

# **The Impact of North Dakota's Smoke-Free Law on Restaurant and Bar Taxable Sales**



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Law on Restaurant and Bar Taxable Sales**

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August 8, 2007



## Introduction

According to the U.S. Surgeon General, secondhand smoke causes early death and illness in children and adults who do not smoke. There is no risk-free level of exposure to secondhand smoke, and exposure to adults has immediate adverse effects on the cardiovascular system. The establishment of smoke-free environments is the only effective way to fully protect nonsmokers from the dangers of secondhand smoke (U.S. Department of Health and Human Services [USDHHS], 2006). In April 2005, North Dakota's 59<sup>th</sup> Legislative Assembly amended North Dakota Century Code (NDCC) 23-12-09 relating to smoking in public places and places of employment. Effective August 1, 2005, the law required most public places and workplaces to be smoke free with some exemptions. The exemptions included freestanding bars; separately enclosed bars in restaurants, hotels and bowling centers; and hotel and motel rooms and other lodging establishments. Prior to the 59<sup>th</sup> Legislative Session, smoking was restricted to designated areas in public places, government buildings, health-care facilities, schools and restaurants (NDCC 23-12-09), and prohibited in licensed early childhood facilities at any time during which a child who received services from that facility was present and receiving such services (NDCC 50.11-02.2).

Prior to passage of this legislation, some argued that the smoke-free law would be harmful to the hospitality economy in North Dakota. The purpose of this study was to assess whether these predictions have any merit based on taxable sales data before and one year after the North Dakota smoke-free law went into effect.

The economic impact of smoke-free laws has been studied in numerous localities. Scollo, Lal, Hyland and Glantz (2003) identified all then-known smoke-free economic impact studies and evaluated the studies utilizing criteria for well-designed studies as defined by Siegel (as cited in Scollo et al., 2003). Siegel's criteria included: utilization of objective data, inclusion of several

years of data, use of statistical methods that control for trends and fluctuations and test for significance, and control for changes in economic conditions. Twenty-one studies met the most rigorous methodological criteria, of which none showed a negative economic impact in restaurants and bars. It was noted that studies that found a negative impact generally had weaker study designs such as relying on subjective measures of economic impact. Since Scollo, et al. (2003), the U.S. Surgeon General's Report (USDHHS, 2006, p. 16) reviewed additional studies and stated that "evidence from peer-reviewed studies show that smoke-free policies and regulations do not have an adverse economic impact on the hospitality industry."

#### Methods

The North Dakota Office of the Tax Commissioner provided quarterly data on taxable sales from 2003 through the third quarter of 2006 for the North American Industry Classification System (NAICS) Codes of 44 - 45 Retail Trade Sector and the 722 Food Services and Drinking Places Subsector and its industry group subsets. Data previous to 2003 was not obtained, as a different classification system was utilized previous to 2003 by the Tax Commissioner's office. The NAICS is an industry classification system utilized by the U.S. Census Bureau (2006) that allows comparison of business activity statistics. The NAICS Codes, with their respective definitions, utilized in this study included:

- 44-45 Retail Trade Sector: establishments engaged in retail merchandise and rendering services incidental to the sale of merchandise.
- 722 Food Services and Drinking Places Subsector: establishments that prepared meals, snacks and beverages to customer order for immediate consumption.
  - 7221 Full-Service Restaurants Industry Group: provided food services to patrons who ordered and were served while seated and paid after eating. Establishments that

combine other services such as takeout services remained classified as full-service restaurants.

- 7222 Limited-Service Eating Places Industry Group: provided services where the patrons ordered and paid before eating, some may have brought food to seated customers or may have provided off-site delivery, including limited-service restaurants, cafeterias and snack and nonalcoholic beverage bars.
- 7223 Special Food Services Industry Group: included food service contractors, caterers, and mobile food services.
- 7224 Drinking Places (Alcoholic Beverages) Industry Group: included bars, taverns, nightclubs, or other drinking places that served beverages for immediate consumption. These establishments may also have provided limited food services.

The taxable sales of Food Services and Drinking Places Subsector and the Industry Groups subsets relative percentage change from a given quarter to the previous quarter of the previous year was calculated. As the ND smoke-free law became effective August 1, 2005, the start of the second month of the third quarter, third quarter data was included as post-law data.

