TESTIMONY OF:
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IN SUPPORT OF THE
TOBACCO TAX INCREASE PROPOSAL
BEFORE THE
SENATE COMMITTEE ON TAXATION

Topeka, KS
March 24, 2015

Good afternoon. I'm Jodi Radke, and I am the Regional Director at the Campaign for Tobacco-Free Kids. Our mission is to reduce tobacco use and its devastating effects, particularly among kids.

My thanks to the members of the Senate Taxation Committee for allowing me to address a few of the key issues being discussed not only here in Kansas, but across the nation.

<u>Sustainability</u>

The first issue I would like to address is sustainability of revenues.

We have over 100 tobacco tax increases that have happened across the nation over the past decade. We have an abundance of evidence on what happens after a state increases their tobacco tax. What we can expect is clear. These revenues are predictable, reliable and sustainable.

<u>Every</u> state that has significantly increased its cigarette tax has shown substantial increases in revenue, even while reducing smoking (including Kansas). This is true 100% of the time.

There has only been one state across the nation that opted to lower its tobacco tax to entice neighboring states to do business across state lines, using the same theory as Missouri, and subsequently suffered yearly multi-million dollar losses to their state budget, and have since revisited their decision to do so.

The last time Kansas increased its tobacco tax, the state collected more than $70 million in new revenue, which, at the time, was a 151 percent increase in pack price, even as cigarette pack sales fell by 26 percent.

I have included with my written testimony additional documentation, Appendix A, which includes a chart specific to the history in Kansas and the results of the tax increase over a period of 13 years. Appendix B is a copy of a recent, Kansas-specific study conducted by Dr. Frank Chaloupka, a tax economist from the University of Chicago at Illinois. Appendix C shows charts of tobacco tax revenue streams over time in multiple states, which clearly demonstrate the reliability of this tax, not only here in Kansas.

I am happy to share additional examples from specific states if needed.

<u>Crossborder Sales</u>

The second issue I'd like to address is crossborder sales.

Another common myth is the idea that people will rush across state lines to purchase tobacco products in lower-tax states. The evidence shows that the state that raises its tobacco tax <u>always</u> does better than a neighboring state that does not.

I have provided in my testimony a few examples of this in written form, but the one I'd like to highlight today is the most recent tobacco tax increase from Minnesota, which included a $1.60/pack increase.

Minnesota increased its cigarette tax rate by $1.60 per pack, to $2.83 per pack, on July 1, 2013, raising its cigarette tax rate higher than all of its neighboring states. Despite its border proximity, Minnesota received more than $204 million in new revenue (a 56% increase) in the first 12 months after the increase. In nearby Iowa and Wisconsin, revenues and cigarette sales actually decreased during that time, while North Dakota and South Dakota's revenues only collectively increased by 2.7 percent.

Fargo/Moorehead- 1 Mile
Superior/Duluth – 6 Miles
Ortonville/Millbank – 12 Miles
Grand Forks, Wahpeton, Fargo, West Fargo

Data shows that since raising its tobacco tax, Minnesota has recorded record lows of youth smoking, fewer adult smokers and that 62.8% of smokers who quit since the tax was implemented cited the price increase as their inspiration.

I have included the policy analysis with my testimony for your reference, "Get the Facts: Minnesota's 2013 Tobacco Tax Increase is Improving Health". This is noted in Appendix D.

A common argument is that a tobacco tax increase will harm businesses and therefore the state's economy by reducing cigarette sales. Published research from the University of Illinois at Chicago found that the number of convenience stores in states do not decline after cigarette tax increases. The tobacco industry fails to cite or acknowledge the shift in spending habits, and assumes an absolute revenue loss. Instead, people who

no longer smoke or smoke fewer cigarettes are instead using this money to buy other goods and services or are increasing their savings.

There is also an overshifting of cigarette taxes by convenience stores and the industry to increase their own profits, knowing consumers often do not realize the exact amount of the increase, rather, just expect that the price will be going up.

This study, "The Economic Impact of State Cigarette Taxes and Smoke-Free Air Policies on Convenience Stores" is identified as Appendix E.

<u>Smuggling</u>

The third issue I'd like to address is smuggling.

Some smuggling does happen.

Organized cigarette smuggling and informal cross-border cigarette purchases by consumers and small-time smugglers account for only a small fraction of total sales.

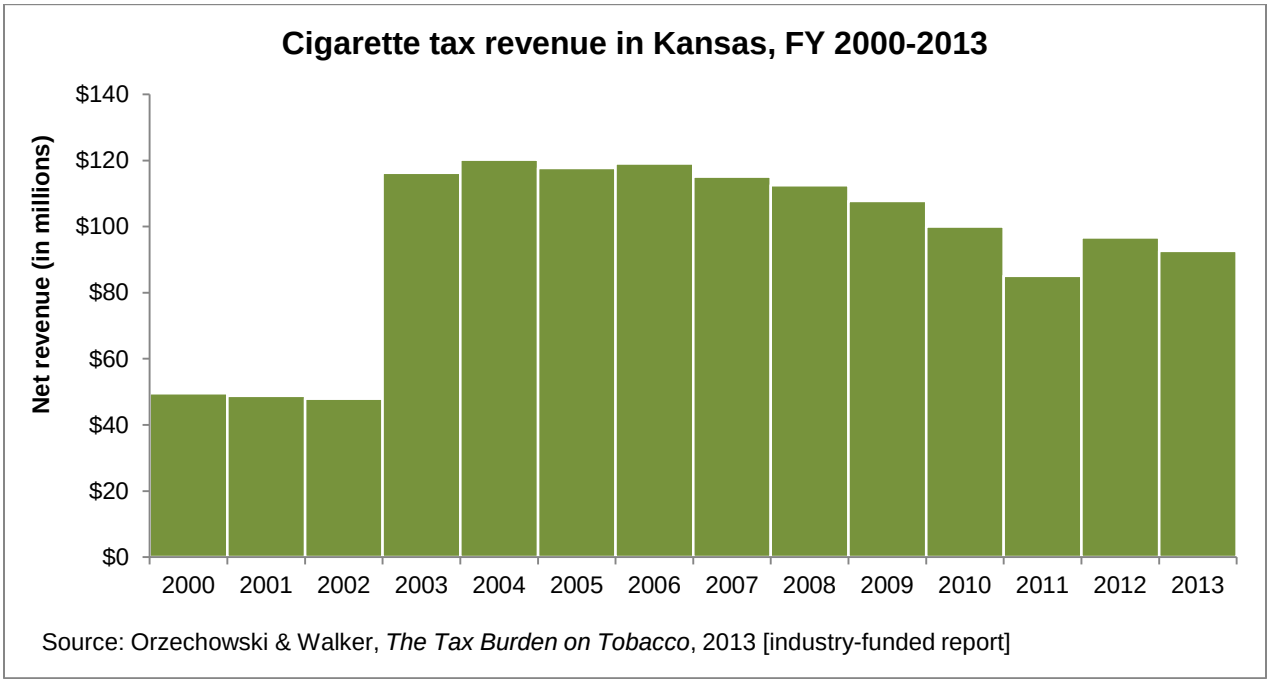
This may surprise you given the claims that smuggling accounts for a much higher percentage; however, it's important to note that most cigarettes sold in the United States are sold by the single pack, not cartons.

Despite the relentless opposition to tobacco tax increases and regressive impacts, the industry themselves have raised their prices over time. When they raise their prices, they do not express any concern around impact to low-income populations.

The tobacco industry opposes tobacco tax increases for the same reasons my organization, and other public health organizations do, we all know these policies work and will keep Kansas kids from becoming lifetime tobacco users, which is what the industry truly fears.

Thank you. I will be glad to answer any questions.

Appendix A



Source: Orzechowski & Walker, *The Tax Burden on Tobacco*, 2013 [industry-funded report]

A SIGNIFICANT CIGARETTE TAX RATE INCREASE IN KANSAS WOULD PRODUCE A LARGE, SUSTAINED INCREASE IN STATE TOBACCO TAX REVENUES

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March 5, 2015

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Dr. Frank Chaloupka is a Distinguished Professor of Economics at the University of Illinois at Chicago's College of Liberal Arts & Sciences and its School of Public Health's Division of Health Policy and Administration. He also directs the University's Health Policy Center, is a Research Associate in the National Bureau of Economic Research's Health Economics Program and Children's Research Program. He is the Director of ImpacTeen, a research program involving nationally recognized experts dedicated to studying youth tobacco use, other substance abuse, and other health behaviors; and he is Director of Tobacconomics, a group of economists and other policy researchers focused on the economics of tobacco and tobacco control globally. Dr. Chaloupka has written numerous studies, book chapters, and other publications that evaluate efforts to prevent and reduce tobacco use, with a special focus on the impact of cigarette and other tobacco product tax increases.

Dr. Jidong Huang is a senior research scientist at the Health Policy Center of the University of Illinois at Chicago working closely with Dr. Chaloupka on a variety of tobacco control policy focused analyses.

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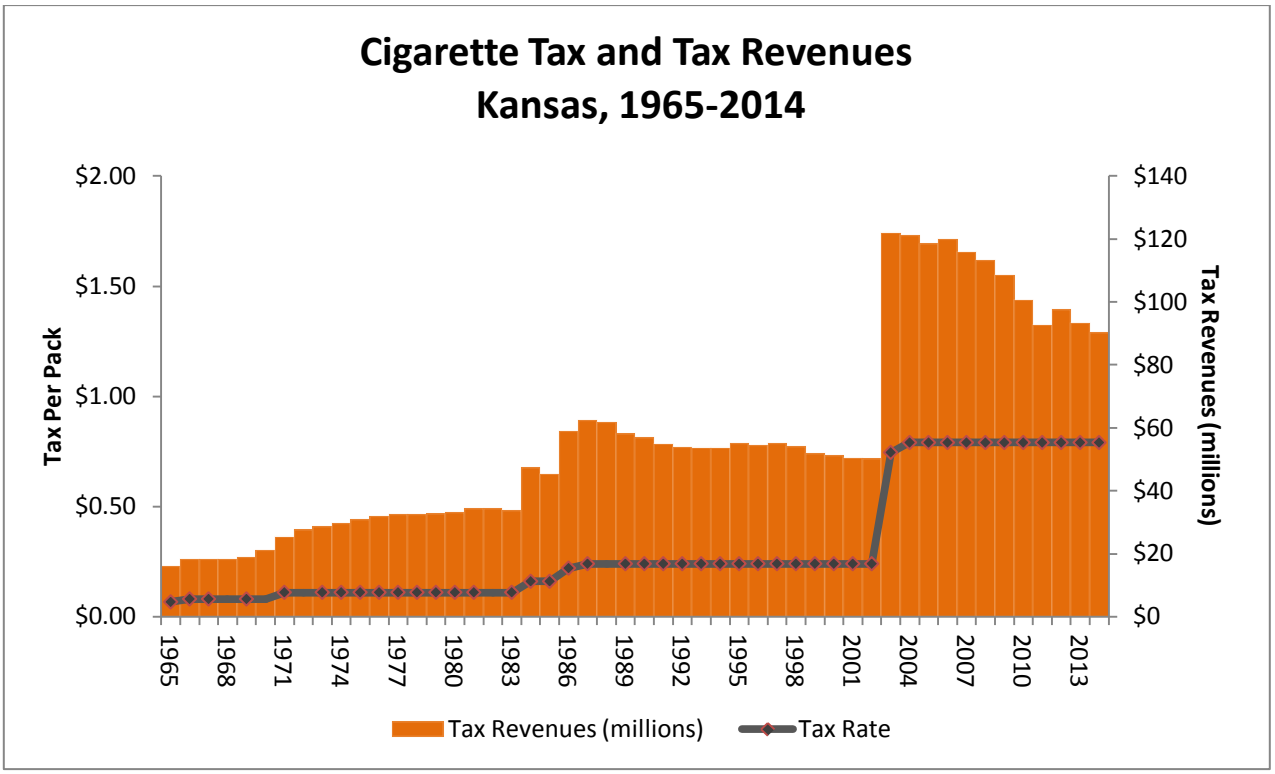
March 5, 2015

EXECUTIVE SUMMARY

State cigarette and other tobacco tax revenues are among the most predictable, steady, and reliable revenues that states receive. While these revenues do decline gradually over time as smoking and other tobacco use declines, the reductions in revenue are modest, predictable, and more than offset by the related reductions in public and private sector health care costs and other economic costs caused by smoking.

In general, state cigarette tax revenues increase sharply following a significant increase to a state's cigarette tax rates (despite the smoking declines prompted by the tax increase and any related increases in tax avoidance or evasion), and then tend to decline slowly year to year as cigarette smoking continues to go down in response to other factors (e.g. stronger public policies targeting tobacco use). However, any decline in revenues from smoking reductions will be offset by related declines in tobacco-related healthcare costs burdening the state. For instance, the Campaign for Tobacco-Free Kids and the American Cancer Society Cancer Action Network project that a $1.50 per pack cigarette tax increase in Kansas will prevent 25,400 youth from becoming adult smokers, encourage 25,800 adults to quit, prevent 14,900 future smoking-caused deaths, and save the state $1.00 billion in future health care costs. The Kansas Division of the Budget projects that a $1.50 per pack increase in the cigarette tax will generate $71.90 million in new revenue in the first year.

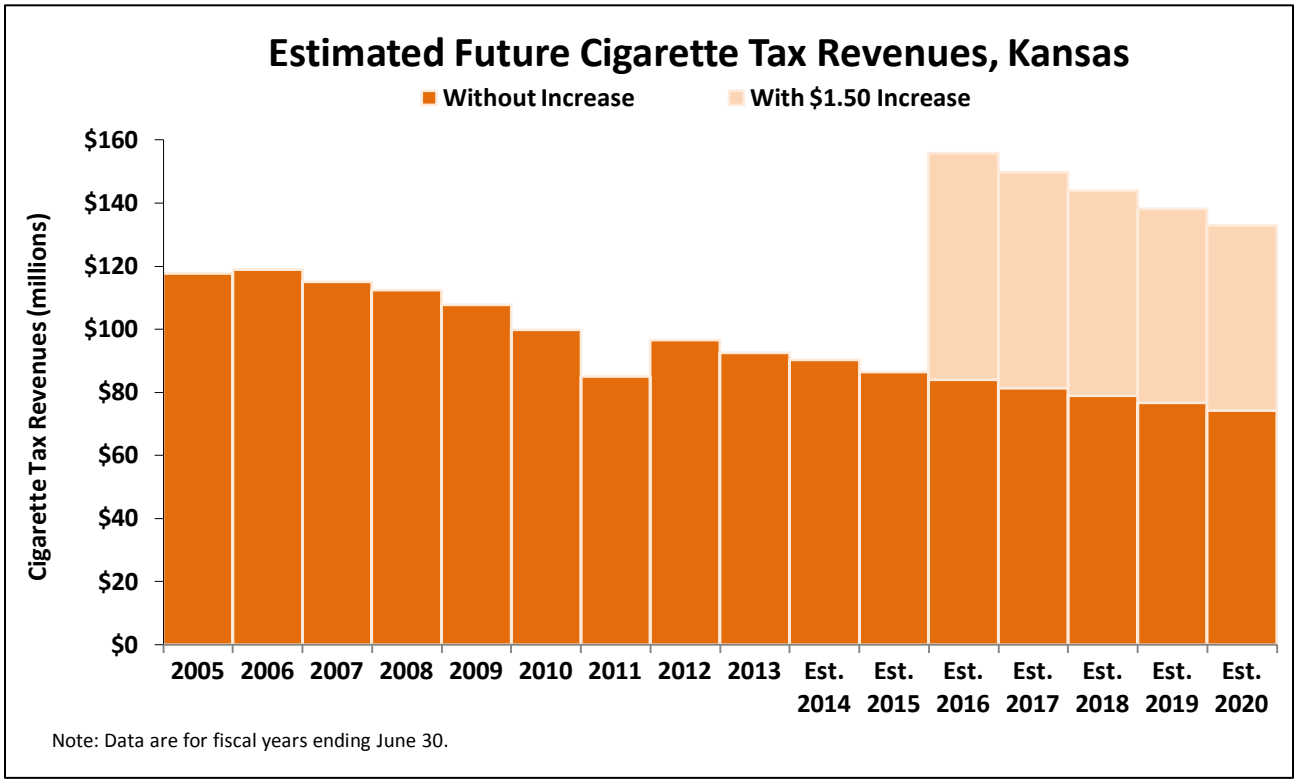
As shown in the chart below, Kansas, like other states, has enjoyed substantial revenue increases each time it has raised its cigarette tax rate, followed by years of steady revenue levels. When Kansas last increased its cigarette tax rate in 2002 and 2003, revenues increased sharply and have stayed at a relatively high level since, except for a larger than normal decline after the large federal tobacco tax increases in early 2009, which significantly reduced smoking and other tobacco use nationwide. But it also appears that Kansas' revenue declines in the years since its last increase were even larger because the state failed to raise its tax rates on all other tobacco products when it raised its cigarette tax. Because of those unequal rates, some regular cigarette smokers have likely been evading the new, higher cigarette tax rate by switching to much lower taxed roll-your-own cigarettes, little cigars and the like – and every time a regular smoker switches to some other lower-taxed tobacco product Kansas loses revenue. Setting Kansas' tobacco tax rates so that all tobacco products are taxed at parallel levels would eliminate that problem and bring in additional state revenues. The Campaign for Tobacco-Free Kids and the American Cancer Society Cancer Action Network estimates that raising Kansas' low 10 percent wholesale price tax rate on other tobacco products to parallel a new $2.29 per pack cigarette tax rate would bring in another $25.60 million per year in new state revenues.



