental actions that impact smoking; the reason being that these other policies impact the demand curve for smoking. For example, public health campaigns may actually decrease the importance of economic incentives to quit, leaving smokers who do not quit for health-related reasons less sensitive to prices. Although the combination of two policies may result in an increase in some individuals quitting, the overall demand will become more inelastic to changes in price.<sup>12</sup>

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<sup>10</sup> United States General Accounting Office, “Internet Cigarette Sales: Giving ATF Investigative Authority may Improve Reporting and Enforcement” (August 2002)

<sup>11</sup> Licari and Meier, page 9

<sup>12</sup> Licari and Meier

## ***Sustainability of Tobacco Tax Revenues***

Trying to predict tobacco tax revenues demands treading into somewhat muddied waters. Simple laws of supply and demand predict that revenues will decline. However, the price elasticity of cigarettes, other governmental regulations and campaigns that impact smoking, the taxing level in neighboring states, and related bootlegging activities all confound the issue. Admittedly, the information listed above is not a model for predicting the path of tobacco tax revenue in Colorado. Rather, it provides a contextual picture of the Colorado market. **Right now, it appears that cigarette taxes have not priced consumers out of the market in Colorado. If this is accurate, many buyers will simply continue to buy their cigarettes in-state and pay the tax.** In this case, the revenue brought in by the new tax would exceed the revenue lost in marginal sales, working initially to increase revenues.<sup>13</sup> Thereafter, a fairly stable level of revenues should be sustained.

## ***Bootlegging & Internet Sales***

With regard to bootlegging, some individuals who live close to neighbor states with lower taxes will likely travel across the border to buy their cigarettes. However, as the above example demonstrates, associated transaction costs must be taken into account. Internet sales also pose a threat to tobacco tax revenues; yet, transaction costs must also be taken into consideration when looking at these purchases. Notably, as states, the federal government, and credit card companies take a pro-enforcement approach to the Jenkins Act, the related transaction costs for Internet cigarette purchases may accrue. For some individuals, the benefits of Internet purchases may outweigh the costs, while for others the opposite might be true. There is simply not enough information available to predict with certainty how Internet sales will affect the Colorado market. Nevertheless, transposing national data and data from other states onto Colorado is problematic and misleading, since consumption patterns and taxes vary across the country.

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## **About this Report**

This report was prepared by Health District of Northern Larimer County staff to assist the Health District Board of Directors in determining whether to take an official stand on various health-related issues. Reports are based on bills or issues at the time of their consideration by the Board and are accurate to the best of staff knowledge. It is suggested that people check to see whether a bill has changed during the course of a legislative session by visiting the Colorado General Assembly web page at [www.state.co.us/gov\\_dir/stateleg.html](http://www.state.co.us/gov_dir/stateleg.html). To see whether the Health District Board of Directors took a position on this or other policy issues, please visit [www.healthdistrict.org/policy](http://www.healthdistrict.org/policy).

## **About the Health District**

The Health District is a special district of the northern two-thirds of Larimer County, Colorado, supported by local property tax dollars and governed by a publicly elected five-member board. The Health District provides medical, mental health, dental, preventive and health planning services to the communities it serves. Their mission is to improve the health of the community.

For more information about this analysis or the Health District, please contact Katherine Young, at [kyoung@healthdistrict.org](mailto:kyoung@healthdistrict.org), or (970) 224-5209.

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<sup>13</sup> Specifically, increased taxes are expected to decrease consumption while increasing revenue, due to the disproportionate relationship between the reduction in demand and the tax increase. See World Bank: Economics of Tobacco Control, Myths and Facts at <http://web.worldbank.org> and also Campaign for Tobacco-Free Kids [www.tobaccofreekids.org](http://www.tobaccofreekids.org).

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