Data on the taxable sales for the Food Services and Drinking Places Subsector and each industry group was also calculated as a fraction of the Retail Trade Sector taxable sales. Comparisons of a given quarter to the same quarter in the previous year were calculated. The calculation of the fraction of the indicators to the overall retail trade controlled for underlying economic trends, and the quarterly comparisons controlled seasonal factors and fluctuations. The Special Food Services Industry Group was not analyzed, as it typically included contractors, caterers, and mobile food services. The fractions were calculated as follows:

1. Taxable Sales from Food Services and Drinking Establishments Subsector / Retail Sales
2. Taxable Sales from Full Service Restaurant Industry Group / Retail Sales

3. Taxable Sales from Limited-Service Eating Places Industry Group / Retail Sales
4. Taxable Sales from Drinking Places Industry Group / Retail Sales

### Results

Quarterly taxable sales data from 2003 through the third quarter of 2006 for the NAICS Codes related to the retail trade sector and restaurant and bar establishments were obtained from the North Dakota Office of the Tax Commissioner.

Table 1 presents the taxable sales of Food Services and Drinking Places Subsector and the Industry Groups subsets (Full-Service Restaurants, Limited-Service Eating Places, Special Food Services, and Drinking Places) from 2003 through the third quarter of 2006 with pre-law and post-law quarters indicated. Also, the relative percentage change from a given quarter to the same quarter in the previous year is shown in parentheses. When comparing a given quarter to the same quarter of the previous year, the taxable sales and the relative percentage change of taxable sales of the Food Services and Drinking Places Subsector and all industry group subsets continued to increase after the smoke-free law was implemented.

Table 1.

*Taxable Sales of Food Services & Drinking Places Subsector & Industry Groups (in Millions)*

Quarter	<u>Pre-law</u> 2003	<u>Pre-law</u> 2004	<u>Pre-law</u> 2005	<u>Post-law</u> 2005	<u>Post-law</u> 2006
<b>Food Services &amp; Drinking Places Subsector</b>					
1	147.8	158.0 (6.9%)	168.3 (6.5%)		181.1 (7.6%)
2	164.9	175.9 (6.7%)	188.2 (7.0%)		195.3 (3.8%)
3	174.8	187.7 (7.4%)		195.0 (3.9%)	205.9 (5.6%)
4	166.5	180.6 (8.4%)		189.2 (4.8%)	
<b>Full Service Industry Group</b>					
1	73.2	75.7 (3.4%)	79.0 (4.4%)		85.1 (7.8%)
2	77.8	80.5 (3.4%)	85.2 (5.9%)		88.3 (3.6%)
3	82.5	85.6 (3.8%)		87.9 (2.6%)	93.1 (6.0%)
4	81.0	85.1 (5.0%)		87.5 (2.9%)	
<b>Limited Service Industry Group</b>					
1	55.6	60.0 (7.9%)	64.9 (8.3%)		69.0 (6.2%)
2	66.8	71.9 (7.6%)	76.5 (6.5%)		79.4 (3.8%)
3	70.1	76.4 (9.0%)		78.7 (3.0%)	81.0 (3.0%)
4	63.4	69.4 (9.6%)		72.8 (4.8%)	
<b>Drinking Industry Group: Exempt from Current Regulations</b>					
1	18.2	21.7 (19.3%)	23.6 (8.5%)		26.1 (10.8%)
2	19.5	22.8 (16.9%)	25.6 (12.2%)		26.6 (4.1%)
3	20.6	23.9 (16.0%)		26.5 (11.2%)	28.6 (7.8%)
4	21.3	25.1 (17.5%)		27.9 (11.1%)	

*Note.* The 2005 third quarter data includes one month pre-law and two months post-law data and was characterized as post-law in the table. Data in parentheses is the calculation of the relative percentage change from a given quarter to the same quarter of the previous year.

Figures 1 - 4 present the taxable sales of the Food Services and Drinking Places Subsector and Industry Groups.