Note: Data are for fiscal years ending June 30.

Despite the declines, Kansas is still receiving nearly twice as much in cigarette tax revenues compared to what it received right before it last increased its cigarette tax rate. That same basic pattern, with large amounts of new state revenues in every future year, would occur again if Kansas increased its cigarette tax rate significantly in 2015 – and the new revenues would be even larger if Kansas also equalized all its tobacco product tax rates at the same time.

The chart shows what the Campaign for Tobacco-Free Kids projects that the $1.50 per pack increase would generate in new cigarette tax revenues over each of the next five years. Even if Kansas' cigarette sales declined by five percent a year after the initial $71.90 million in new revenues estimated by the Kansas Division of the Budget from the rate increase, the state would still be receiving more than $45 million in additional new annual cigarette tax revenues five years after the increase compared to what it received in 2015, and would have received more than $325 million in total new annual revenues over that five year period compared to what it would receive with no rate increase.



Finally, while there may be some tax avoidance and evasion in response to increases in cigarette and other tobacco product taxes, these tax increases will still generate significant public health and revenue gains. This is evident from Kansas' experiences following the 2002-2003 tax increases that raised the state cigarette tax from 24 to 79 cents per pack, while the cigarette tax in Missouri stayed at 17 cents per pack. As shown in the figure above, cigarette tax revenues in Kansas rose by $72 million (an increase of 151 percent), while sales fell by 26 percent. In contrast, Missouri's revenues increased by only eight percent, despite cigarette tax increases in most of its other neighboring states (Arkansas, Illinois, Nebraska and Tennessee) which all saw large increases in their own cigarette tax revenues. Adult smoking prevalence fell from 22.2 percent in 2001, the last full year before the tax increases to 20.4 percent in 2003, a more than eight percent decline following several years of virtually no change.

If Kansas is concerned about the impact of tobacco tax increases on smuggling and tax evasion, there are a number of steps that Kansas could take to protect or even increase its tobacco tax revenues over time and to maximize the public health impact of the increases. For example, Kansas could implement high-tech tax stamps to ensure that taxes are paid and to prevent cigarette smuggling and tax evasion. The state could also minimize tobacco product smuggling and other tax evasion through such measures as making sure smokers understand the state's laws pertaining to tobacco tax evasion, increasing penalties for smuggling and other tax evasion, and directing a portion of all penalties to help fund expanded enforcement (which would bring in both more penalty payments and more tobacco tax revenues).

A SIGNIFICANT CIGARETTE TAX RATE INCREASE IN KANSAS WOULD PRODUCE A LARGE, SUSTAINED INCREASE IN STATE TOBACCO TAX REVENUES

Every state that has passed a significant cigarette tax increase has enjoyed a substantial, sustained increase in its state cigarette tax revenues. This revenue increase occurs, despite the significant declines in smoking rates and tax-paid cigarette sales caused by the cigarette tax rate increase, because the increased tax per pack brings in much more new revenue than is lost by the declines in the number of packs sold and taxed. Exhibits A and B show many examples from actual state cigarette tax increases.

Exhibit A presents a list of significant state cigarette tax increases between 2003 and 2013 (increases of 50 cents or more per pack) and shows the amount of the tax increase, the decline in tax-paid cigarette sales, compared to the decline in sales nationally over the same time period, and the revenue change from the twelve months before the tax increase to the twelve months after the tax increase. In every state that significantly increased its tax, there were both sharp reductions in total packs sold and large increases in total net new revenues in the year following the rate increase, compared to the year before it.

Exhibit B is a short report that examines the sustainability of revenues generated from cigarette tax increases. This report considered every major cigarette tax increase (50 cents or more per pack) between 2000 and June 2009 and looked at state cigarette tax revenues before the tax increase and for at least five years following the increase, with analyses for states with and without well-funded comprehensive tobacco control programs. In every state that raised its tax during that time period, cigarette tax revenues increased significantly and remained much higher than revenues prior to the tax for many years after the tax increase.

Accordingly, Exhibits A and B provide direct evidence from actual state experiences that confirms that significant cigarette tax increases have always produced substantial amounts of new revenues (compared to what the state would have received without the increase), both immediately and over extended periods of time, and despite any and all related decreases in taxed state pack sales.

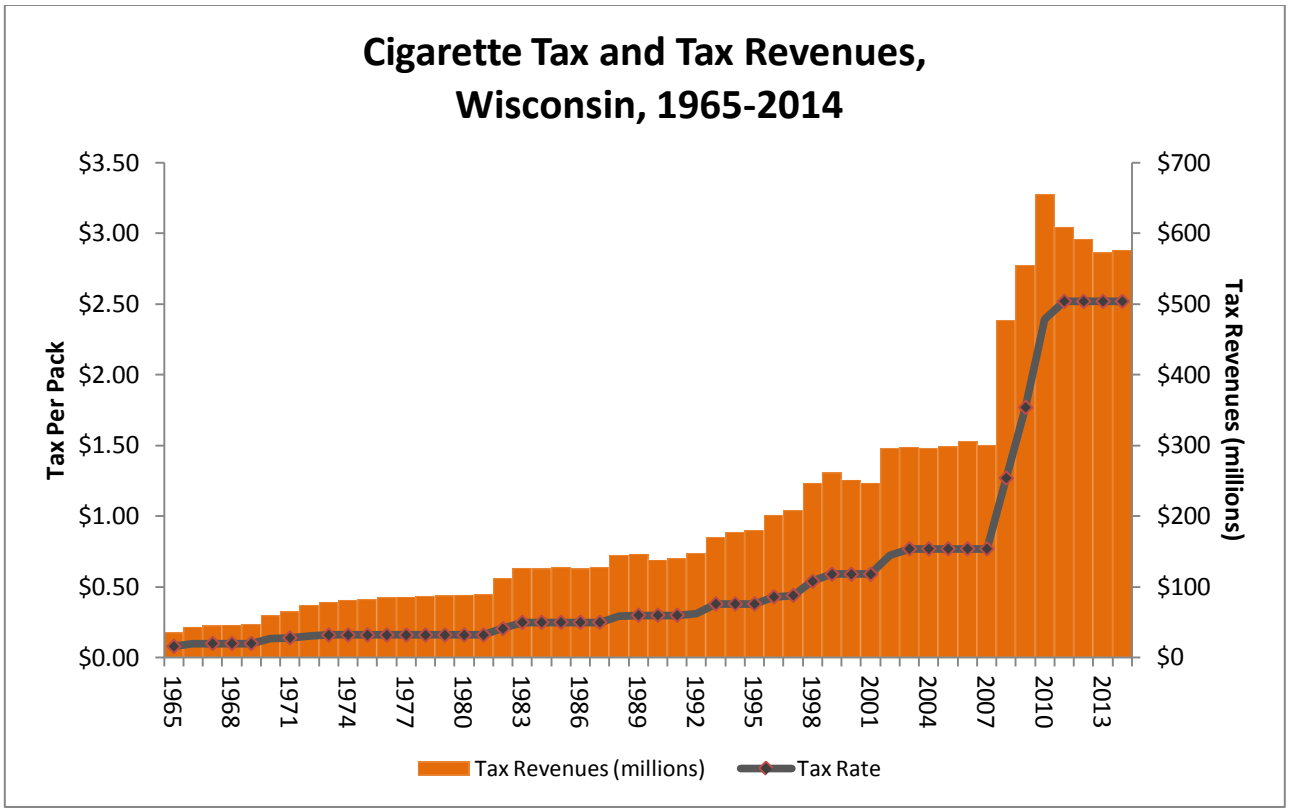
Cigarette and Other Tobacco Tax Revenues Are Much More Predictable and Stable Than Many Other State Revenues

Year to year, state cigarette and other tobacco tax revenues are more predictable and less volatile than most other state revenue sources, such as state personal income taxes or corporate income taxes, which can vary considerably from year to year because of nationwide or regional recessions or state economic slowdowns.

In contrast, sharp drops in cigarette or other tobacco tax revenues from one year to the next are rare, in large part due to the addictive nature of cigarette smoking and other tobacco use. Long term trends in tobacco use show modest declines from year to year, both nationally and at the state level. These declines can be accelerated by comprehensive tobacco prevention efforts, but will generally be no more than a few percentage points each year. The exception to this will be the large smoking declines and related cigarette tax revenue declines that result from large nationwide increases in cigarette prices, such as the large cigarette company price increases prompted by the 1998 Master Settlement Agreement and the April 1, 2009 increase in federal excise taxes on cigarettes and other

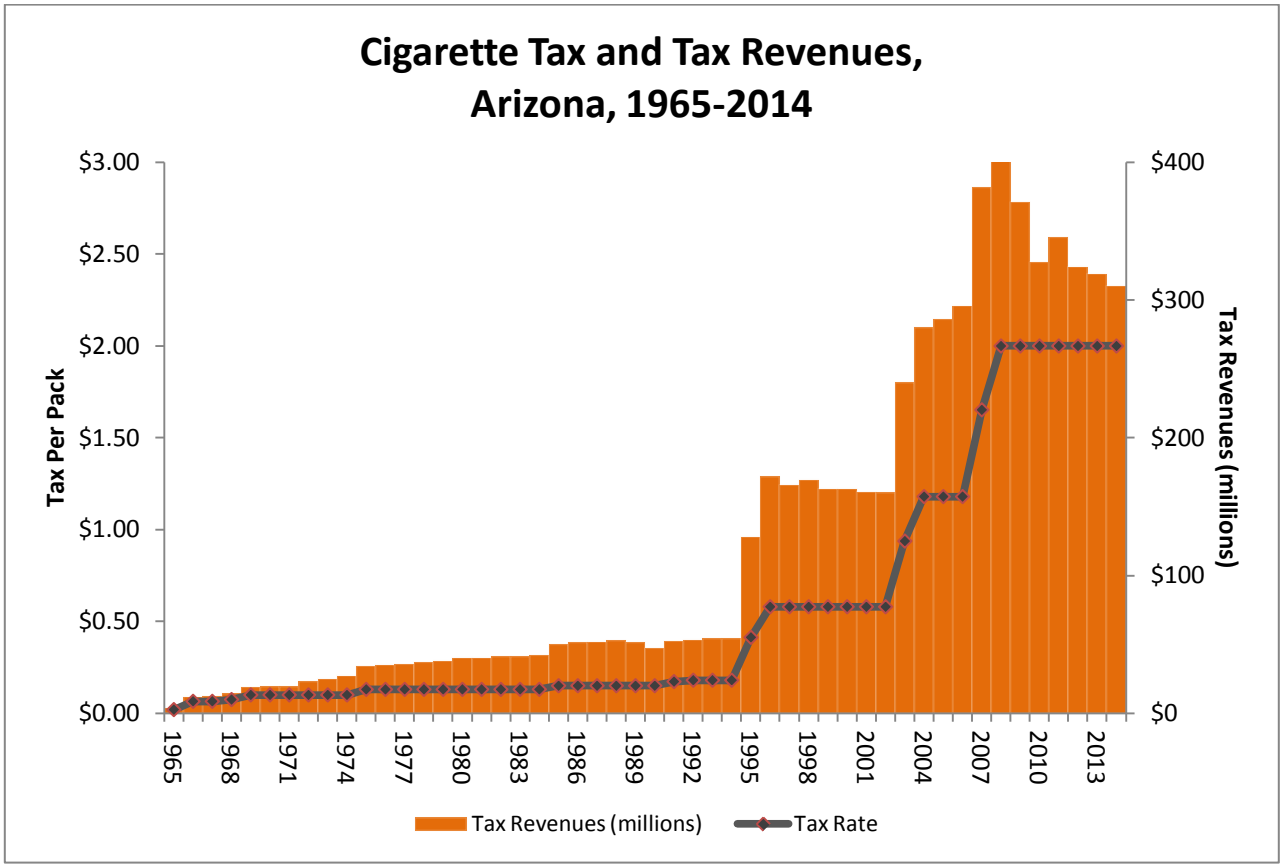
tobacco products. The only other large year-to-year changes to state cigarette tax revenues are the large revenue increases when a state significantly increases its own cigarette tax rates.

In states where taxes have been increased regularly over time, each increase in the tax leads to a significant and sustained increase in tax revenues. As shown in the figure below, for example, Wisconsin has increased its cigarette excise tax several times over the past few decades, with each increase generating new, sustained revenues.



Note: Data are for the fiscal year ending June 30.

The same pattern holds even in states where a share of the new revenues generated by the tax increase is used to fund a comprehensive tobacco control program. Arizona, for example, has increased its cigarette excise tax multiple times over the past few decades. In November 1994, Arizona voters approved the Tobacco Tax and Health Care Act that raised the cigarette tax by 40 cents per pack and dedicated a portion of the new revenues to the state's tobacco control program. As the figure below shows, each subsequent tax increase in Arizona led to a significant and sustained increase in revenues, despite the greater declines in smoking that result from the funding for the state program.



Note: Data are for the fiscal year ending June 30.

Additional examples of the relative stability of revenues from other state cigarette tax increases in states with and without well-funded tobacco control programs are contained in Exhibit B.

Smoking Declines Produce Enormous Public and Private Sector Savings That More Than Offset Any State Revenue Reductions from Fewer Packs Being Sold

As described above, gradual reductions in cigarette smoking and other tobacco use in the years after increases in state cigarette and other tobacco taxes will produce slow declines in state tobacco tax revenues (in the absence of additional tax increases). These declines in revenues, however, will be offset by reductions in public and private spending on health care to treat diseases caused by smoking, and by the reductions in the other economic costs caused by tobacco use. Some declines in costs, such as those resulting from smoking during pregnancy, will be seen almost immediately. Over time, these reduced costs will grow considerably, given that most of the health and other consequences of tobacco use occur after many years.

When smoking rates decline among pregnant women and lower income smokers (among the groups whose smoking behavior is most sensitive to changes in tax and price), costs to state Medicaid programs subsequently decline. Decreasing smoking rates among workers will decrease public and private sector employee healthcare costs.

Increasing tobacco taxes in Kansas will raise revenue while also lowering the healthcare cost burden on the state. Each year, Kansas spends $1.12 billion on health care costs caused by tobacco

use, $237.4 million of which is paid by the state through the Medicaid program. A decline of one percentage point in adult smoking rates will save the state $237.6 million in healthcare costs, including millions in state Medicaid costs related to tobacco use over time. And preventing kids from starting to smoke will save the state even more in health care costs.

In addition, the reductions in smoking from state cigarette and other tobacco product tax increases will produce other economic benefits for the state, including increased productivity in government and private sector workforces as fewer employees miss work because of smoking-caused sick days and cigarette breaks or have their productive work-lives interrupted or cut short by smoking-caused disability or premature death. Other economic benefits include reduced property losses from smoking-caused fires, and reduced cleaning and maintenance costs caused by smoking.

It is important to note that small rate increases or a rate increase that is split into smaller multi-stage increases would reduce the public health benefits and cost savings, and Kansas would not collect as much revenue as from a one-time, larger rate increase. This is because the tobacco industry can easily offset small increases with price cuts, coupons, and other price-reducing promotions. For instance, the Campaign for Tobacco-Free Kids and the American Cancer Society Cancer Action Network project that a $1.50 per pack increase will prevent 25,400 youth from becoming adult smokers, encourage 25,800 adults to quit, prevent 14,900 smoking-caused deaths, and save $1.00 billion in long-term health care costs. However, a small increase would not generate as many public health benefits or cost savings.

States Can Implement Other Effective Strategies to Maintain and Increase Their Cigarette and Other Tobacco Tax Revenues

If gradually declining state tobacco tax revenues are a concern for Kansas – despite the benefits and cost savings from the related smoking and other tobacco use declines discussed above – the state can periodically increase its tobacco tax rates to offset any declines in revenue. Alternatively, Kansas could implement legislation that allows for administrative increases in state tobacco tax rates following any significant decline in annual state tobacco tax revenues (or in total state tobacco revenues, including tobacco settlement payments).

Another important strategy is to make sure that all taxes on other tobacco products are set at rates that parallel the state's cigarette tax rate. Creating tax equity among all the tobacco tax products sold in the state will make the revenues even more reliable – Kansas will not lose revenues if tobacco users switch to tobacco products taxed at lower rates. But most states, including Kansas, have unequal rates so that the state loses revenues each time a cigarette smoker switches to smoking roll-your-own (RYO) tobacco or small cigars or starts using other cheaper and less-taxed tobacco products. But even with a comparable percentage tax rate for other tobacco products, some lower priced tobacco products will be taxed at a much lower level compared to cigarettes on a per-use or per-package basis.

