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Details:

(FORM UPDATED: 07/12/2010)

WISCONSIN STATE LEGISLATURE ...
PUBLIC HEARING - COMMITTEE RECORDS

2007-08

(session year)

Assembly

(Assembly, Senate or Joint)

Committee on ... Public Health
(AC-PH)

COMMITTEE NOTICES ...

- Committee Reports ... **CR**
- Executive Sessions ... **ES**
- Public Hearings ... **PH**
- Record of Comm. Proceedings ... **RCP**

INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

- Appointments ... **Appt**
- Clearinghouse Rules ... **CRule**
- Hearing Records ... bills and resolutions
  (**ab** = Assembly Bill) (**ar** = Assembly Resolution) (**ajr** = Assembly Joint Resolution)
  (**sb** = Senate Bill) (**sr** = Senate Resolution) (**sjr** = Senate Joint Resolution)
- Miscellaneous ... **Misc**

Vote Record
Committee on Public Health

Date: 3/4/08

Moved by: Nerison Seconded by: Vukmir

AB 834 SB _____ Clearinghouse Rule _____

AJR _____ SJR _____ Appointment _____

AR _____ SR _____ Other _____

A/S Amdt 1

A/S Amdt _____ to A/S Amdt _____

A/S Sub Amdt _____

A/S Amdt _____ to A/S Sub Amdt _____

A/S Amdt _____ to A/S Amdt _____ to A/S Sub Amdt _____

Be recommended for:

☐ Passage ☑ Adoption ☐ Confirmation ☐ Concurrence ☐ Indefinite Postponement

☐ Introduction ☐ Rejection ☐ Tabling ☐ Nonconcurrence

Committee Member	Aye	No	Absent	Not Voting
Representative J.A. Hines, Chair	☐	☑	☐	☐
Representative Leah Vukmir	☑	☐	☐	☐
Representative Joan Ballweg	☐	☑	☐	☐
Representative Terry Moulton	☐	☑	☐	☐
Representative Lee Nerison	☑	☐	☐	☐
Representative Charles Benedict	☐	☑	☐	☐
Representative Sheldon Wasserman	☐	☑	☐	☐
Representative Marlin Schneider	☐	☑	☐	☐
Representative Spencer Black	☐	☑	☐	☐
Totals:	2	7	____	____

☐ Motion Carried ☐ Motion Failed

Vote Record
Committee on Public Health

Date: 3/4/08

Moved by: Schneider Seconded by: Black

AB 834 SB _____ Clearinghouse Rule _____

AJR _____ SJR _____ Appointment _____

AR _____ SR _____ Other _____

A/S Amdt 2

A/S Amdt _____ to A/S Amdt _____

A/S Sub Amdt _____

A/S Amdt _____ to A/S Sub Amdt _____

A/S Amdt _____ to A/S Amdt _____ to A/S Sub Amdt _____

Be recommended for:

☐ Passage ☑ Adoption ☐ Confirmation ☐ Concurrence ☐ Indefinite Postponement

☐ Introduction ☐ Rejection ☐ Tabling ☐ Nonconcurrence

Committee Member	Aye	No	Absent	Not Voting
Representative J.A. Hines, Chair	☑	☐	☐	☐
Representative Leah Vukmir	☑	☐	☐	☐
Representative Joan Ballweg	☑	☐	☐	☐
Representative Terry Moulton	☑	☐	☐	☐
Representative Lee Nerison	☑	☐	☐	☐
Representative Charles Benedict	☑	☐	☐	☐
Representative Sheldon Wasserman	☑	☐	☐	☐
Representative Marlin Schneider	☑	☐	☐	☐
Representative Spencer Black	☑	☐	☐	☐
Totals:	9	0	____	____