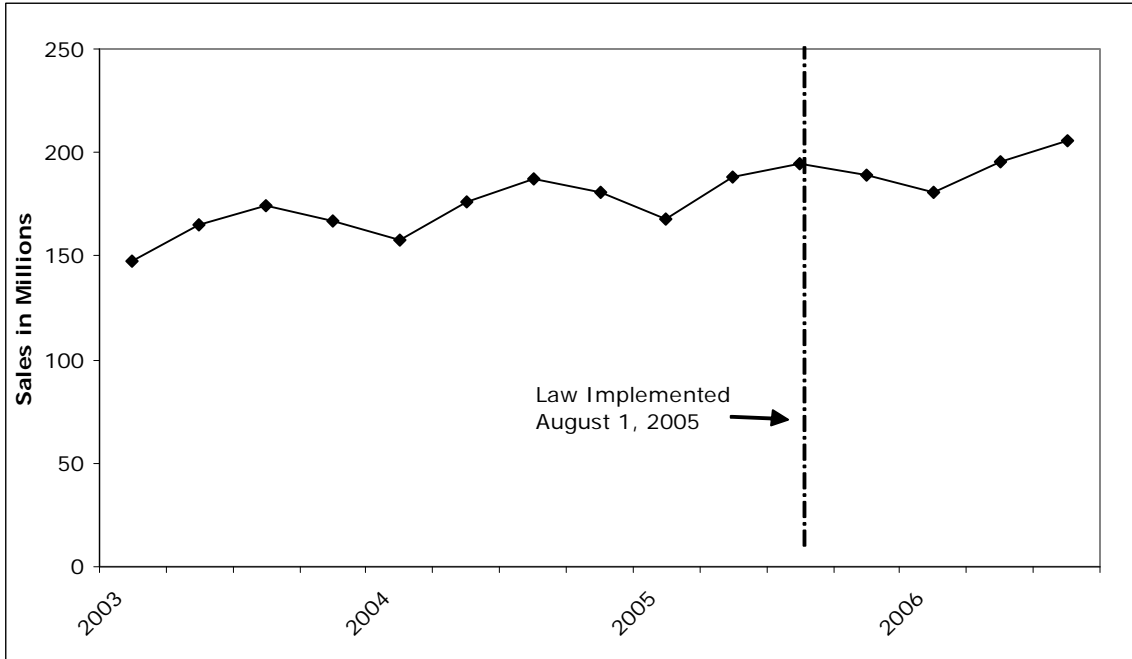


Figure 1. Taxable sales of Food Service & Drinking Places before and after implementation of the law.

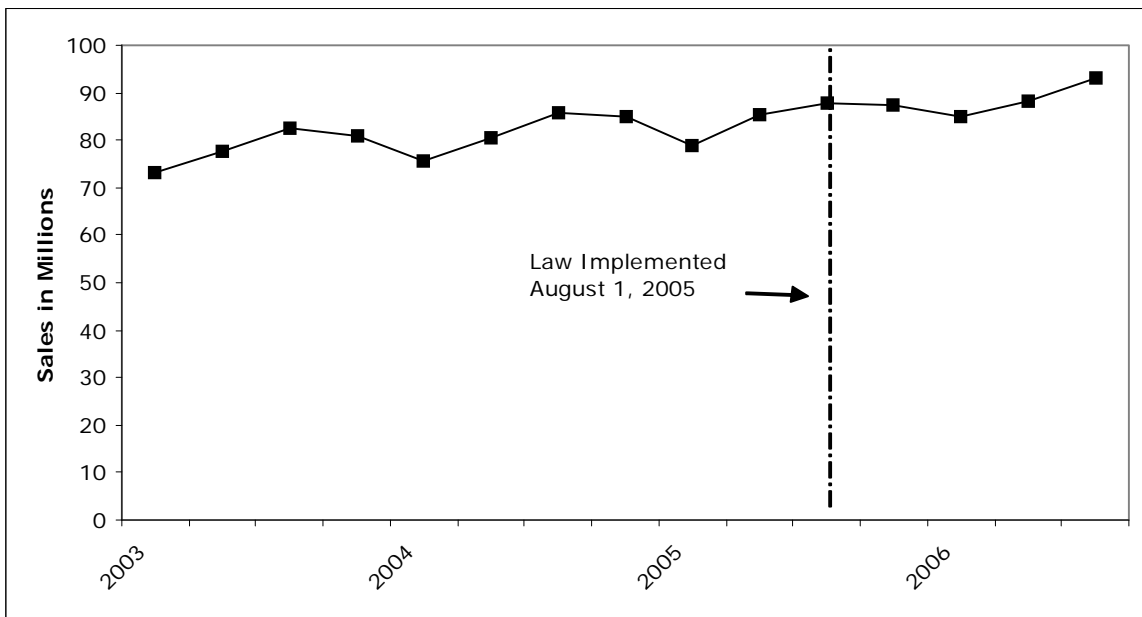


Figure 2. Taxable Sales of Full Service Restaurant Industry Group before and after implementation of the law.