> RYO cigarettes, for example, are much cheaper than manufactured cigarettes; and most state percentage-of-price tax rates subject them to much lower taxes, per pack, than manufactured cigarettes. That tax inequity could be fixed by taxing a cigarette pack's worth of RYO tobacco (0.65 ounces) at the same tax rate as a regular pack of cigarettes as a minimum tax to complement the percentage-of-price basic rate.

> Similarly, the tax-equity minimum tax on a standard 1.2-ounce can of smokeless tobacco would be an amount equal to the state tax on a pack of 20 cigarettes.

A similar cigarette pack tax amount tax could be placed on standard five-packs of cigarillos, blunts and other small cigars. But the big tax revenue loser for states in relation to cigars usually comes from cigarettes being packaged and sold as "little cigars" to escape the state's higher tax on cigarettes. That problem can be eliminated by amending the state law "cigarette" definitions to reach any and all cigarettes, no matter how they are labeled or packaged (without reaching any bona fide cigars). One way to do that would be to add the following phrase to the existing "cigarette" definitions: "and includes any other roll for smoking containing tobacco that weighs no more than four and a half pounds per thousand, unless it is wrapped in whole tobacco leaf and does not have a filter."

States can also protect their cigarette and other tobacco tax revenues by implementing initiatives to prevent and reduce cigarette smuggling and other forms of tobacco tax evasion – such as adopting new, high-tech tax stamps. California, the first state to adopt a high-tech tax stamp, enjoyed a $100 million increase in cigarette tax revenues in the first 20 months after the new tax stamp was introduced.

Additional cost-effective strategies to protect tobacco tax revenues include increasing penalties and fines; educating smokers about applicable state laws (such as limits on the number of packs that may be brought into the state from other states); and increasing enforcement efforts – perhaps allowing the enforcing agencies to keep half of all fines and penalties they collect to fund expanded new enforcement efforts (with general revenues receiving the other half, along with all of the recouped tax revenues). Other states have reduced tax avoidance and increased collections by targeting tax collection efforts at smokers who purchase cigarettes on the Internet without paying the state tax or by entering into special tax compacts with Native American tribes located in the state so that they impose and collect equivalent taxes on all reservation cigarette sales.

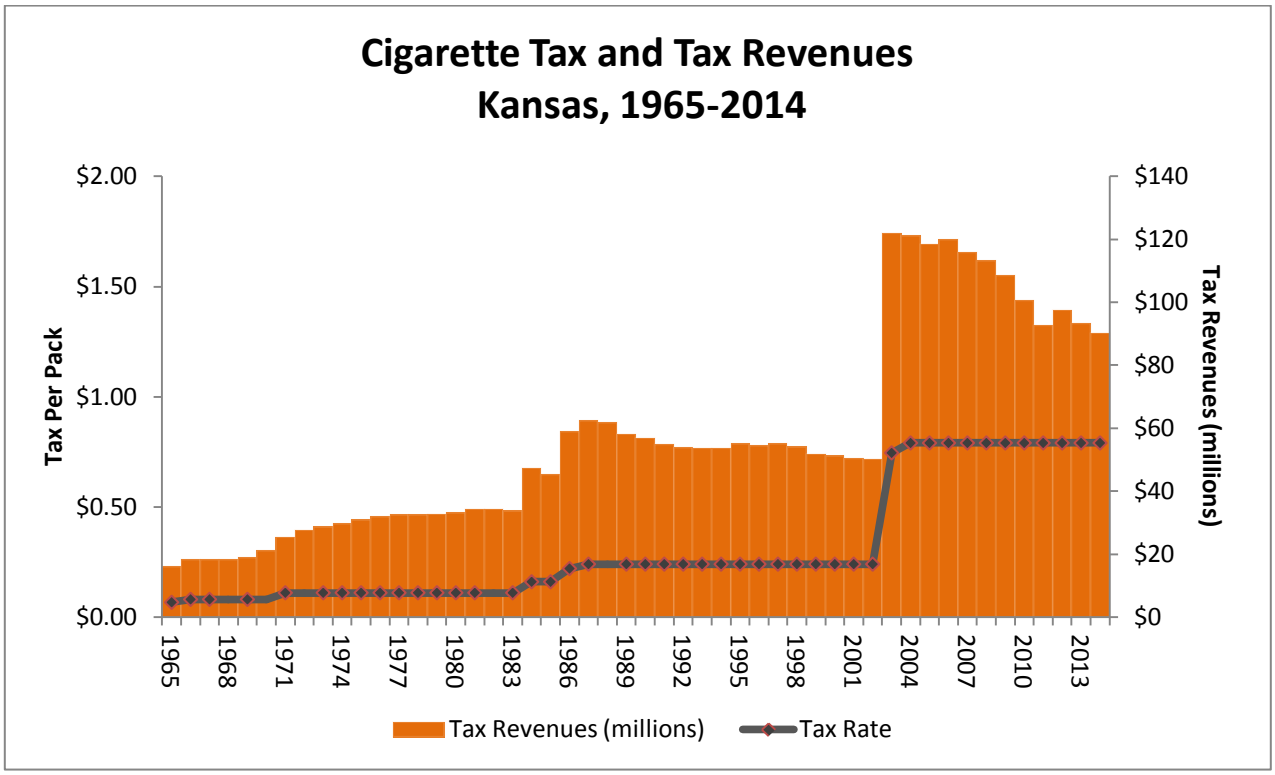
Kansas' Past Experience with Cigarette Tax Increases

Kansas has increased its cigarette excise tax five times since 1970:

July 1, 1970: 3-cent increase to 11 cents per pack
July 1, 1983: 5-cent increase to 16 cents per pack
October 1, 1985: 8-cent increase to 24 cents per pack
July 1, 2002: 46-cent increase to 70 cents per pack (first of a two-stage increase)
January 1, 2003: 9-cent increase to 79 cents per pack (second of a two-stage increase)

As shown in the figure below, Kansas has raised its cigarette tax rate five times since 1970, but has not raised it at all since 2003. Each of those rate increases produced significant amounts of new revenue, despite related pack sales declines. Most notably, the most recent increase, a two-stage increase in 2002 and 2003, generated a large and sustained increase to the state's cigarette excise tax revenues. After accounting for the stockpiling that occurred in anticipation of the tax increases, the tax rate increases more than doubled cigarette excise tax revenues in Kansas (comparing fiscal year 2002 revenues of $47.9 million to fiscal year 2004 revenues of $120.3 million). If Kansas had increased its rate in one lump sum of 55 cents on July 1, 2002 – instead of phasing it in with 46-cents on July 1, 2002 plus 9 cents on January 1, 2003 – the state would have received even more revenues more quickly.

In the years following the most recent tax increases, state revenues – after first rising very sharply – have declined somewhat in each subsequent year. These declines reflect not only ongoing background declines in smoking but also the significant increase in the federal cigarette excise tax in April 2009. It is also likely that Kansas is also losing revenues as cigarette smokers evade the higher cigarette tax by shifting to other much lower-taxed tobacco products, such as roll-your-own cigarettes, cigarette-like "little cigars," or regular cigars. Despite these declines in smoking, Kansas revenues in fiscal year 2014 were still more than $42 million higher than revenues in fiscal year 2002, right before the last set of cigarette tax rate increases.



Note: Data are for the fiscal year ending June 30.

This graph illustrates several points. First, state cigarette tax revenues can decline somewhat after the large revenue gains that following state tax rate increases because of ongoing gradual declines in smoking, which can be accelerated by other factors. For example, the relatively larger decline between 2009 and 2010 was mostly attributable to the significant federal cigarette tax increase that took effect on April 1, 2009, which significantly reduced cigarette consumption and smoking across all states.

Second, leaving the state tax rate on other tobacco products low while increasing the state cigarette tax leaves revenues on the table and also reduces tobacco tax revenues. Because it failed to increase the tax rate on other tobacco products when the state last increased its cigarette tax rate, Kansas not only missed its opportunity to increase its other tobacco tax revenues, but is also losing revenue each time a regular cigarette smoker evades the higher cigarette tax by switching to much lower-taxed roll-your-own cigarettes, little cigars, or other tobacco products.

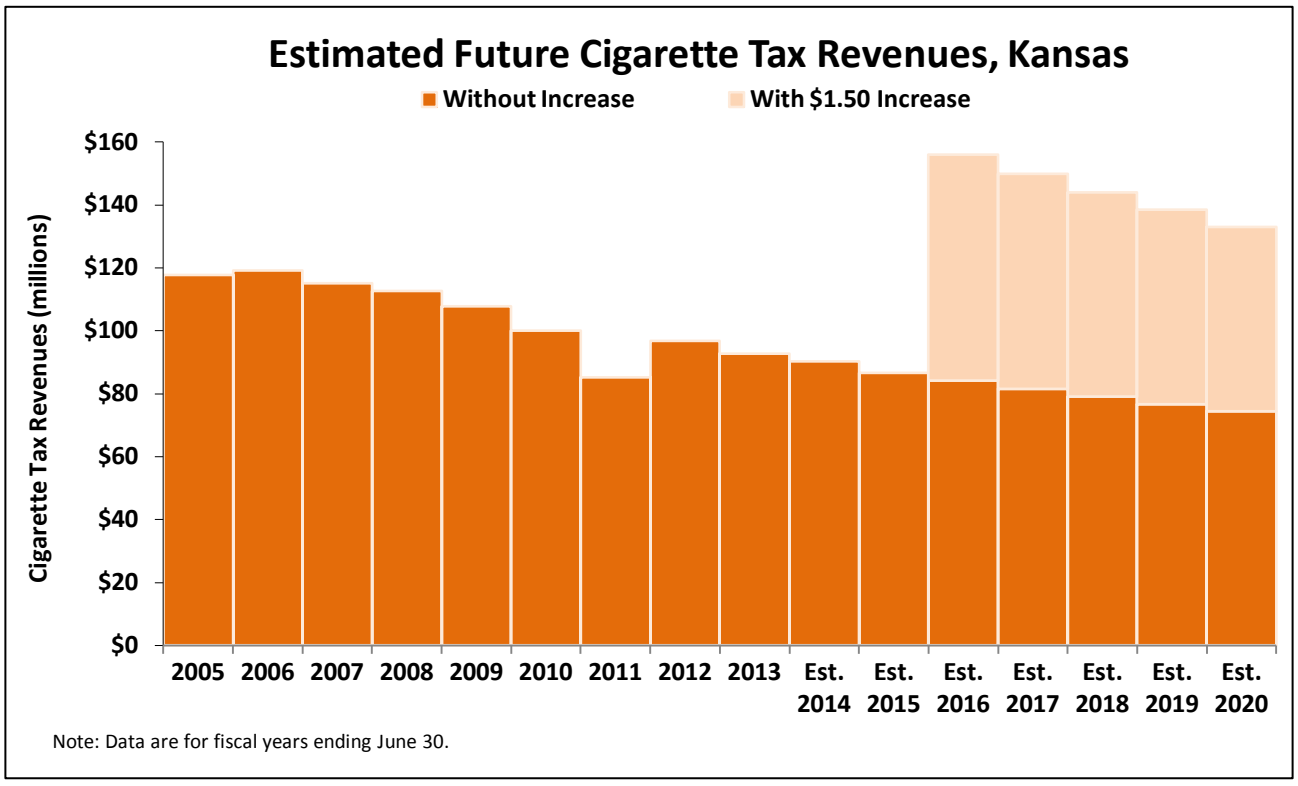
Third, even with the out-year revenue declines caused by ongoing smoking reductions, state cigarette tax revenues several years after the last cigarette tax increase are still substantially larger than the revenue levels before the increase – and much higher than what the revenue levels would have been today absent any cigarette tax increase.

Fourth, periodic increases in a state's cigarette tax will more than offset the revenue declines from underlying downward trends in smoking, or new smoking declines from other factors, and produce substantially more revenue.

What Kansas Could Expect from a Tobacco Tax Increase

If Kansas increases its cigarette tax significantly in 2015, its revenues should follow the same basic patterns that occurred after its last cigarette tax increases, bringing the state substantial new revenues.

For example, the Kansas Division of the Budget projects that the $1.50 per pack increase in the cigarette tax will generate $71.90 million in new revenues in the first 12 months of the increase, despite reductions in smoking rates as a result of the rate increase. In addition, if Kansas increased its tax rate on other tobacco products and implemented a minimum tax rate to match the new cigarette tax rate at the same time, the Campaign for Tobacco-Free Kids and the American Cancer Society Cancer Action Network project that the state could collect more than $25.60 million in additional revenue, while also gaining public health benefits and savings in health care costs because of reduced tobacco use.



Even if Kansas' cigarette sales declined by five percent a year after the initial surge in new revenues after a $1.50 rate increase, the state would still be receiving more than $45 million in additional new annual cigarette tax revenues five years after the increase compared to what it received in 2015, and

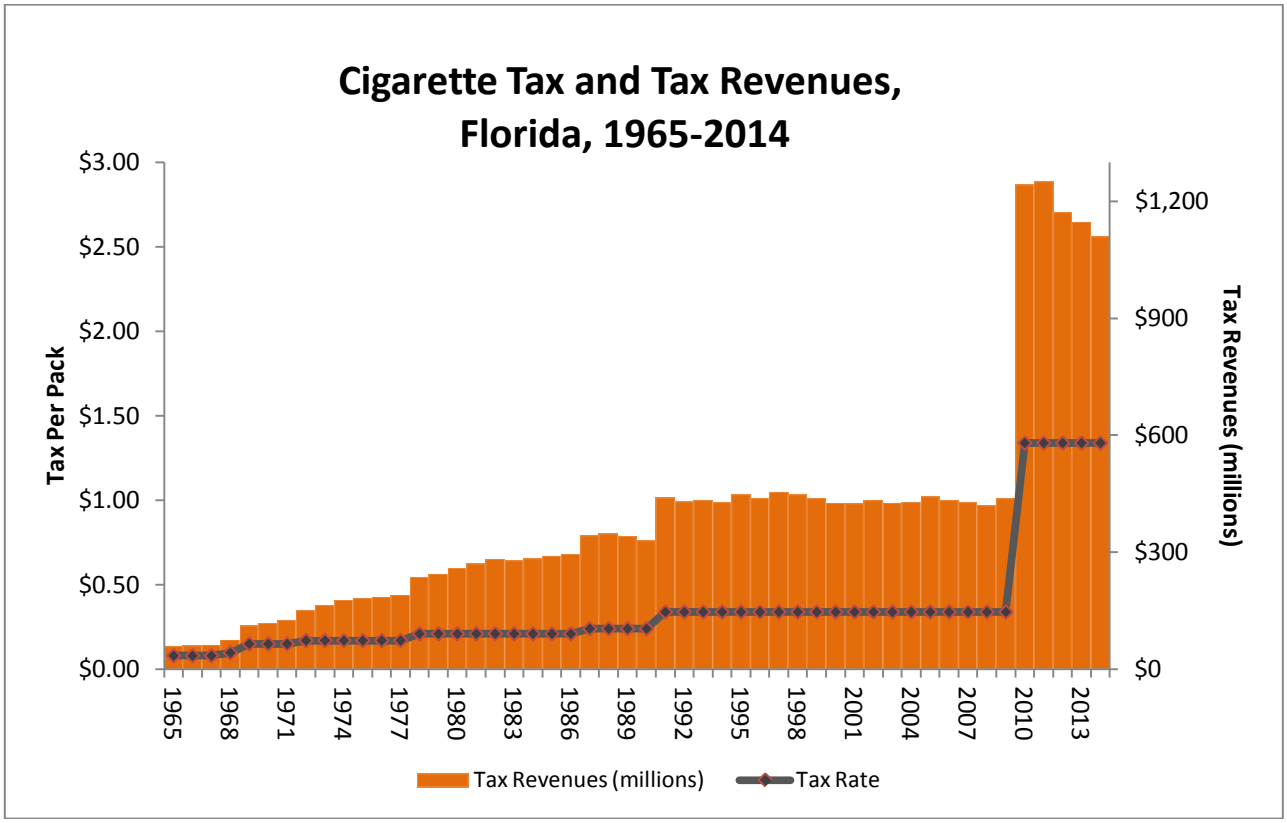
would have received more than $325 million in total new annual revenues over that five year period compared to what it would receive with no rate increase.

While there may be some tax avoidance and evasion in response to increases in cigarette and other tobacco product taxes, these tax increases will still generate significant public health and revenue gains. This is evident from Kansas' experiences following the 2002-2003 tax increases that raised the state cigarette tax from 24 to 79 cents per pack, while the cigarette tax in Missouri stayed at 17 cents per pack. Adult smoking prevalence in Kansas fell from 22.2 percent in 2001, the last full year before the tax increases to 20.4 percent in 2003, a more than eight percent decline following several years of virtually no change. As described above, cigarette tax revenues in Kansas rose by $72 million (an increase of 151 percent), while sales fell by 26 percent. Illinois raised its cigarette tax from 58 to 98 cents per pack on July 1, 2002; Tennessee raised its tax from 13 to 20 cents per pack, also on July 1, 2002; Nebraska increased its tax from 34 to 64 cents on October 1, 2002; and Arkansas raised its tax from 34 to 59 cents per pack on June 1, 2003. As in Kansas, all saw large increases in their own cigarette tax revenues, with revenues rising by $264 million, $35 million, $24 million, and $51 million in Illinois, Tennessee, Nebraska and Arkansas, respectively, in the year following the increases. In contrast, Missouri's revenues increased by only eight percent, despite cigarette tax increases in Kansas and most of its other neighboring states.