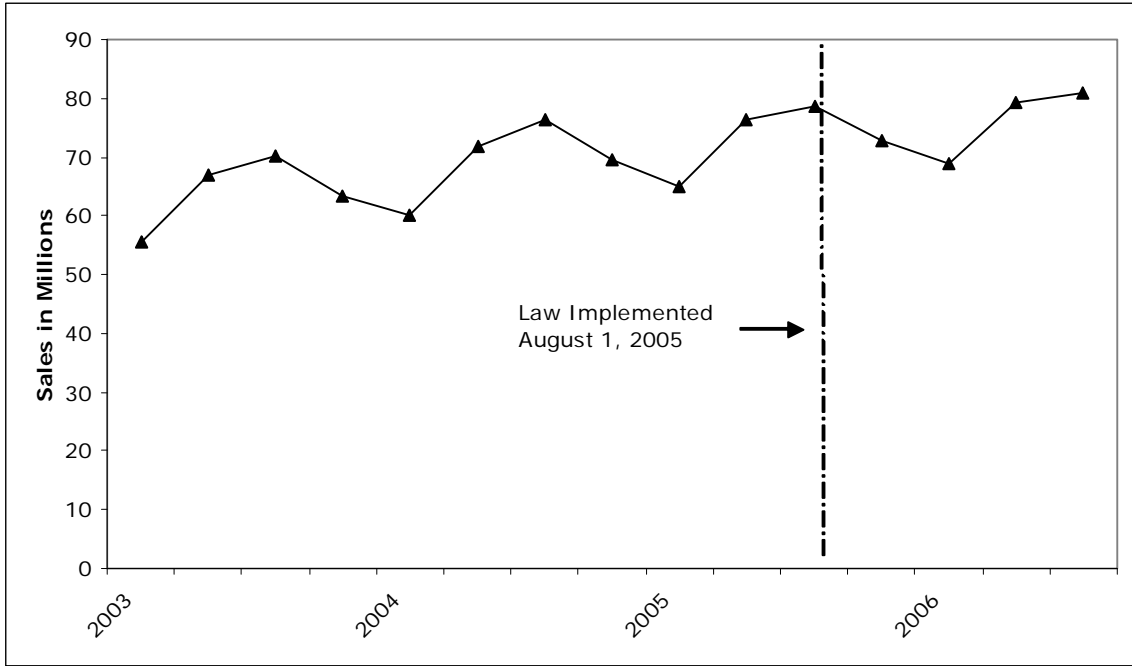


Figure 3. Taxable Sales of Limited-Service Eating Places before and after implementation of smoke-free law.

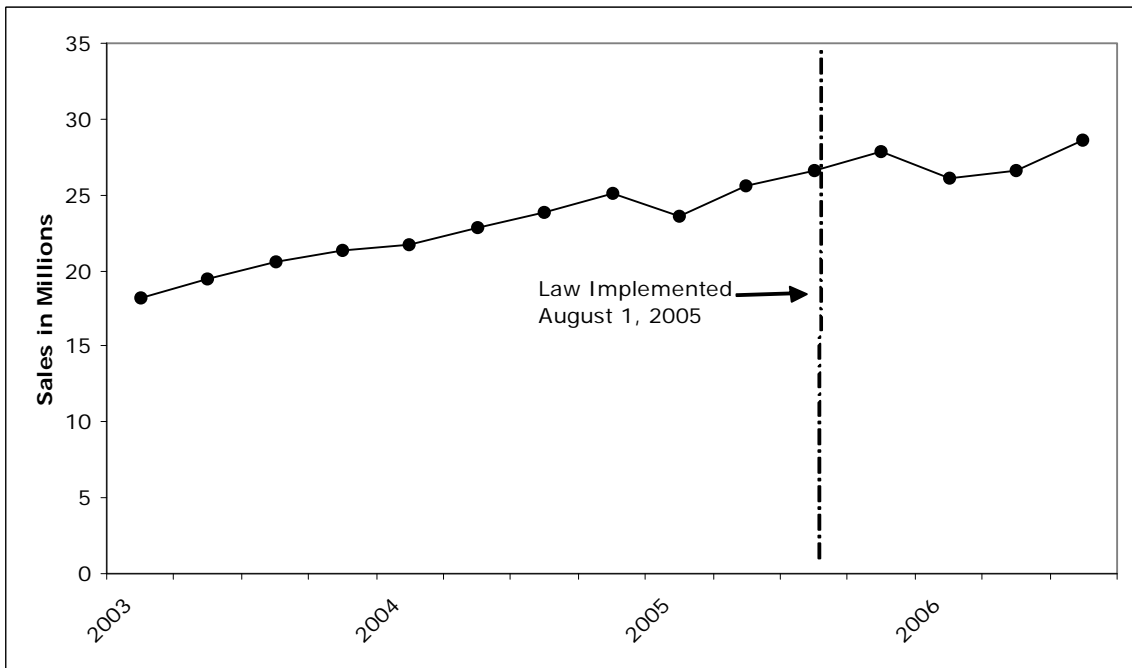


Figure 4. Taxable Sales of Drinking Places Industry Group before and after implementation of the law.

Table 2 presents trends over time of the fractions of the total retail sales for restaurant and bar establishments, with quarter-to-quarter comparisons. The fractions of the total retail sales for restaurant and bars fluctuated slightly, no more than 0.5%, with the quarters. Fluctuations of a given quarter to the same quarter in the previous year were minimal both during the pre-law and post-law quarters, with the greatest increase being two-tenths of one percent and the greatest decrease being one-half of one percent. There appears to be no consistent change of trends after the smoke-free law was implemented.

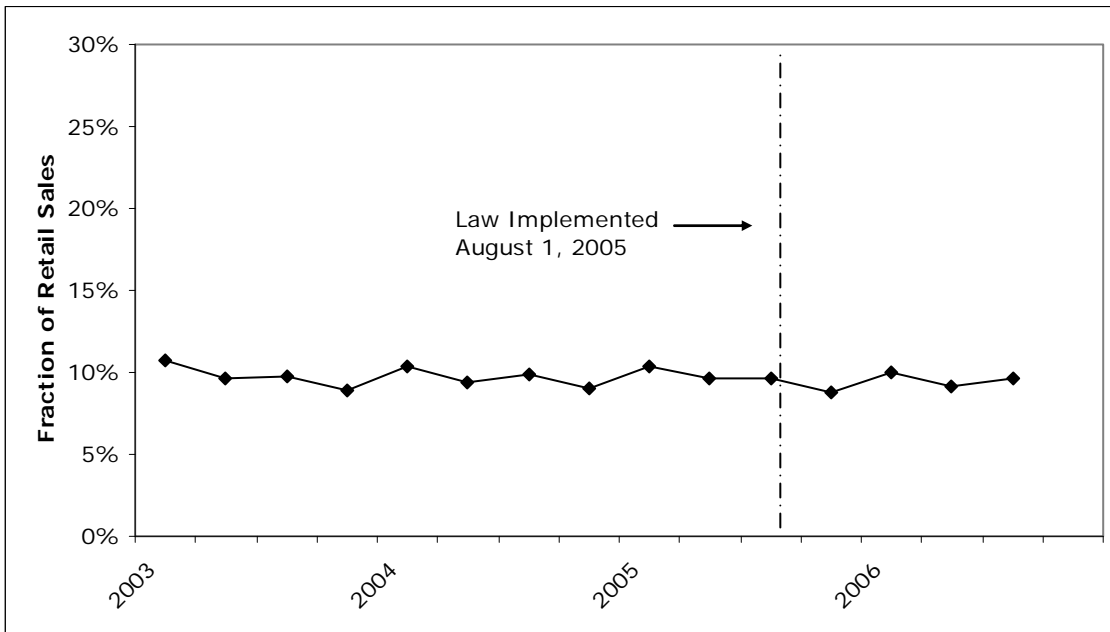
Table 2

*Taxable Sales of Food Services & Drinking Places Subsector & Industry Groups (Fractions of Sales)*