If Kansas is concerned about the impact of tobacco tax increases on smuggling and tax evasion, there are a number of steps that Kansas could take to protect or even increase its tobacco tax revenues over time and to maximize the public health impact of the increases. For example, Kansas could implement high-tech tax stamps to ensure that taxes are paid and to prevent cigarette smuggling and tax evasion. The state could also minimize tobacco product smuggling and other tax evasion through such measures as making sure smokers understand the state's laws pertaining to tobacco tax evasion, increasing penalties for smuggling and other tax evasion, and directing a portion of all penalties to help fund expanded enforcement (which would bring in both more penalty payments and more tobacco tax revenues).

The pattern predicted for Kansas directly parallels what has happened in other states that have significantly increased their cigarette tax rates. For example, Florida increased its cigarette tax rate by $1.00 per pack, effective July 1, 2009, from a starting cigarette tax of 33.9 cents per pack. As shown in the chart below, Florida's gross tax revenues increased by 193 percent in the first year after the increase have stayed at the much higher level since, while pack sales declined by 27 percent in the first year after the increase.

This Florida chart also provides another example of how state cigarette taxes provide a stable source of funding, with no major changes year-to-year, except when revenues go up sharply because of significant rate increases. Over time, cigarette tax revenues will decline slowly as smoking rates continue to fall, but revenues will remain considerably higher for many years and the declines will be gradual and predictable. Moreover, the substantial health benefits that result from the declines in smoking caused by the tax increase and the resulting reductions in health care costs should be considered.



Note: Data are for the fiscal year ending June 30.

As noted earlier, every single state that has significantly increased its cigarette taxes has, like Kansas, enjoyed substantial new cigarette tax revenues. Indeed, every state cigarette tax increase has produced an increase to state revenues that is well above what the state would have received with no tax increase.*

* In rare cases, a small state cigarette tax increase might not bring in enough new revenue to make up for significant state pack sales and revenue declines caused by other factors. For example, after New Jersey increased its $2.40 per pack cigarette tax by another 17.5¢ in 2006 (which amounted to only a 3% increase to the average pack price), its total cigarette tax revenues declined somewhat over the following year. This decline was almost certainly the result of ongoing smoking declines in the state as well as additional reductions in cigarette consumption caused by the state's Smoke-Free Air Act that went into effect in April 2006. Without the small cigarette tax increase, the state's cigarette tax revenues would have dropped much more sharply. In every other instance besides New Jersey in 2006, state cigarette tax rate increases have been followed by significant net increases to annual state tax revenues – despite any ongoing or new smoking declines unrelated to the cigarette tax increase – and in every instance, including New Jersey, the state cigarette tax increase has brought the state more revenues than it would have received without any rate increase. See, e.g., Exhibits A and B.

EXHIBIT A

STATE EXPERIENCES WITH LARGE CIGARETTE TAX INCREASES 2003-2013

REDUCED PACK SALES AND INCREASED REVENUES

State	Effective Date	Tax Increase Amount (per pack)	New State Tax Rate (per pack)	State Pack Sales Decline	Nationwide Pack Sales Trend	Revenue Increase	Gross New Revenues (millions)
Alaska	1/1/05	60¢	$1.60	- 23.2%	- 4.2%	+ 22.8%	+ $9.3
Arkansas	3/1/09	56¢	$1.15	- 27.8%	- 10.2%	+ 33.5%	+ $46.5
Arizona	12/8/06	82¢	$2.00	- 32.5%	- 4.4%	+ 13.6%	+ $44.5
Colorado	1/1/05	64¢	84¢	- 24.3%	- 4.2%	+ 220.2%	+ $131.0
Delaware	7/31/07	60¢	$1.15	- 35.1%	- 4.9%	+ 35.1%	+ $31.8
Washington, DC	10/1/08	$1.00	$2.00	- 25.9%	- 7.0%	+ 57.3%	+ $13.2
Florida	7/1/09	$1.00	$1.339	- 27.4 %	- 8.4%	+ 193.2%	+ $828.8
Hawaii	7/1/09	60¢	$2.60	- 11.3%	- 8.4%	+ 14.5%	+ $15.1
Illinois	6/24/12	$1.00	$1.98	- 31.2%	-2.3%	+ 39.0%	+ $229.2
Iowa	3/15/07	$1.00	$1.36	- 30.6%	- 4.7%	+ 140.2%	+ $128.0
Maine	9/19/05	$1.00	$2.00	- 12.3%	- 1.8%	+ 76.5%	+ $71.5
Maryland	1/1/08	$1.00	$2.00	- 27.1%	- 4.2%	+ 45.8%	+ $126.9
Massachusetts	7/1/08	$1.00	$2.51	- 20.3%	- 5.3%	+ 32.2%	+ $137.2
Massachusetts	7/1/13	$1.00	$3.51	- 15.0%	- 4.7%	+ 15.3%	+ $81.9
Michigan	7/1/04	75¢	$2.00	- 15.2%	- 1.7%	+ 28.1%	+ $238.9
Minnesota	8/1/05	75¢	$1.23	- 16.1%	- 1.8%	+ 160.7%	+ $258.4
Minnesota	7/1/13	$1.60	$2.83	- 24.0%	- 4.7%	+ 56.0%	+ $204.1
Mississippi	5/15/09	50¢	$0.68	- 22.8%	- 9.5%	+ 188.3%	+ $88.9
Montana	5/1/03	52¢	$0.70	- 7.3%	- 2.9%	+ 259.8%	+ $30.5
Montana	1/1/05	$1.00	$1.70	- 42.0%	- 4.2%	+ 36.5%	+ $18.8
New Jersey	7/1/03	55¢	$2.05	- 9.0%	- 2.3%	+ 26.6%	+ $157.4
New Mexico	7/1/03	70¢	$0.91	- 32.3%	- 2.3%	+ 191.8%	+ $39.2
New Mexico	7/1/10	$0.75	$1.66	- 7.8%	- 2.6%	+ 67.5%	+ $37.5
New York	6/3/08	$1.25	$2.75	- 15.2%	- 5.8%	+ 40.3%	+ $377.4
New York	7/1/10	$1.60	$4.35	- 24.8%	- 2.6%	+ 18.8%	+ $244.6
Ohio	7/1/05	70¢	$1.25	- 20.6%	- 1.6%	+ 78.9%	+ $437.6
Oklahoma	1/1/05	80¢	$1.03	- 34.7%	- 4.2%	+ 98.2%	+ $81.6
Rhode Island	7/1/04	75¢	$2.46	- 18.7%	- 1.7%	+ 16.9%	+ $18.7
South Dakota	1/1/07	$1.00	$1.53	- 25.8%	- 4.9%	+ 115.4%	+ $31.8
Rhode Island	4/10/09	$1.00	$3.46	- 14.7%	- 11.1%	+ 15.1%	+ $17.8
South Carolina	7/1/10	50¢	$0.57	+ 7.8%[†]	- 2.6%	+ 434.2%	+ $116.8
Texas	1/1/07	$1.00	$1.41	- 21.0%	- 4.9%	+ 191.7%	+ $1,003.7
Utah	7/1/10	$1.005	$1.70	- 24.5%	- 2.6%	+ 85.0%	+ $47.0
Vermont	7/1/06	60¢	$1.79	- 15.2%	- 3.0%	+ 27.9%	+ $13.2
Washington	7/1/05	60¢	$2.025	- 8.4%	- 1.6%	+ 29.1%	+ $95.5
Washington	5/1/10	$1.00	$3.025	- 20.5%	- 3.9%	+ 17.0%	+ $62.0
Wisconsin	1/1/08	$1.00	$1.77	- 15.0%	- 4.2%	+ 93.9%	+ $286.0

Sources: Orzechowski & Walker, *Tax Burden on Tobacco*. U.S. Alcohol and Tobacco Tax and Trade Bureau. Consumption declines and revenue increases are for the 12 months before and after the tax increase. Nationwide consumption declines are for the 50 states and DC. Trends for rate increases after January 2008 include the impact of the 61.66-cent federal cigarette tax increase (effective April 1, 2009).

[†] The increased pack sales is largely due to a surge in pack sales in July 2010 because SC's new tax rate was not implemented until August 2010.

EXHIBIT B

SUSTAINABILITY OF CIGARETTE TAX REVENUES OVER TIME FOLLOWING CIGARETTE TAX RATE INCREASES

Introductory Points:

- Cigarette consumption is generally trending down. During the period from 1990 to 2014, total sales for the U.S. fell by 2.6 percent, on average, per year. During this same period, sales in Kansas fell by an average of 2.8 percent per year, with the larger decline reflecting the impact of two tax increases in Kansas in the early 2000s. In the absence of cigarette tax increases, revenues from cigarette taxes will also be on a downward trend given the underlying trends in cigarette consumption.

- Cigarette tax increases will generate reductions in cigarette smoking and increases in revenues. Estimates indicate that the short run elasticity of cigarette demand is approximately –0.4, implying that a price increase of 10 percent will reduce total cigarette consumption by 4 percent. Because of the addictive nature of cigarette smoking, smokers' adjustments to the tax increases will occur over time, with the effect of a permanent, inflation adjusted tax increase rising so that the reductions in consumption that result will increase over time; estimates of the long run (after many decades) price elasticity of cigarette demand are –0.8. This implies that the gains in revenue that results from a tax increase will fall (although still be substantial) over time; however, the effects of inflation will erode the value of the tax increase, dampening the growth in the decline in smoking and lessening the drop in revenues.

- In states that use some of the revenues from tax increases to fund comprehensive tobacco control programs, these efforts lead to further reductions in smoking beyond those resulting from the tax increase. The implications for revenues are that the revenues generated from the tax increase will be lower in years after the comprehensive program is implemented compared to before.

- Historically, every significant state cigarette excise tax increase has resulted in a significant increase in cigarette tax revenues.

Data Sources:

Monthly tax paid cigarette tax revenues, by state, 1999-2014, provided by USDA and CDC Tax Burden on Tobacco monthly reports; cigarette tax rates and dates of change, *Tax Burden on Tobacco,* 2013. Note that the revenues for later periods described below (post November 1998) are lower relative to the general trend because of sharp reductions in smoking resulting from industry initiated cigarette price increases in the wake of the Master Settlement Agreement and, more recently, the significant increase in the federal cigarette excise tax in 2009. Tobacco control funding and CDC recommended funding amounts from CDC and the Campaign for Tobacco-Free Kids.

Approach:

- Analyzed significant tax changes – those that increased the state tax cigarette excise tax rate by at least 50 cents per pack over the period from 2000 through June 2009.

- Computed tax revenues for the 12 months preceding tax change and for as many 12 month periods as possible after tax change, for a minimum of five years; if tax was changed mid-month, then the last 12 full months and subsequent 12 full month periods were examined.

Findings:

States With At Least 5 years of Post-Tax Increase Data Available, and the Average State Tobacco Control Funding as a Percent of the CDC Recommendation less than 50%:

- Arizona – tax increases from 58 cents to 118 cents per pack, 11/26/2002, and to 200 cents per pack, 12/8/2006:
  - Revenues 12/1/2001 – 11/30/2002: $177.7 million
  - Revenues 12/1/2002 – 11/30/2003: $244.8 million
  - Revenues 12/1/2003 – 11/30/2004: $280.5 million
  - Revenues 12/1/2004 – 11/30/2005: $286.2 million
  - Revenues 12/1/2005 – 11/30/2006: $325.9 million
  - Revenues 12/1/2006 – 11/30/2007: $370.4 million
  - Revenues 12/1/2007 – 11/30/2008: $391.4 million
  - Revenues 12/1/2008 – 11/30/2009: $348.3 million
  - Revenues 12/1/2009 – 11/30/2010: $324.5 million
  - Revenues 12/1/2010 – 11/30/2011: $323.6 million
  - Revenues 12/1/2011 – 11/30/2012: $319.2 million
  - Revenues 12/1/2012 – 11/30/2013: $310.7 million
  - Average annual revenues, 12/2002 – 11/2013: $320.5 million
- ❖ Arizona – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 45.8%

- California – tax increase from 37 cents to 87 cents per pack, 1/1/1999:
  - Revenues 1/1/1998 – 12/31/1998: $646.6 million
  - Revenues 1/1/1999 – 12/31/1999: $1,115.7 million
  - Revenues 1/1/2000 – 12/31/2000: $1,125.7 million
  - Revenues 1/1/2001 – 12/31/2001: $1,105.2 million
  - Revenues 1/1/2002 – 12/31/2002: $1,068.9 million
  - Revenues 1/1/2003 – 12/31/2003: $1,024.4 million
  - Revenues 1/1/2004 – 12/31/2004: $1,030.2 million
  - Revenues 1/1/2005 – 12/31/2005: $1,036.2 million
  - Revenues 1/1/2006 – 12/31/2006: $1,031.3 million
  - Revenues 1/1/2007 – 12/31/2007: $984.6 million
  - Revenues 1/1/2008 – 12/31/2008: $952.3 million
  - Revenues 1/1/2009 – 12/31/2009: $870.1 million
  - Revenues 1/1/2010 – 12/31/2010: $849.4 million
  - Revenues 1/1/2011 – 12/31/2011: $829.4 million
  - Revenues 1/1/2012 – 12/31/2012: $813.1 million
  - Revenues 1/1/2013 – 12/31/2013: $768.6 million
  - Average annual revenues, 1/1999 – 12/2013: $973.7 million
- ❖ California – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 26.3%

- Connecticut – tax increases from 50 cents to 111 cents per pack, 4/3/2002, to 151 cents per pack, 3/15/2003, to 200 cents on 7/1/2007, to 300 cents on 10/1/2009, and to 340 cents on 7/1/2011:
  - Revenues 4/1/2001 – 3/31/2002: $115.8 million
  - Revenues 4/1/2002 – 3/31/2003: $234.7 million
  - Revenues 4/1/2003 – 3/31/2004: $280.9 million
  - Revenues 4/1/2004 – 3/31/2005: $269.4 million
  - Revenues 4/1/2005 – 3/31/2006: $268.6 million
  - Revenues 4/1/2006 – 3/31/2007: $269.5 million
  - Revenues 4/1/2007 – 3/31/2008: $301.2 million
  - Revenues 4/1/2008 – 3/31/2009: $299.3 million
  - Revenues 4/1/2009 – 3/31/2010: $349.1 million
  - Revenues 4/1/2010 – 3/31/2011: $394.0 million
  - Revenues 4/1/2011 – 3/31/2012: $412.7 million
  - Revenues 4/1/2012 – 3/31/2013: $384.2 million
  - Revenues 4/1/2013 – 3/31/2014: $370.9 million
  - Average annual revenues, 4/2002 - 3/2014: $319.6 million

❖ Connecticut – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 7.5%

- District of Columbia – tax increases from 100 cents to 200 cents per pack, 10/1/2008, and to 250 cents per pack on 10/1/2009:
  - Revenues 10/1/2007 – 9/30/2008: $23.1 million
  - Revenues 10/1/2008 – 9/30/2009: $34.2 million
  - Revenues 10/1/2009 – 9/30/2010: $33.3 million
  - Revenues 10/1/2010 – 9/30/2011: $33.5 million
  - Revenues 10/1/2011 – 9/30/2012: $37.7 million
  - Revenues 10/1/2012 – 9/30/2013: $32.1 million
  - Average annual revenues, 10/2008 – 9/2013: $34.2 million

❖ DC – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 13.1%

- Iowa – tax increase from 36 cents to 136 cents per pack, 3/15/2007:
  - Revenues 3/1/2006 – 2/28/2007: $91.3 million
  - Revenues 3/1/2007 – 2/29/2008: $219.3 million
  - Revenues 3/1/2008 – 2/28/2009: $230.8 million
  - Revenues 3/1/2009 – 2/28/2010: $206.1 million
  - Revenues 3/1/2010 – 2/28/2011: $207.6 million
  - Revenues 3/1/2011 – 2/29/2012: $200.6 million
  - Revenues 3/1/2012 – 2/28/2013: $202.3 million
  - Revenues 3/1/2013 – 2/28/2014: $205.2 million
  - Average annual revenues, 3/2007 – 2/2014: $210.3 million

❖ Iowa – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 25.4%

- Maryland – tax increase from 100 cents to 200 cents per pack, 1/1/2008:
  - Revenues 1/1/2007 – 12/31/2008: $276.7 million
  - Revenues 1/1/2008 – 12/31/2009: $403.6 million