Quarter	<u>Pre-Law</u> 2003	<u>Pre-Law</u> 2004	<u>Pre-Law</u> 2005	<u>Post-Law</u> 2005	<u>Post-Law</u> 2006
<b>Food Services &amp; Drinking Places Subsector</b>					
1	10.7%	10.3% (-0.4%)	10.4% (0.0%)		10.0% (-0.3%)
2	9.7%	9.4% (-0.2%)	9.6% (0.1%)		9.1% (-0.5%)
3	9.8%	9.9% (0.2%)		9.6% (-0.4%)	9.6% (0.0%)
4	8.9%	9.1% (0.2%)		8.7% (-0.3%)	
<b>Full Service Industry Group</b>					
1	5.3%	4.9% (-0.3%)	4.9% (-0.1%)		4.7% (-0.2%)
2	4.6%	4.3% (-0.2%)	4.3% (0.0%)		4.1% (-0.2%)
3	4.6%	4.5% (-0.1%)		4.3% (-0.2%)	4.3% (0.0%)
4	4.3%	4.3% (-0.1%)		4.0% (-0.2%)	
<b>Limited Service Industry Group</b>					
1	4.0%	3.9% (-0.1%)	4.0% (0.1%)		3.8% (-0.2%)
2	3.9%	3.9% (0.0%)	3.9% (0.0%)		3.7% (-0.2%)
3	3.9%	4.0% (0.1%)		3.9% (-0.2%)	3.8% (-0.1%)
4	3.4%	3.5% (0.1%)		3.4% (-0.1%)	
<b>Drinking Industry Group: Exempt from Current Regulations</b>					
1	1.3%	1.4% (0.1%)	1.5% (0.0%)		1.4% (0.0%)
2	1.1%	1.2% (0.1%)	1.3% (0.1%)		1.2% (-0.1%)
3	1.1%	1.3% (0.1%)		1.3% (0.0%)	1.3% (0.0%)
4	1.1%	1.3% (0.1%)		1.3% (0.0%)	

*Note.* The 2005 third quarter data includes one month pre-law and two months post-law data and was characterized as post-law in the table. Data in parentheses is the calculation of the relative percentage change from a given quarter to the same quarter of the previous year.

Figures 5 – 8 present visually the fraction of retail sales for the Food Services and Drinking Places Subsector and each industry group analyzed.



*Figure 5.* Fraction of Retail Sales of Food Service & Drinking Places before and after implementation of smoke-free law.