- Revenues 1/1/2009 – 12/31/2010: $394.0 million
- Revenues 1/1/2010 – 12/31/2011: $401.3 million
- Revenues 1/1/2011 – 12/31/2012: $401.1 million
- Revenues 1/1/2012 – 12/31/2013: $380.9 million
- Average annual revenues, 1/2008 – 12/2013: $395.9 million

❖ Maryland – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 24.8%

- Massachusetts – tax increases from 76 cents to 151 cents per pack, 7/25/2002, to 251 cents per pack, 7/1/2008, and to 351 cents on 7/31/2013:
  - Revenues 8/1/2001 – 7/31/2002: $279.4 million
  - Revenues 8/1/2002 – 7/31/2003: $438.4 million
  - Revenues 8/1/2003 – 7/31/2004: $422.3 million
  - Revenues 8/1/2004 – 7/31/2005: $406.2 million
  - Revenues 8/1/2005 – 7/31/2006: $422.5 million
  - Revenues 8/1/2006 – 7/31/2007: $426.2 million
  - Revenues 8/1/2007 – 7/31/2008: $440.2 million
  - Revenues 8/1/2008 – 7/31/2009: $557.7 million
  - Revenues 8/1/2009 – 7/31/2010: $555.9 million
  - Revenues 8/1/2010 – 7/31/2011: $562.7 million
  - Revenues 8/1/2011 – 7/31/2012: $550.7 million
  - Revenues 8/1/2012 – 7/31/2013: $539.3 million
  - Average annual revenues, 8/2002 – 7/2013: $483.8 million

❖ Massachusetts – average tobacco control funding as a percent of the CDC recommendation, –2006 – 2015: 11.6%

- Michigan – tax increases from 75 cents to 125 cents per pack, 8/1/2002 and to 200 cents per pack, 7/1/2004:
  - Revenues 8/1/2001 – 7/31/2002: $556.9 million
  - Revenues 8/1/2002 – 7/31/2003: $815.6 million
  - Revenues 8/1/2003 – 7/31/2004: $1,124.4 million
  - Revenues 8/1/2004 – 7/31/2005: $1,138.2 million
  - Revenues 8/1/2005 – 7/31/2006: $1,092.8 million
  - Revenues 8/1/2006 – 7/31/2007: $1,043.9 million
  - Revenues 8/1/2007 – 7/31/2008: $1,028.6 million
  - Revenues 8/1/2008 – 7/31/2009: $957.5 million
  - Revenues 8/1/2009 – 7/31/2010: $916.0 million
  - Revenues 8/1/2010 – 7/31/2011: $918.3 million
  - Revenues 8/1/2011 – 7/31/2012: $896.1 million
  - Revenues 8/1/2012 – 7/31/2013: $896.1 million
  - Average annual revenues, 8/2002 – 7/2013: $982.6 million

❖ Michigan – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 2.0%

- Minnesota – tax increases from 48 cents to 123 cents per pack, 8/1/2005, to 283 cents per pack, 7/1/2013, and to 290 cents on 1/1/2015:
  - Revenues 8/1/2004 – 7/31/2005: $160.8 million
  - Revenues 8/1/2005 – 7/31/2006: $419.1 million

- Revenues 8/1/2006 – 7/31/2007: $401.5 million
- Revenues 8/1/2007 – 7/31/2008: $404.5 million
- Revenues 8/1/2008 – 7/31/2009: $390.4 million
- Revenues 8/1/2009 – 7/31/2010: $382.3 million
- Revenues 8/1/2010 – 7/31/2011: $383.6 million
- Revenues 8/1/2011 – 7/31/2012: $357.0 million
- Revenues 8/1/2012 – 7/31/2013: $377.2 million
- Average annual revenues, 8/2005 – 7/2013: $389.4 million

❖ Minnesota – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 48.3%

- Mississippi – tax increase from 18 cents to 68 cents per pack, 5/15/2009:
  - Revenues 5/1/2008 – 4/30/2009: $47.2 million
  - Revenues 5/1/2009 – 4/30/2010: $136.1 million
  - Revenues 5/1/2010 – 4/30/2011: $139.5 million
  - Revenues 5/1/2011 – 4/30/2012: $135.4 million
  - Revenues 5/1/2012 – 4/30/2013: $132.0 million
  - Revenues 5/1/2013 – 4/30/2014: $127.6 million
  - Average annual revenues, 5/2009 – 4/2014: $134.1 million

❖ Mississippi – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 33.7%

- New Jersey – tax increases from 80 cents to 150 cents per pack, 7/1/2002, to 205 cents per pack, 7/1/2003, to 240 cents on 7/1/2004, to 257.5 cents on 7/15/2006, and to 270 cents on 7/1/2009:
  - Revenues 7/1/2001 – 6/30/2002: $390.7 million
  - Revenues 7/1/2002 – 6/30/2003: $612.1 million
  - Revenues 7/1/2003 – 6/30/2004: $760.8 million
  - Revenues 7/1/2004 – 6/30/2005: $782.2 million
  - Revenues 7/1/2005 – 6/30/2006: $788.7 million
  - Revenues 7/1/2006 – 6/30/2007: $766.5 million
  - Revenues 7/1/2007 – 6/30/2008: $764.7 million
  - Revenues 7/1/2008 – 6/30/2009: $728.1 million
  - Revenues 7/1/2009 – 6/30/2010: $731.9 million
  - Revenues 7/1/2010 – 6/30/2011: $773.4 million
  - Revenues 7/1/2011 – 6/30/2012: $758.3 million
  - Revenues 7/1/2012 – 6/30/2013: $733.1 million
  - Revenues 7/1/2013 – 6/30/2014: $704.7 million
  - Average annual revenues, 7/2002 – 6/2014: $742.0 million

❖ New Jersey – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 9.0%

- New Mexico – tax increases from 21 cents to 91 cents per pack, 7/1/2003, and to 166 cents per pack on 7/1/2010:
  - Revenues 7/1/2002 – 6/30/2003: $21.0 million
  - Revenues 7/1/2003 – 6/30/2004: $61.8 million
  - Revenues 7/1/2004 – 6/30/2005: $61.3 million
  - Revenues 7/1/2005 – 6/30/2006: $62.9 million

- Revenues 7/1/2006 – 6/30/2007: $64.4 million
- Revenues 7/1/2007 – 6/30/2008: $61.7 million
- Revenues 7/1/2008 – 6/30/2009: $59.0 million
- Revenues 7/1/2009 – 6/30/2010: $55.5 million
- Revenues 7/1/2010 – 6/30/2011: $93.0 million
- Revenues 7/1/2011 – 6/30/2012: $92.4 million
- Revenues 7/1/2012 – 6/30/2013: $91.5 million
- Revenues 7/1/2013 – 6/30/2014: $85.2 million
- Average annual revenues, 7/2003 – 6/2014: $71.7 million

❖ New Mexico – average tobacco control funding as a percent of the CDC recommendation, –2006 – 2015: 38.4%

- New York – tax increases from 56 cents to 111 cents per pack, 3/1/2000, to 150 cents per pack, 4/3/2002, to 275 cents on 6/3/2008, and to 435 cents on 7/1/2010:
  - Revenues 3/1/1999 – 2/29/2000: $645.4 million
  - Revenues 3/1/2000 – 2/28/2001: $973.2 million
  - Revenues 3/1/2001 – 2/28/2002: $999.2 million
  - Revenues 3/1/2002 – 2/28/2003: $1,072.6 million
  - Revenues 3/1/2003 – 2/29/2004: $974.6 million
  - Revenues 3/1/2004 – 2/28/2005: $948.3 million
  - Revenues 3/1/2005 – 2/28/2006: $939.0 million
  - Revenues 3/1/2006 – 2/28/2007: $944.2 million
  - Revenues 3/1/2007 – 2/29/2008: $936.2 million
  - Revenues 3/1/2008 – 2/28/2009: $1,240.9 million
  - Revenues 3/1/2009 – 2/28/2010: $1,273.1 million
  - Revenues 3/1/2010 – 2/28/2011: $1,472.3 million
  - Revenues 3/1/2011 – 2/29/2012: $1,552.5 million
  - Revenues 3/1/2012 – 2/28/2013: $1,467.3 million
  - Revenues 3/1/2013 – 2/28/2014: $1,360.2 million
  - Average annual revenues, 3/2000 – 2/2014: $1,153.8 million

❖ New York – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 37.1%

- Ohio – tax increase from 55 cents to 125 cents per pack, 7/1/2005:
  - Revenues 7/1/2004 – 6/30/2005: $567.9 million
  - Revenues 7/1/2005 – 6/30/2006: $996.7 million
  - Revenues 7/1/2006 – 6/30/2007: $985.8 million
  - Revenues 7/1/2007 – 6/30/2008: $927.9 million
  - Revenues 7/1/2008 – 6/30/2009: $884.1 million
  - Revenues 7/1/2009 – 6/30/2010: $968.0 million
  - Revenues 7/1/2010 – 6/30/2011: $819.8 million
  - Revenues 7/1/2011 – 6/30/2012: $804.9 million
  - Revenues 7/1/2012 – 6/30/2013: $779.7 million
  - Revenues 7/1/2013 – 6/30/2014: $771.6 million
  - Average annual revenues, 7/2005 – 6/2014: $871.0 million

❖ Ohio – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 23.7%

- Oklahoma – tax increase from 23 cents to 103 cents per pack, 1/1/2005:
  - Revenues 1/1/2004 – 12/31/2004: $83.1 million
  - Revenues 1/1/2005 – 12/31/2005: $164.7 million
  - Revenues 1/1/2006 – 12/31/2006: $203.1 million
  - Revenues 1/1/2007 – 12/31/2007: $218.5 million
  - Revenues 1/1/2008 – 12/31/2008: $235.7 million
  - Revenues 1/1/2009 – 12/31/2009: $235.4 million
  - Revenues 1/1/2010 – 12/31/2010: $235.8 million
  - Revenues 1/1/2011 – 12/31/2011: $246.0 million
  - Revenues 1/1/2012 – 12/31/2012: $244.5 million
  - Revenues 1/1/2013 – 12/31/2013: $228.8 million
  - Average annual revenues, 1/2005 – 12/2013: $223.6 million

❖ Oklahoma – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 48.4%

- Oregon – tax increase from 68 cents to 128 cents per pack, 11/1/2002, tax reduced to 118 cents per pack, 1/1/04, and increased to 131 cents per pack on 1/1/2014:
  - Revenues 11/1/2001 – 10/31/2002: $162.1 million
  - Revenues 11/1/2002 – 10/31/2003: $259.6 million
  - Revenues 11/1/2003 – 10/31/2004: $231.7 million
  - Revenues 11/1/2004 – 10/31/2005: $229.2 million
  - Revenues 11/1/2005 – 10/31/2006: $236.7 million
  - Revenues 11/1/2006 – 10/31/2007: $238.1 million
  - Revenues 11/1/2007 – 10/31/2008: $225.9 million
  - Revenues 11/1/2008 – 10/31/2009: $210.9 million
  - Revenues 11/1/2009 – 10/31/2010: $204.0 million
  - Revenues 11/1/2010 – 10/31/2011: $208.0 million
  - Revenues 11/1/2011 – 10/31/2012: $199.7 million
  - Revenues 11/1/2012 – 10/31/2013: $198.1 million
  - Average annual revenues, 11/2002 – 10/2013: $222.0 million

❖ Oregon – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 21.0%

- Pennsylvania – tax increases from 31 cents to 100 cents per pack, 7/15/2002, and to 135 cents per pack, 1/7/2004, to 160 cents on 11/1/2009:
  - Revenues 7/1/2001 – 6/30/2002: $329.8 million
  - Revenues 7/1/2002 – 6/30/2003: $888.8 million
  - Revenues 7/1/2003 – 6/30/2004: $989.4 million
  - Revenues 7/1/2004 – 6/30/2005: $1,052.8 million
  - Revenues 7/1/2005 – 6/30/2006: $1,050.4 million
  - Revenues 7/1/2006 – 6/30/2007: $1,031.2 million
  - Revenues 7/1/2007 – 6/30/2008: $1,032.4 million
  - Revenues 7/1/2008 – 6/30/2009: $1,004.7 million
  - Revenues 7/1/2009 – 6/30/2010: $1,087.8 million
  - Revenues 7/1/2010 – 6/30/2011: $1,145.6 million
  - Revenues 7/1/2011 – 6/30/2012: $1,122.1 million
  - Revenues 7/1/2012 – 6/30/2013: $1,080.8 million
  - Revenues 7/1/2013 – 6/30/2014: $1,038.3 million

- Average annual revenues, 7/2002 – 6/2014: $1,043.7 million

❖ Pennsylvania – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 21.8%

- Rhode Island – tax increase from 171 cents to 246 cents per pack, 7/1/2004, to 346 cents per pack, 4/10/2009, and to 350 cents on 7/1/2012:
  - Revenues 7/1/2003 – 6/30/2004: $112.4 million
  - Revenues 7/1/2004 – 6/30/2005: $132.5 million
  - Revenues 7/1/2005 – 6/30/2006: $119.0 million
  - Revenues 7/1/2006 – 6/30/2007: $119.5 million
  - Revenues 7/1/2007 – 6/30/2008: $116.1 million
  - Revenues 7/1/2008 – 6/30/2009: $123.4 million
  - Revenues 7/1/2009 – 6/30/2010: $136.6 million
  - Revenues 7/1/2010 – 6/30/2011: $134.3 million
  - Revenues 7/1/2011 – 6/30/2012: $131.2 million
  - Revenues 7/1/2012 – 6/30/2013: $132.3 million
  - Revenues 7/1/2013 – 6/30/2014: $133.1 million
  - Average annual revenues, 7/2004 – 6/2014: $127.8 million

❖ Rhode Island – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 6.7%

- South Dakota – tax increase from 53 cents to 153 cents per pack, 1/1/2007:
  - Revenues 1/1/2006 – 12/31/2006: $27.5 million
  - Revenues 1/1/2007 – 12/31/2007: $59.3 million
  - Revenues 1/1/2008 – 12/31/2008: $64.1 million
  - Revenues 1/1/2009 – 12/31/2009: $58.6 million
  - Revenues 1/1/2010 – 12/31/2010: $57.7 million
  - Revenues 1/1/2011 – 12/31/2011: $56.4 million
  - Revenues 1/1/2012 – 12/31/2012: $54.2 million
  - Revenues 1/1/2013 – 12/31/2013: $55.0 million
  - Average annual revenues, 1/2007 – 12/2013: $57.9 million

❖ South Dakota – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 33.7%

- Texas – tax increase from 41 cents to 141 cents per pack, 1/1/2007:
  - Revenues 1/1/2006 – 12/31/2006: $523.4 million
  - Revenues 1/1/2007 – 12/31/2007: $1,527.1 million
  - Revenues 1/1/2008 – 12/31/2008: $1,348.8 million
  - Revenues 1/1/2009 – 12/31/2009: $1,246.0 million
  - Revenues 1/1/2010 – 12/31/2010: $1,342.4 million
  - Revenues 1/1/2011 – 12/31/2011: $1,339.8 million
  - Revenues 1/1/2012 – 12/31/2012: $1,363.5 million
  - Revenues 1/1/2013 – 12/31/2013: $1,312.0 million
  - Average annual revenues, 1/2007 – 12/2013: $1,354.2 million

❖ Texas – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 4.9%

- Vermont – tax increase from 119 cents to 179 cents per pack, 7/1/2006, to 199 cents per

pack, 7/1/2008, to 224 cents on 7/1/2009, to 262 cents on 7/1/2011, and to 275 cents on 7/1/2014:

- Revenues 7/1/2005 – 6/30/2006: $47.5 million
- Revenues 7/1/2006 – 6/30/2007: $60.8 million
- Revenues 7/1/2007 – 6/30/2008: $55.6 million
- Revenues 7/1/2008 – 6/30/2009: $61.8 million
- Revenues 7/1/2009 – 6/30/2010: $66.3 million
- Revenues 7/1/2010 – 6/30/2011: $67.9 million
- Revenues 7/1/2011 – 6/30/2012: $74.4 million
- Revenues 7/1/2012 – 6/30/2013: $68.5 million
- Revenues 7/1/2013 – 6/30/2014: $66.9 million
- Average annual revenues, 7/2006 – 6/2014: $65.3 million

❖ Vermont – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 49.5%

- Washington – tax increase from 82.5 cents to 142.5 cents per pack, 1/1/2002, to 202.5 cents per pack, 7/1/2005, and to 302.5 cents on 5/1/2010:
  - Revenues 1/1/2001 – 12/31/2001: $244.0 million
  - Revenues 1/1/2002 – 12/31/2002: $344.5 million
  - Revenues 1/1/2003 – 12/31/2003: $327.0 million
  - Revenues 1/1/2004 – 12/31/2004: $331.2 million
  - Revenues 1/1/2005 – 12/31/2005: $384.9 million
  - Revenues 1/1/2006 – 12/31/2006: $426.5 million
  - Revenues 1/1/2007 – 12/31/2007: $426.9 million
  - Revenues 1/1/2008 – 12/31/2008: $407.1 million
  - Revenues 1/1/2009 – 12/31/2009: $381.0 million
  - Revenues 1/1/2010 – 12/31/2010: $409.7 million
  - Revenues 1/1/2011 – 12/31/2011: $425.4 million
  - Revenues 1/1/2012 – 12/31/2012: $415.4 million
  - Revenues 1/1/2013 – 12/31/2013: $403.1 million
  - Average annual revenues, 1/2002 – 12/2013: $390.2 million

❖ Washington – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 33.7%

- Wisconsin – tax increase from 77 cents to 177 cents per pack, 1/1/2008, and to 252 cents per pack, 9/1/2009:
  - Revenues 1/1/2007 – 12/31/2007: $304.5 million
  - Revenues 1/1/2008 – 12/31/2008: $590.5 million
  - Revenues 1/1/2009 – 12/31/2009: $596.8 million
  - Revenues 1/1/2010 – 12/31/2010: $643.3 million
  - Revenues 1/1/2011 – 12/31/2011: $589.6 million
  - Revenues 1/1/2012 – 12/31/2012: $583.2 million
  - Revenues 1/1/2013 – 12/31/2013: $592.8 million
  - Average annual revenues, 1/2008 – 12/2013: $599.4 million

❖ Wisconsin – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 19.2%

States With At Least 5 years of Post-Tax Increase Data Available, and the Average State Tobacco Control Funding as a Percent of the CDC Recommendation more than 50%:

- Alaska – tax increase from 100 cents to 160 cents per pack, 1/1/2005, to 180 cents per pack,7/1/2006, and to 200 cents on 7/1/2007:
  - Revenues 1/1/2004 – 12/31/2004: $41.1 million
  - Revenues 1/1/2005 – 12/31/2005: $50.5 million
  - Revenues 1/1/2006 – 12/31/2006: $52.7 million
  - Revenues 1/1/2007 – 12/31/2007: $63.1 million
  - Revenues 1/1/2008 – 12/31/2008: $63.3 million
  - Revenues 1/1/2009 – 12/31/2009: $63.6 million
  - Revenues 1/1/2010 – 12/31/2010: $63.1 million
  - Revenues 1/1/2011 – 12/31/2011: $60.3 million
  - Revenues 1/1/2012 – 12/31/2012: $57.3 million
  - Revenues 1/1/2013 – 12/31/2013: $57.3 million
  - Average annual revenues, 1/2005 – 12/2013: $59.0 million

❖ Alaska – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 89.2%

- Arkansas – tax increase from 59 cents to 115 cents per pack, 3/1/2009:
  - Revenues 3/1/2008 – 2/29/2009: $138.8 million
  - Revenues 3/1/2009 – 2/28/2010: $185.3 million
  - Revenues 3/1/2010 – 2/28/2011: $196.3 million
  - Revenues 3/1/2011 – 2/29/2012: $196.6 million
  - Revenues 3/1/2012 – 2/28/2013: $188.4 million
  - Revenues 3/1/2013 – 2/28/2014: $183.4 million
  - Average annual revenues, 3/2009 – 2/2014: $190.0 million

❖ Arkansas – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 56.2%

- Colorado – tax increase from 20 cents to 84 cents per pack, 1/1/2005:
  - Revenues 1/1/2004 – 12/31/2004: $59.5 million
  - Revenues 1/1/2005 – 12/31/2005: $190.5 million
  - Revenues 1/1/2006 – 12/31/2006: $208.1 million
  - Revenues 1/1/2007 – 12/31/2007: $203.2 million
  - Revenues 1/1/2008 – 12/31/2008: $195.1 million
  - Revenues 1/1/2009 – 12/31/2009: $180.0 million
  - Revenues 1/1/2010 – 12/31/2010: $175.5 million
  - Revenues 1/1/2011 – 12/31/2011: $172.0 million
  - Revenues 1/1/2012 – 12/31/2012: $172.6 million
  - Revenues 1/1/2013 – 12/31/2013: $165.7 million
  - Average annual revenues, 1/2005 – 12/2013: $184.7 million

❖ Colorado – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 54.6%

- Delaware – tax increase from 55 cents to 115 cents per pack, 7/31/2007:
  - Revenues 8/1/2006 – 7/31/2007: $90.4 million
  - Revenues 8/1/2007 – 7/31/2008: $122.2 million

- Revenues 8/1/2008 – 7/31/2009: $125.5 million
- Revenues 8/1/2009 – 7/31/2010: $124.8 million
- Revenues 8/1/2010 – 7/31/2011: $126.8 million
- Revenues 8/1/2011 – 7/31/2012: $122.7 million
- Revenues 8/1/2012 – 7/31/2013: $113.0 million
- Average annual revenues, 8/2007 – 7/2013: $122.5 million

❖ Delaware – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 81.9%

- Maine – tax increase from 100 cents to 200 cents per pack, 9/19/2005:
  - Revenues 9/1/2004 – 8/31/2005: $93.5 million
  - Revenues 9/1/2005 – 8/31/2006: $165.1 million
  - Revenues 9/1/2006 – 8/31/2007: $153.8 million
  - Revenues 9/1/2007 – 8/31/2008: $147.9 million
  - Revenues 9/1/2008 – 8/31/2009: $137.5 million
  - Revenues 9/1/2009 – 8/31/2010: $136.9 million
  - Revenues 9/1/2010 – 8/31/2011: $137.9 million
  - Revenues 9/1/2011 – 8/31/2012: $135.9 million
  - Revenues 9/1/2012 – 8/31/2013: $130.7 million
  - Average annual revenues, 9/2005 – 8/2013: $143.2 million

❖ Maine – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 77.4%

- Montana – tax increase from 18 cents to 70 cents per pack, 5/1/2003 and to 170 cents per pack,1/1/2005:
  - Revenues 5/1/2002 – 4/30/2003: $12.0 million
  - Revenues 5/1/2003 – 4/30/2004: $43.1 million
  - Revenues 5/1/2004 – 4/30/2005: $51.8 million
  - Revenues 5/1/2005 – 4/30/2006: $79.6 million
  - Revenues 5/1/2006 – 4/30/2007: $84.7 million
  - Revenues 5/1/2007 – 4/30/2008: $87.2 million
  - Revenues 5/1/2008 – 4/30/2009: $80.8 million
  - Revenues 5/1/2009 – 4/30/2010: $81.0 million
  - Revenues 5/1/2010 – 4/30/2011: $78.1 million
  - Revenues 5/1/2011 – 4/30/2012: $77.2 million
  - Revenues 5/1/2012 – 4/30/2013: $76.2 million
  - Revenues 5/1/2013 – 4/30/2014: $74.9 million
  - Average annual revenues, 5/2003 – 4/2014: $74.1 million

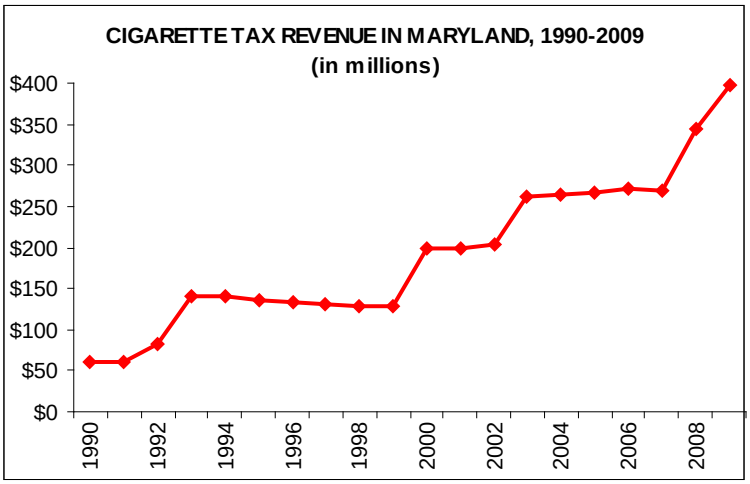
❖ Montana – average tobacco control funding as a percent of the CDC recommendation, 2006 – 2015: 56.0%

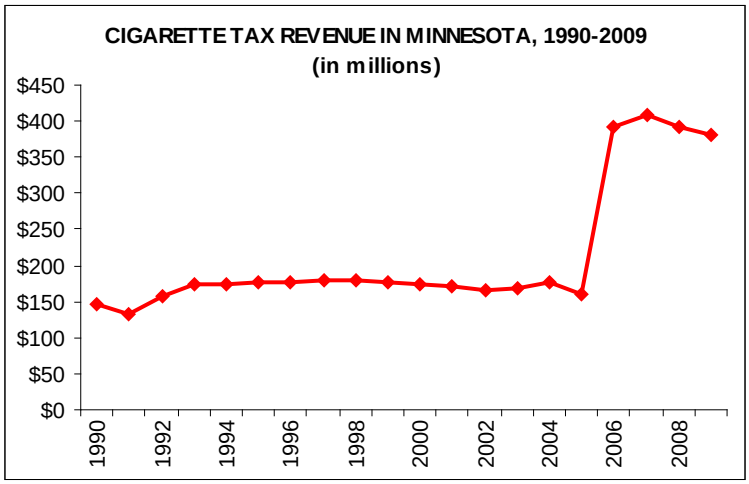
Conclusions:

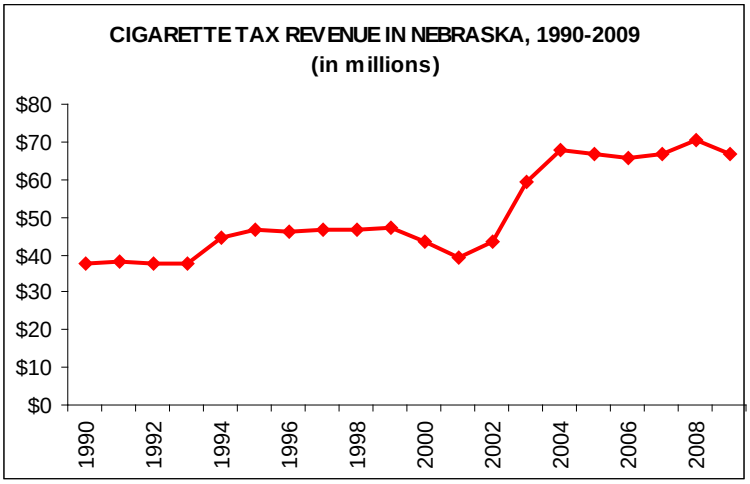
- Significant cigarette excise tax increases generate significant increases in cigarette tax revenues.
- Revenues several years after the tax increase remain significantly higher than revenues prior to the tax increase and changes over time after the increase are consistent with changes that would result from underlying downward trends in cigarette smoking.
- Revenues in states that dedicate some revenues for comprehensive tobacco control programs in the years following the implementation of these programs are still significantly higher than revenues prior to the tax increase and program implementation.

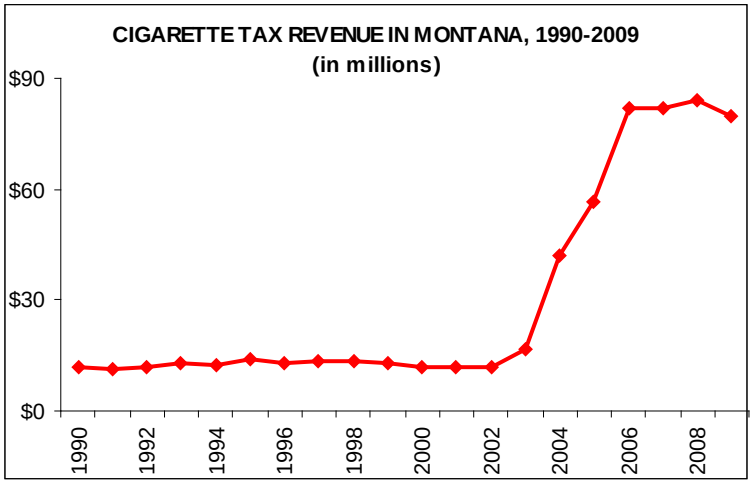
TOBACCO TAX INCREASES ARE A PREDICTABLE SOURCE OF SUBSTANTIAL NEW STATE REVENUE

The following charts show how consistent cigarette tax revenue collections have been in four states. In all cases, the steep incline in the line denotes a significant tax rate increase, followed by years of relatively stable revenue collection until the next rate increase. These charts are only a few of the many examples of the predictable revenue collected by states that have increased their cigarette tax rates.









State Cigarette Tax Rate Increases Since 1990:

Maryland
- June 1, 1991: 3-cent increase to 16 cents per pack
- May 1, 1992: 20-cent increase to 36 cents per pack
- July 1, 1999: 30-cent increase to 66 cents per pack
- June 1, 2002: 34-cent increase to $1.00 per pack
- January 1, 2008: $1.00 increase to $2.00 per pack

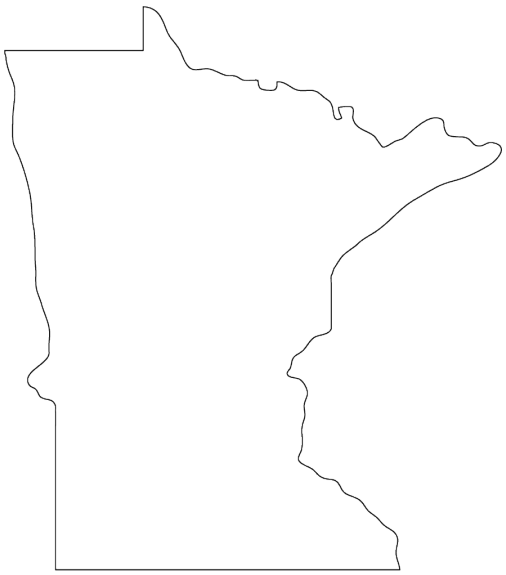
Nebraska
- July 1, 1993: 7-cent increase to 34 cents per pack
- October 1, 2002: 30-cent increase to 64 cents per pack

Minnesota
- June 1, 1991: 5-cent increase to 43 cents per pack
- July 1, 1992: 5-cent increase to 48 cents per pack
- August 1, 2005: $1.05 cent increase to $1.485 per pack

Montana
- August 15, 1992: 1.26-cent increase to 19.26 cents per pack
- August 15, 1993: 1.26-cent increase to 18 cents per pack
- May 1, 2003: 52-cent increase to 70 cents per pack
- January 1, 2005: $1.00 increase to $1.70 per pack

Source: Orzechowski & Walker, *The Tax Burden on Tobacco*, 2009 [industry-funded state tax report].

Get the Facts:
Minnesota's 2013 Tobacco Tax Increase is Improving Health



February 10, 2015

Lisa R. Mattson, MD
Frank J. Chaloupka, PhD
Raymond Boyle, PhD, MPH

Overview

The tobacco industry has a well-known track record of selling dangerous, addictive products and misleading the public about their health effects. That was true in the past and is still true today. Smoking continues to be a leading cause of preventable death and disease in Minnesota. Each year, more than 5,100 Minnesotans die from tobacco-related diseases, while the annual cost of smoking in Minnesota is estimated to be $2.87 billion in direct health care costs.[1] In addition, more than 55,000 Minnesota middle and high school students are using tobacco.[2]

Tobacco companies know they need to hook users at an early age because 90 percent of adult smokers start before age 18.[3] In fact, each year the tobacco industry spends more than $164 million in Minnesota alone marketing its deadly products, often using strategies that are proven to be successful with children and adolescents.[4]

Public health groups have worked aggressively to shed light on the tobacco industry's tactics, including exposing its political strategies. A recent example of a tobacco industry tactic is a June 2014 report from Dunham and Associates titled, "The Economic Consequences of the Recent Cigarette Tax Increase in Minnesota." This report is consistent with the industry's past efforts to fight tobacco price increases. It fails to meet accepted standards for economic research, and a quick look at real-time data suggests the report's assumptions and conclusions are not based on the actual experiences in Minnesota and its border states.

What Data Demonstrate

Research has proven that tobacco price increases are one of the most effective ways of reducing smoking prevalence, preventing youth from starting and saving lives. Strong data now available following the implementation of the 2013 Minnesota tobacco tax increase of a $1.60 per pack of cigarettes provides further proof of what was already known: raising the price of tobacco benefits the health of all Minnesotans. Several contributing factors describe the success of the tobacco tax increase:

- **Fewer Minnesota youth are smoking.** Since 2011, smoking among Minnesota high school students dropped from 18.1 percent to 10.6 percent.[2] This is the sharpest decline ever recorded by the Minnesota Youth Tobacco Survey (MYTS) and means thousands fewer Minnesota youth will become addicted adults.
- **Fewer adult Minnesotans are smoking.** The 2014 Minnesota Adult Tobacco Survey (MATS) shows that 14.4 percent of adult Minnesotans now smoke. This is the lowest rate ever recorded in the state and a sharp decline from 16.1 percent in 2010, the last time the rate was measured.[5]
- **More Minnesota smokers are quitting.** According to MATS, increasing the price of tobacco supports smokers in quitting. Among smokers who quit in the past year, majorities said that the price increase helped them to make quit attempts (62.8 percent) and to stay smoke-free (62.7 percent).[5]

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[1] Blue Cross and Blue Shield of Minnesota. Health Care Costs and Smoking in Minnesota: The Bottom Line. 2010.
[2] Minnesota Department of Health. Teens and Tobacco in Minnesota, 2014 Update: Minnesota Youth Tobacco Survey. 2014.
[3] U.S. Department of Health and Human Services. Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. 2013.
[4] Campaign for Tobacco-Free Kids. The Toll of Tobacco in Minnesota. 2015/http://www.tobaccofreekids.org/facts_issues/toll_us/Minnesota. 2015.
[5] ClearWay Minnesota[SM], Minnesota Department of Health. Minnesota Adult Tobacco Survey: Tobacco Use in Minnesota: 2014 Update. 2015.