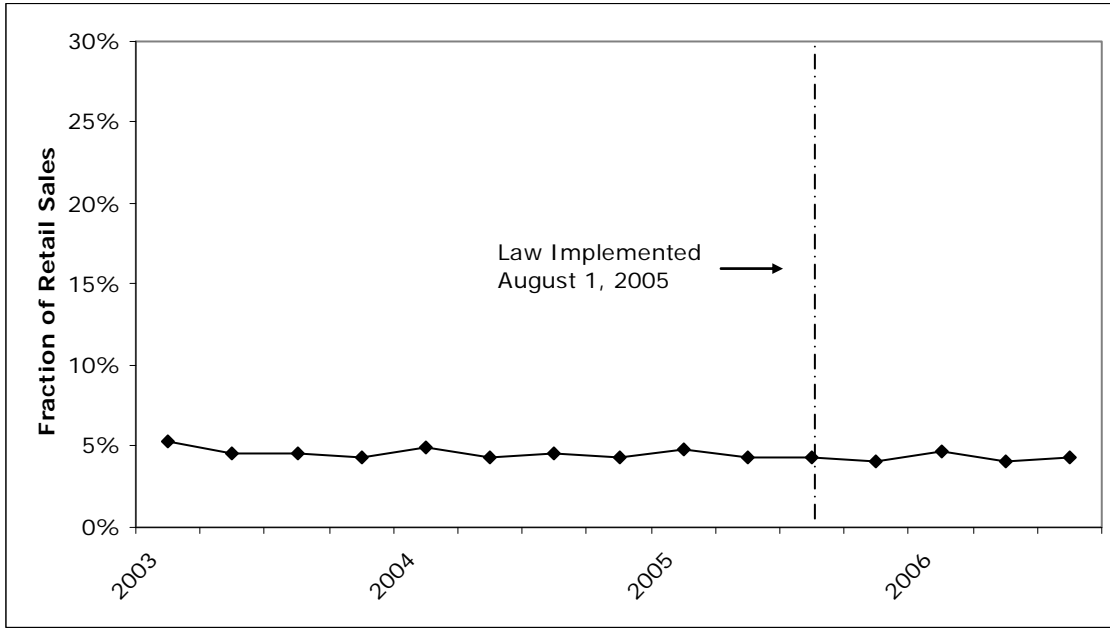


Figure 6. Fraction of Retail Sales of Full Service Restaurant Industry Group before and after implementation of smoke-free law.

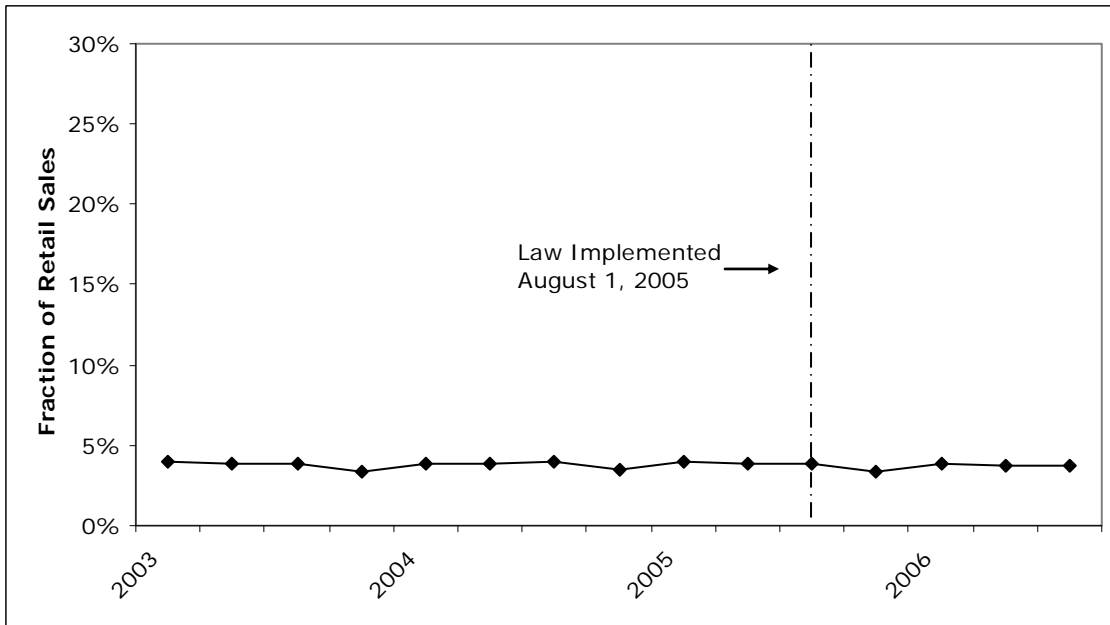


Figure 7. Fraction of Retail Sales of Limited-Service Eating Places before and after implementation of smoke-free law.