- **Tobacco sales have decreased.** Minnesota experienced a 24 percent reduction in cigarette sales, or 54.6 million packs, in the 12 months following implementation of the tobacco tax increase compared to the same 12 months of the previous year.[6]
- **While tobacco sales are down, tax revenue is up.** Minnesota generated more than $204 million in new tax revenue—a 56 percent increase over the previous year—while simultaneously 54.6 million fewer packs of cigarettes were sold.[6]

The tobacco industry's typical response to tobacco tax increases is to assert that they hurt business. In the June 2014 report from Dunham and Associates, tobacco companies attempted to once again make the case that Minnesota is better off supporting the sales of deadly products than improving health and protecting youth from addiction.

Yet, based on actual data from Minnesota and surrounding states, there is little evidence of substantial economic harm from the recent tobacco tax increase:

- **Other states are not benefiting at Minnesota's expense.** A common argument—repeated in the Dunham and Associates report—following a state tobacco tax increase is that people who live or work near the state border will simply travel to a neighboring state to purchase their tobacco products. The report provided no hard evidence of the shift in sales. On the contrary, cigarette sales and tax revenue data in states bordering Minnesota do not demonstrate a significant shift in sales to outside of Minnesota. When comparing the 12 months after implementation of the tax with the same 12 months of the previous year, researchers found:
    - Cigarette revenue and sales in Iowa and Wisconsin actually decreased.[6]
    - In the two border states that saw an increase during this period—North Dakota and South Dakota—collectively, revenues only increased by 2.7 percent ($2 million) in tobacco tax revenue, compared to Minnesota's 56 percent increase in revenue. Looking at actual packs sold, Minnesota sold 54.6 million fewer packs—a 24 percent reduction—while new sales in these two states only amounted to a total of 4.4 million additional packs (a 5.1 percent increase).[6]
- **There is no evidence of an unemployment problem in Minnesota border counties**. Research demonstrates that unemployment continues to fall below the statewide average in most border counties. Data for December 2014 from the Minnesota Department of Employment and Economic Development shows that 26 of 30 border counties in Minnesota have non-seasonal adjusted unemployment rates below 5 percent.[7] The lowest rate is Rock County at 2.1 percent, which is located next to two border states.

Analysis

Evidence that holds up through independent verification should be counted as fact. In this case, the tobacco industry's purpose with the Dunham and Associates report is to deceptively promote its profits before Minnesotans' health. After all, tobacco companies will see their profits fall when more people quit, fewer youth become addicted and Minnesotans' health improves.

The tobacco industry does not offer a comprehensive representation of the facts. For example, if Minnesotans are purchasing fewer cigarettes in state, the industry asserts that they must be buying

[6] Orzechowski & Walker. The Tax Burden on Tobacco monthly reports. 2014.
[7] Minnesota Department of Employment and Economic Development. County Unemployment Rates. http://mn.gov/deed/data/current-econ-highlights/county-unemployment.jsp. 2014.

them outside of Minnesota, off the Internet, on Native American reservations or illegally. The better, fact-driven assumption is that Minnesotans are smoking less, especially when the research shows that cigarette sales are down, quit attempts are up and fewer Minnesotans are smoking.

Additionally, the tobacco industry does not seek to determine how Minnesotans who are smoking less are using their money. It is highly likely that people who no longer smoke or smoke fewer cigarettes are instead using this money to buy other goods and services or increasing their savings.[8,9] Unlike tobacco industry-sponsored studies, economic-based studies consider the employment impact of shifting consumer spending from tobacco products to other expenditures that are more likely to be produced locally.

A systematic review of 34 peer-reviewed studies found that most arguments the tobacco industry uses to influence tobacco taxes are unsupported by the evidence.[8] This includes the industry argument that tax increases will negatively impact local businesses and lead to cross-border sales.[8,10] Research shows that convenience stores are more profitable in states with higher tobacco taxes, also likely reflecting shifts in spending from tobacco products to other products, as well as the store markups that raise prices by more than tax increases. As a result, tobacco revenues are maintained even as sales fall.[10]

The Dunham and Associates report—a single study commissioned by the tobacco industry and not subject to peer-review—cannot stand up to independent science. Furthermore, the Dunham and Associates report does not account for the economic benefit of healthier Minnesotans. Minnesota's decision to adopt the $1.60 per pack increase is proving to be advantageous to the overall health and wellness of the state, and economic-based studies predicted this outcome before the tax increase's passage.

Maintaining and increasing the price of tobacco is an important component of a multi-pronged successful strategy to prevent Minnesotans, and especially the state's youngest and most vulnerable populations, from starting to smoke. Every 10 percent increase in the real price of tobacco reduces the number of youth who smoke by more than 5 percent[11] and the number of youth who start smoking by 10 percent.[12] Youth are two to three times more responsive than the general population to price increases and are more likely to quit or cut back on smoking in order to avoid the cost.[13]

According to credible data, the 2013 tobacco tax increase shows that price increases work. The tobacco industry does not agree, but the facts say differently.

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[8] IARC Handbooks of Cancer Prevention. Effectiveness of Tax and Price Policies for Tobacco Control. Tobacco Control. Vol. 14. 2011.

[9] Warner, et al. Employment Implications of Declining Tobacco Product Sales for the Regional Economies of the United States. Journal of the American Medical Association. 275(16): 1241-1246. 1996.

[10] Huang J, Chaloupka FJ. The economic impact of state cigarette taxes and smoke-free air policies on convenience stores. Tobacco Control. 22(2): 91-96. 2013.

[11] Chaloupka FJ, et al. The Impact of Price on Youth Tobacco Use: Changing Adolescent Smoking Prevalence. Tobacco Control. Monograph 14. 2001.

[12] Tauras JA, et al. Effects of Price and Access Laws on Teenage Smoking Initiation: A National Longitudinal Analysis. National Bureau of Economic Research. 2001.

[13] United States Department of Health and Human Services. Reducing Tobacco Use: A Report of the Surgeon General. 2000.

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The economic impact of state cigarette taxes and smoke-free air policies on convenience stores

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ABSTRACT

Objectives To investigate whether increasing state cigarette taxes and/or enacting stronger smoke-free air (SFA) policies have negative impact on convenience store density in a state, a proxy that is determined by store openings and closings, which reflects store profits.

Methods State-level business count estimates for convenience stores for 50 states and District of Columbia from 1997 to 2009 were analysed using two-way fixed effects regression techniques that control for state-specific and year-specific determinants of convenience store density. The impact of tax and SFA policies was examined using a quasi-experimental research design that exploits changes in cigarette taxes and SFA policies within a state over time.

Results Taxes are found to be uncorrelated with the density of combined convenience stores and gas stations in a state. Taxes are positively correlated with the density of convenience stores; however, the magnitude of this correlation is small, with a 10% increase in state cigarette taxes associated with a 0.19% ($p<0.05$) increase in the number of convenience stores per million people in a state. State-level SFA policies do not correlate with convenience store density in a state, regardless whether gas stations were included. These results are robust across different model specifications. In addition, they are robust with regard to the inclusion/exclusion of other state-level tobacco control measures and gasoline prices.

Conclusions Contrary to tobacco industry and related organisations' claims, higher cigarette taxes and stronger SFA policies do not negatively affect convenience stores.

INTRODUCTION

Raising tobacco taxes/prices and implementing comprehensive smoke-free air (SFA) policies have been shown to be effective in reducing tobacco use, as well as non-smokers' exposure to tobacco smoke.[1–6] Indeed, in the USA, inflation-adjusted state cigarette excise taxes have more than tripled since the early 1980s, and significant taxes have been adopted in several localities. Since 2002, 47 states, the District of Columbia and several US territories have increased their tax rates a total of >100 times.[7] In addition, since mid-1990s, a total of 35 states and District of Columbia have adopted laws that require 100% smoke-free workplaces and/or restaurants and/or bars (26 of these states had laws in effect that require 100% smoke-free workplaces, restaurants and bars as of 31 December 2010).[8] Moreover, according to Americans for Non-smokers' Rights, 949 municipalities currently have a 100% SFA provision in effect at the local level in workplaces and/or restaurants and/or bars (468 municipalities require workplaces, restaurants and bars to be 100% smoke-free as of 1 July 2011).[9]

While tobacco products are sold in a wide variety of retail establishments in the USA,[10] in 2002, approximately 51% of the annual total retail sales of tobacco products, or about US$26 billion, occurred in convenience stores.[11] Vast majority of convenience stores (95%) sell tobacco products.[11 12] Sales of tobacco products represented 12.4% of the total sales in convenience stores in 2002.[11] The reduction in cigarette consumption has economic implications for the retail establishments that sell cigarettes and other tobacco products. Not surprisingly, retailers and tobacco-backed retail organisations have often argued against higher cigarette taxes, stronger SFA policies and other tobacco control policies. The anti-cigarette tax rhetoric intensified recently as a number of states and localities were considering increasing tobacco taxes to curb youth smoking and generate additional tax revenues to fill budget gaps.[13–15] Indeed, a simple Google search using keywords 'cigarette tax hurt convenience store' generated >60 000 results as of 10 June 2011. The central thesis of this argument is that higher cigarette taxes reduce the sales of cigarettes and therefore negatively affect the business of convenience stores.

In the context of this debate, it is important to empirically investigate the economic impact of state cigarette taxes and SFA policies on convenience stores. In a seminal study, Ribisl and colleagues[11] examined the economic implications of the reduction in cigarette consumption in the USA for the retail establishments that sell tobacco products. Using data from the Census of Employment and Wages, they found that cigarette sales affect neither the employment nor the number of establishments of convenience stores. In addition, they found that decreasing consumption of cigarettes does not negatively influence the overall employment and number of retail establishments in the retail sector, and the decline in employment in tobacco stores are offset by the increase in employment in beer, wine and liquor stores.[11]

In this study, we investigate how state cigarette taxes and SFA policies affect convenience store density by examining their impact on the number of convenience stores per million people in a state. Convenience store density is determined by the entry of new stores and exit of existing stores, both of which are ultimately determined by the profits of convenience stores. Our research builds on Ribisl and colleagues' study and improves the literature in a number of ways. First, we use panel data of the estimates of convenience stores for 50 states and District of Columbia during the time period

between 1997 and 2009, examining the impact of state cigarette taxes by taking advantage of the significant within-state variations in taxes over this time period. Second, in addition to taxes, we investigate the economic impact of state SFA policies on convenience stores, a topic that has not been examined by previous literature. Furthermore, our estimates of convenience store establishments are based on a commercial database that has been validated by a number of studies using direct field observations. It helps capture the convenience store establishments that may have been overlooked by the Census of Employment and Wages, which does not collect data on establishments that are not covered by State Unemployment Insurance laws—usually small business or self-employed, a segment which may be important to the analysis of convenience stores. Our research thus provides new empirical evidence to inform the current debate.

METHODS

Data

The dependent variable in our analysis—convenience store density or the number of convenience stores per million people in a state—is constructed using Dun & Bradstreet (D&B) Marketplace data. D&B Marketplace data provide the estimates of the number of business establishments in a specific industry using a variety of sources including yellow pages, government registries, payment data, verified company financial information, courts and legal filing offices, trade references, newspapers and publications, telephone interviews, direct investigations and more. The completeness and accuracy of the commercial database such as D&B have been validated by a number of recent studies using direct field observations.[16 17] The classification of industry in D&B Marketplace data is based on standard industrial classification (SIC) codes. A business is self-classified into a primary SIC category in D&B Marketplace data. Several secondary SIC categories can be specified for a business in addition to its primary SIC category in situations when a business participates in additional industries. Primary SIC category was used to estimate convenience store counts for 50 states and DC. Annual state-level estimates were constructed for the time period from 1997 to 2009. Our analytical panel data thus consist of 663 observations, 13 years of data for 50 states and District of Columbia.

To accurately measure convenience store density, we use two variables to capture the number of convenience stores in a state. The first one only captures convenience stores (eg, 7—Eleven, White Hen, ampm), both chain and independent. The second one broadens the first to include gas stations (both gas service and gas filling stations) and gas stations with convenience stores. In addition, we also conducted analyses that look only at gas stations. The total number of stores in a state in a given year was then divided by the total population in that state and year, multiplied by 1 million, to generate store density variables.

The key explanatory variables in this study are state cigarette excise taxes and SFA policies. These data are taken from the Bridging the Gap/ImpacTeen project's State Tobacco Control Policy Surveillance system which tracks state-level tobacco control policies, such as price/tax, tobacco control funding, youth access laws, SFA laws and SFA pre-emption laws, as well as state smoking prevalence.

State tax is the annual average of cigarette excise tax rates in a state. If the tax rate changed in a given year, we used the average of the old and new rate, weighed by the period of months each rate was in effect. State tax as well as other income and price variables were adjusted by the Consumer Price Index published by the Bureau of Labor Statistics to account for inflation and were expressed in 2009 dollars.

State SFA polices are measured by two SFA indices. The first SFA index captures state SFA laws and pre-emption laws at private workplaces, restaurants and bars. The second SFA index broadens the first one to include state SFA laws and pre-emption laws at government buildings or workplaces, childcare centres, healthcare facilities, recreational facilities, public transit, shopping malls, hotels, and public and private schools. For SFA laws, each venue was coded using a value from 0 to 3, with 0 indicating no SFA laws, 1 indicating restrict smoking to designated smoking areas or require separate ventilation with exemptions for locations of a certain size, 2 indicating that smoking was restricted to separately ventilated areas or a ban with exemptions for certain locations where only a restriction applies and 3 indicating a comprehensive smoke-free policy that bans smoking at all times. In addition, to account for state pre-emption of stronger local policies, a dichotomous variable was used for each venue with 0 indicating no pre-emption laws and 1 indicating having pre-emption laws. The SFA index was constructed by summing up the values of SFA laws, subtracting the total values of pre-emption laws, in all venues. The effective dates of SFA and pre-emption laws were taken into account when constructing the SFA and pre-emption indices; as a result, the actual value of these indices may not be an integer.

In order to capture the impact of gasoline prices on convenience stores, we used the state-level motor gasoline price estimates in the transportation sector from the State Energy Data System, which is provided by the US Energy Information Administration. Prices are retail prices (usually service station prices). Prices are expressed using Btu prices, which are computed by converting the physical unit prices in dollars per gallon to dollars per barrel (42 gallons per barrel). The prices are then converted to dollars per million Btu by using a variable annual factor. More details on the gasoline price variable can be found at the US Energy Information Administration's website.[18]

State economic indicators, such as per capita personal income and unemployment rates, were obtained from the Federal Reserve Bank of St Louis's FRED database.[19] Finally, we created mutually exclusive but all-inclusive dichotomous indicators for each state and each year. The dichotomous state indicators capture all time-invariant state-level unobserved heterogeneity. The year indicators account for overall time trend and year-specific heterogeneity.

Statistical methods

This quasi-experimental study used two-way fixed effects regression techniques that control for state-specific and year-specific determinants of convenience store density in a state. The state effects control for state characteristics that are constant over time within a state but vary across states. The year effects capture the influences on convenience store density that are common to all states but vary over time. Specifically, we estimate the following pooled cross-sectional time series multivariate equation:

$$Y_{it} = TAX_{it}\beta + SFA_{it}\lambda + ECONOMIC_{it}\delta + s_i + y_t + e_{it}.$$

Y represents one of the three dependent variables (the density of convenience stores, gas stations, and combined convenience stores and gas stations) for state i in year t. TAX is the state cigarette excise tax rate in state i and in year t. SFA represents the value of comprehensive SFA index in state i and year t. ECONOMIC are economic indicators, such as inflation adjusted

per capita personal income, unemployment rate or gasoline prices, in state i, in year t. Finally, s represents the state fixed effects and y the year fixed effects. e is the idiosyncratic error term.

Given the nature of the dependent variables, which are count variables, the appropriate statistical methods to estimate the parameters in the models are Poisson and negative binomial regressions.[20] Negative binomial regression is used for over-dispersed count data. It can be considered as a generalisation of Poisson regression given it has the same mean structure as Poisson regression and has an extra parameter to model the overdispersion. A likelihood ratio test can be performed to determine whether negative binomial or Poisson regression should be used. Based on the likelihood ratio tests, models analysing convenience stores were estimated using negative binomial regression. Models analysing gas stations and combined stores were estimated using Poisson models. Finally, the SEs in all the models were constructed so as to allow for arbitrary correlations in errors within a state over time and across states in a given year.

RESULTS

Summary statistics are presented in table 1. The average density of convenience stores in a state was 220 stores per million people for the period from 1997 to 2009. Figure 1 shows the time trend of convenience store density. Despite declines around 2000 and 2007, the overall trend was upward, with the average convenience store density in a state increasing from 207 in 1997 to 230 in 2009. The average density of gas stations in a state in our study period was 259 stations per million people. Average inflation-adjusted state tax rates were 79 cents (in 2009 dollar), and the average comprehensive SFA index was 11. Average state tax rates have gone up from 47 cents in 1997 to 127 cents in 2009 (figure 2), reflecting the tax increases in states since 1997. The comprehensive SFA index increased from 5 in 1997 to 22 in 2009 (figure 3), reflecting the increasingly stronger SFA policies across states. In addition, during the same time period, gasoline prices saw significant increases (figure 4). Inflation-adjusted gasoline price has gone up from $13 per million Btu in 1997 to $26 per million Btu in 2008.

Regression results are summarised in table 2. The top panel in table 2 presents the estimated coefficients from the analysis of convenience stores using negative binomial regressions. The middle panel presents the estimated coefficients for the analysis of gas stations using Poisson regressions. The bottom panel presents the results for the combined convenience stores and gas

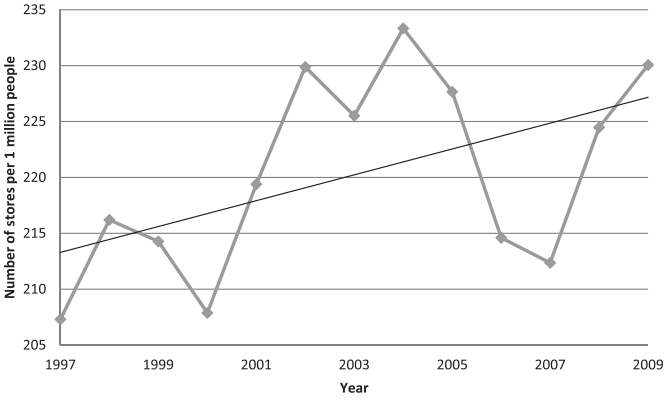

Figure 1 Average number of convenience stores in a state.

stations from Poisson regressions. Each set of analyses consists of four different models. Model 1 looks at the impact of state tax alone, and model 2 looks at the impact of state tax and SFA polices. Model 3 is similar to model 1, and model 4 is similar to model 2, with the differences being that the last two included the gasoline price in the analysis.

Results in the top panel of table 2 indicate that state taxes are positively associated with convenience store density in a state. This association is marginally significant ($p<0.05$) in all four model specifications. The magnitude of the estimated coefficients is fairly stable across different models. The estimated coefficients of negative binomial models can be interpreted as the difference in the logs of expected counts of the response variable caused by a one-unit change in the predictor variable. Given the tax variable is also in log form, the estimated coefficient can be interpreted as the tax elasticity. In the models without SFA policies, the estimated coefficients imply that a 1% increase in state tax is associated with a 0.017% increase in convenience store density. In the models with SFA policies, a 1% increase in state tax is associated with a 0.019% increase in convenience store density.

SFA policies do not appear to be correlated with convenience store density. The estimated coefficient of SFA index is positive; however, it is only statistically significant in model 2. The estimated coefficients for the state per capita personal income variable are also positive but statistically insignificant. Gasoline price is found to be negatively associated with convenience store density. The estimated coefficients for the gasoline variables are highly significant ($p<0.001$).

Table 1 Summary statistics

Variable name	Number of observation	Mean	SD	Min	Max
Number of convenience stores per million people in a state	663	220	81	84	441
Number of gas stations per million people in a state	663	259	69	102	515
Combined number of gas stations and convenience stores per million people	663	480	124	241	801
Inflation-adjusted state per capita personal income, in 2009 dollars	663	37 070	6245	25 234	66 268
State unemployment rate	663	5	2	2	14
Inflation-adjusted gasoline price, dollars per million Btu, in 2009 dollars	612	17	5	9	29
Inflated-adjusted state cigarette excise tax, in 2009 cents	663	79	59	3	318
Comprehensive smoke-free air policy index	663	11	12	−9	39

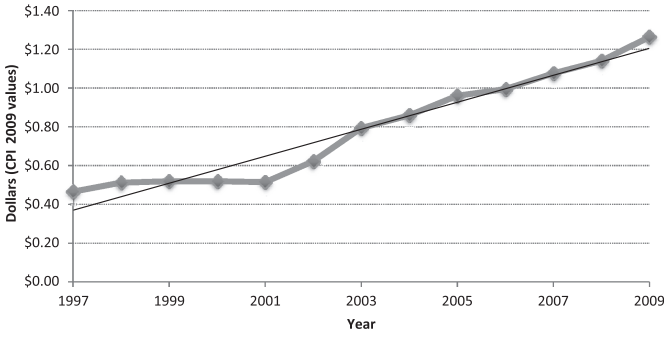

Figure 2 Average state inflation adjusted cigarette tax rates. CPI, Consumer Price Index.

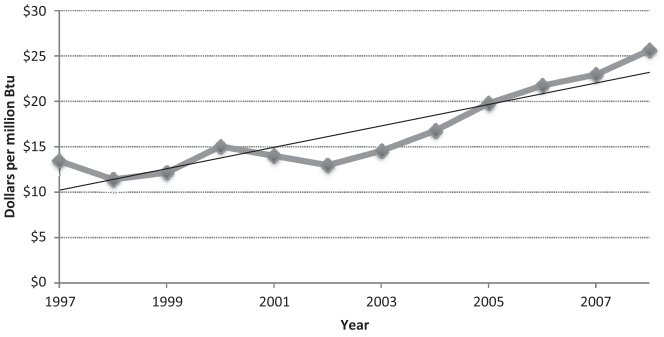

Figure 4 Average state-level gasoline price, dollars per million Btu.

The second panel of table 2 presents the results for the analysis of gas stations. Unlike the analysis for convenience stores, models analysing gas stations were estimated using Poisson regressions. Neither state taxes nor SFA policies are correlated with the number of gas stations, as neither of their estimated coefficients are statistically significant. The estimated coefficients for gasoline price are negative but not statistically significant. State per capita personal income is found to be negatively correlated with gas station density. The estimated coefficients for state per capita personal income are marginally significant ($p<0.05$) in models 3 and 4.

The last panel in table 2 summarises the analysis for the combination of convenience stores and gas stations. State taxes and SFA policies are found to be positively, but not significantly, correlated with the number of these stores. Given the quasi-experimental research design, it indicates that neither state taxes nor SFA policies negatively affects the combined number of convenience stores and gas stations in a state. Similarly, state per capita personal income is also found to be uncorrelated with these stores. Gasoline prices, however, are found to be negatively correlated with the number of these stores, with a 1% increase in gasoline price associated with a 0.18% decrease in the number of stores per million people in a state.

To assess the robustness of the results presented in table 2, we employed alternative modelling techniques such as linear regressions. In addition, the comprehensive SFA index was replaced with a narrowly defined SFA index that only captures the SFA polices at private workplaces, restaurants and bars. Furthermore, a measure of state tobacco control funding was included in all the models. Finally, state unemployment rates were added to the models to capture the aspects of state economic environment that were not captured by state per capita personal income. None of those changes altered the signs and magnitude of the estimated coefficients for the variables presented in table 2 in a substantial way (all results mentioned above are available upon request).

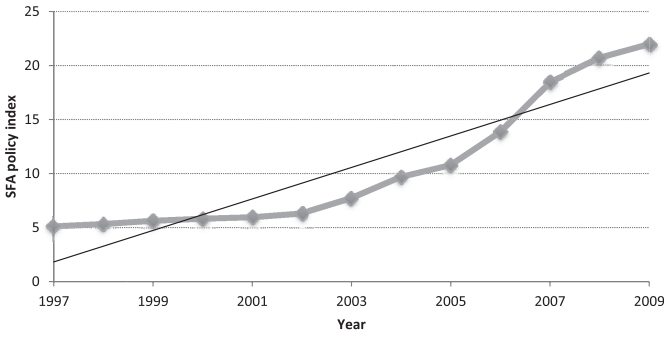

Figure 3 Average state-level smoke-free air (SFA) policy index.

Our analyses indicate that state taxes are not correlated with the number of gas stations and the combined number of convenience stores and gas stations. State taxes are positively correlated with the number of convenience stores; however, the magnitude of this correlation is small, with a 10% increase in state taxes associated with a 0.19% increase in the number of convenience stores per million people in a state and is significant only at the 0.05 level. Our results also show that state SFA policies do not correlate with convenience store and gas station densities, regardless examined as separate categories or in combination. Our finding that state cigarette excise taxes and SFA polices do not negatively affect convenience store density in a state is robust across different model specifications. It is not sensitive to whether gas stations were included as convenience stores. In addition, it is robust with regard to the inclusion/exclusion of other state-level tobacco control measures and gasoline prices.

DISCUSSIONS AND CONCLUSIONS

The results of our study clearly demonstrated that higher state taxes and stronger SFA policies have had no negative impact on gas stations and convenience stores, examined as separate categories and in combination. Our results are consistent with the study done by Ribisl *et al*, who found that the reduction in cigarette consumption has had no impact on overall employment and the number of establishments in the retail sector in the USA between the time period 1990 and 2004. While we found a positive correlation between state taxes and convenience store density, as discussed earlier, this positive correlation is weak both in terms of statistical power and its magnitude. Given that, we cannot conclusively demonstrate that higher state taxes increase convenience store density in a state. More studies are needed to better assess the implications of the policies that complement cigarette tax increase and limit tobacco retailer density.

There are a number of possible explanations that can explain why higher taxes and stronger SFA polices do not negatively affect convenience stores. It is well documented that tobacco industry price discounting strategies, price-reducing marketing activities and lobbying efforts mitigate the impact of tobacco excise tax increases.[21] According to a recent Federal Trade Commission report,[22] in 2006, tobacco industry spent $12.5 billion (down from $13.1 billion in 2005) on advertising and promotions, among which the largest single category was price discounts paid to cigarette retailers or wholesalers in order to reduce the price of cigarettes to consumers. This one category

Table 2 The impact of state cigarette tax and SFA policy on convenience stores

	Model 1	Model 2	Model 3	Model 4
Number of narrowly defined convenience stores per million people (estimated coefficients from negative binomial regression)				
Log inflation-adjusted state cigarette tax	0.017* (0.007)	0.019* (0.007)	0.017* (0.008)	0.019* (0.008)
SFA policy index		0.001* (0.0005)		0.001 (0.001)
Log inflation-adjusted per capita personal income	0.203 (0.109)	0.165 (0.116)	0.151 (0.124)	0.123 (0.131)
Log inflation-adjusted gas price			−0.703*** (0.130)	−0.684*** (0.130)
Number of gas stations per million people (estimated coefficients from Poisson regression)				
Log inflation-adjusted state cigarette tax	−0.004 (0.005)	−0.005 (0.005)	−0.002 (0.005)	−0.002 (0.005)
SFA policy index		−0.0003 (0.0004)		0.0006 (0.0004)
Log inflation-adjusted per capita personal income	−0.252** (0.078)	−0.244** (0.078)	−0.205* (0.083)	−0.204* (0.085)
Log inflation-adjusted gas price			−0.003 (0.077)	−0.005 (0.077)
Number of broadly defined convenience stores (including gas stations) per million people (estimated coefficients from Poisson regression)				
Log inflation-adjusted state cigarette tax	0.003 (0.005)	0.004 (0.005)	0.004 (0.005)	0.004 (0.005)
SFA policy index		0.0004 (0.0003)		0.0004 (0.0003)
Log inflation-adjusted per capita personal income	−0.089 (0.067)	−0.099 (0.070)	−0.075 (0.077)	−0.087 (0.080)
Log inflation-adjusted gas price			−0.188** (0.062)	−0.179** (0.061)
Number of observation	663	663	612	612

The gasoline price variable is included in models 3 and 4 but not in models 1 and 2. Models 3 and 4 cover only the time period 1997-2008, as gasoline price data in 2009 were not available at the time of this study. As a result, the number of observations in models 3 and 4 are 612 (51*12). SFA policy index is included in models 2 and 4 but not in models 1 and 3. All four models include state fixed effects and year fixed effects. The likelihood ratio tests were performed to examine whether Poisson or negative binomial regressions should be used. For the analysis of narrowly defined convenience stores, the probability that the estimated overdispersion coefficients differ from zero was less than 0.001 for all four models, hence, negative binomial models were used. For the analysis of gas stations and broadly defined convenience stores, the likelihood ratio tests indicated that the overdispersion coefficients do not differ from zeros; as a result, Poisson models were used. Missing cells represent the variables are not included in the model. SEs in parentheses. The SEs in all the models were constructed so as to allow for arbitrary correlations in errors within a state over time and across states in a given year. Significance levels: ***p<0.001, **p<0.01, *p<0.05. Inflation was adjusted to 2009 dollars.
SFA, smoke-free air.

accounted for $9.2 billion (or 73.7%) of the total advertising and promotional expenditures by tobacco industry in 2006. To put this into context, the total revenue states received from cigarette excise taxes in 2006 was $13.8 billion, up from $12.2 billion in 2005. Thus, tobacco industry's marketing spending on reducing cigarette prices was equivalent to two thirds of the total cigarette tax revenues states received. It outweighed and offset the $1.6 billion tax increase, which largely resulted from the increase of cigarette tax rates in a number of states between 2005 and 2006. Because the price-reducing promotions and discounts were used to soften the impact of state and federal tax increases, the impact of higher state cigarette taxes on cigarette prices was mitigated, so did their impact on the sale of cigarettes.

Additionally, while higher cigarette taxes that increase prices reduce cigarette consumption, and hence the sales of cigarettes, it does not mean that higher cigarette taxes reduce the total sales in a convenience store. Money previously spent on tobacco products will be spent on other goods and services, such as gasoline and coffee, creating alternative sales. As a result, total sales in a convenience store may or may not be affected by higher cigarette tax.

Furthermore, as standard economic theory predicts, the success of a convenience store depends on its profits, not sales. The profits of a convenience store may well be increased when a cigarette tax increase was over-shifted to consumers, meaning that the tax increase was passed through to consumer prices at a rate higher than one-for-one. For instance, when a state increased its cigarette excise tax rate, a convenience store might sell fewer packs per day because of smokers quitting and curtailing consumption. However, the profits of the store may not be affected if the store raises prices to make up for the unsold packs. And if the percent increase in price is bigger than the percent decrease in sales, the profits may even go up. Indeed, substantial evidence from the studies that examine the relationship between cigarette taxes and retail prices points to this direction.[23–27] For example, a recent study in 2008 estimated that a $1 increase in state cigarette excise tax increases cigarette prices by $1.10–$1.13.[27] With over-shifting of cigarette taxes, the profits of a convenience store could increase, despite of the decline in cigarette sales. This implies higher cigarette tax may have a positive impact on convenience store profits.

Similar arguments can be made regarding adopting stronger SFA policies. After SFA policies were enacted, money that used to be spent on cigarettes does not disappear from the economy, instead, it will be spent on other goods and services in convenience stores. As a result, enacting stronger SFA policies may not have a substantial impact on a convenience store's total sales and profits. Indeed, a number of previous studies found that reduction in tobacco use leads to no or small net positive impact on state employment and income, as money once spent on tobacco products would be spent on other goods and services, which leads to increased economic activity and employment in other sectors.[28 29] In addition, when stronger SFA policies become effective, convenience stores can make up for the reduction in cigarette sales by raising cigarette prices. The findings from our study showing stronger SFA policies have had no negative impact on convenience store density support these hypotheses.

Our study is subject to at least two limitations. We were unable to examine store-level sales and profits directly and unable to investigate variations in convenience store profits within a state (eg, the profits of convenience stores that are close to state borders may be more affected by cigarette tax differentials between states than stores far away from state borders) due to lack of such data. Future researches can improve the analysis by incorporating store-level sales and profits data. Despite these limitations, our study provide new evidence that shows higher cigarette taxes and stronger SFA policies do not negatively affect convenience store density in a state, a proxy that reflects the entry of new stores and exit of existing stores, which are ultimately determined by convenience store profits.

These findings from our study clearly counter tobacco industry and related organisations' claims that higher cigarette taxes and stronger comprehensive smoke-free policies have a negative economic impact on convenience stores. Our results provide new evidence to state and local policymakers on the economic benefits of raising cigarette taxes and enacting SFA

What this paper adds

- Very limited research has been conducted on the economic impact of cigarette taxes and smoke-free air policies on convenience stores.
- Results show, contrary to what tobacco industry and related organisation claim, neither higher cigarette taxes nor stronger smoke-free air policies has a negative economic impact on convenience stores.

policies. In addition, our study also helps inform policymakers in other countries where the opposition of enacting stronger tobacco control policies are based in part on the fears of the negative economic impact on their retail sectors.

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Competing interests None.

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