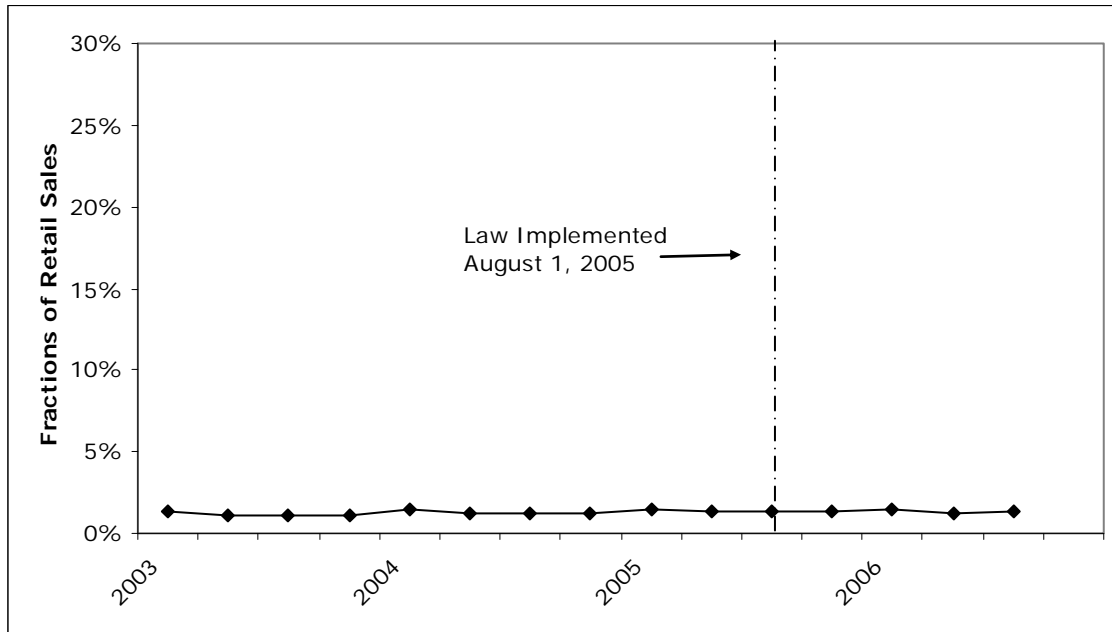


Figure 8. Fraction of Retail Sales of 7224 Drinking Places Industry Group before and after implementation of smoke-free law.

### Discussion

This study examined the taxable sales of North Dakota’s restaurant and bar establishments in relation to implementation of North Dakota’s statewide smoke-free law. The taxable sales of the restaurant and bar establishments continued to increase after the smoke-free law was implemented. The fractions of the total retail sales for restaurant and bar establishments of a given quarter to the same quarter in the previous year fluctuated minimally during the pre-law and post-law quarters. There appeared to be no consistent change of trends after the smoke-free law was implemented. Based on these data, the statewide smoke-free law had a neutral impact on the taxable sales of the restaurant or bar establishments in North Dakota.

Limitations of this study included the limited data available, as the pre-law data was only available in a consistent coding scheme since 2003 and the post-law data was available only through the third quarter of 2006. Given the limited data points, this study attempted to control for underlying economic trends by calculating the fractions of the indicators to the overall retail

trade and for seasonal fluctuations by comparing a given quarter to the same quarter of the previous year. A longer post-implementation time frame and the accrual of more data points would have allowed for more rigorous statistical analysis. However, this study suggests that the law has not impacted taxable sales in the restaurant and bar industry one year post-implementation. Future analysis with more data points and other economic indicators, such as employment data, would strengthen these findings.

## References

Smoking in Public Places and Places of Employment. North Dakota Century Code.

§ 23-12-09 – 23-12-12. Retrieved March 7, 2007 from

<http://www.legis.nd.gov/cencode/t23c12.pdf>

Scollo, M., Lal, A., Hyland, A., & Glantz, S. (2003). Review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. *Tobacco Control*, 12(1), 13-20.

U.S. Census Bureau. (2006, October 19). *North American Industry Classification System (NAICS)*.

Retrieved January 2, 2007, from <http://www.census.gov/epcd/www/naics.html>.

U.S. Department of Health and Human Services. (2006). *The health consequences of involuntary exposure to tobacco smoke: A report of the Surgeon General*. (ISBN 0-16-076152-2). Washington, DC: U.S. Government Printing Office.

### Author's Note

Kelly Buettner-Schmidt, Department of Nursing, Minot State University.

This study was supported through a grant from the North Dakota Department of Health, Division of Tobacco Prevention and Control, to Healthy Communities International, Minot State University, Minot, ND.

The author would like to thank Andrew Hyland, Ph.D., Department of Health Behavior, Division of Cancer Prevention & Population Sciences, Roswell Park Cancer Institute in Buffalo, N.Y., for his expert consultation and guidance of this study, and Steve Babb, M.P.H., Office of Smoking and Health, U.S. Centers for Disease Control and Prevention, for his support and guidance of this study.

Thanks to Tina Revier, Healthy Communities International, Minot State University, for her assistance in preparation of this manuscript.

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