☐ Motion Carried ☐ Motion Failed

Vote Record
Committee on Public Health

Date: 3/4/08

Moved by: Black Seconded by: Schneider

AB 834 SB _____ Clearinghouse Rule _____

AJR _____ SJR _____ Appointment _____

AR _____ SR _____ Other _____

A/S Amdt _____

A/S Amdt _____ to A/S Amdt _____

A/S Sub Amdt _____

A/S Amdt _____ to A/S Sub Amdt _____

A/S Amdt _____ to A/S Amdt _____ to A/S Sub Amdt _____

Be recommended for:

☒ Passage → as amended ☐ Adoption ☐ Confirmation ☐ Concurrence ☐ Indefinite Postponement

☐ Introduction ☐ Rejection ☐ Tabling ☐ Nonconcurrence

Committee Member	Aye	No	Absent	Not Voting
Representative J.A. Hines, Chair	☒	☐	☐	☐
Representative Leah Vukmir	☐	☒	☐	☐
Representative Joan Ballweg	☐	☒	☐	☐
Representative Terry Moulton	☒	☐	☐	☐
Representative Lee Nerison	☐	☒	☐	☐
Representative Charles Benedict	☒	☐	☐	☐
Representative Sheldon Wasserman	☒	☐	☐	☐
Representative Marlin Schneider	☒	☐	☐	☐
Representative Spencer Black	☒	☐	☐	☐
Totals:	6	3	____	____

☐ Motion Carried ☐ Motion Failed


FORWARD

THE IMPACT OF NON-SMOKING ORDINANCES ON RESTAURANT FINANCIAL PERFORMANCE

PREPARED FOR

THE NATIONAL RESTAURANT ASSOCIATION

BY

Deloitte & Touche LLP
Washington, D.C.

February 2004

Table of Contents

EXECUTIVE SUMMARY

- This report describes the findings of a statistical study of the impact of local government non-smoking ordinances on the sales and profits of individual tableservice restaurants. The analysis uses data from national samples of restaurants collected for five years during the 1990 to 2000 period, as well as information on the features of the ordinances applicable to the restaurants and the economic and demographic characteristics of the communities where the restaurants were located.

- Non-smoking ordinances were found to have a statistically significant impact on the sales and profits of individual restaurants in certain cases. Most of the significant effects regarding specific ordinance types enacted at different times were negative, although some positive effects were also significant.

- A temporary negative impact on restaurant sales was found in cases where 100 percent smoking bans (excluding the bar area) were in effect at the county level. The estimated declines in annual sales ranged from roughly 49 to 55 percent at restaurants where such bans were enacted two to three years prior to the survey.

- Restaurant sales also declined in areas where 100 percent smoking bans (excluding the bar area) had been enacted at the place level. Annual sales declines were estimated at 36 percent at restaurants where these bans were enacted four or more years earlier.

- In cases where significant declines in sales were estimated, gross profit tended to decline by a somewhat greater percentage.

- A positive impact on total restaurant sales and gross profit was found in cases where place-level ordinances reserved the majority of seating for nonsmokers but allowed some smoking. In cases where these ordinances were enacted two to three years before the survey, sales were estimated to increase 36 percent and gross profit was up 37 percent. In cases where these ordinances went into effect four or more years ago, sales were up 43 percent and gross profit increased 42 percent.

I. Introduction[1]

In recent years, many town, county, and state governments in the United States have enacted ordinances that limit smoking in restaurants. These laws impose varying degrees of restriction, from specifying that a small portion of restaurant seating must be reserved for nonsmokers to banning completely any smoking in a restaurant or bar.

As these measures have been debated, restaurant owners have become concerned that their business could be disrupted by further enactment of these laws. For example, under a complete ban, smokers might reduce eating in restaurants, or, if the ban applies only to a small geographic area, smokers could switch their patronage to restaurants in a neighboring jurisdiction where smoking is allowed. On the other hand, this impact could be offset by additional restaurant business from nonsmokers attracted to the smoke-free environment.

In the belief that additional research is needed to examine the issue of whether non-smoking ordinances affect the financial performance of individual restaurants, the National Restaurant Association engaged Deloitte & Touche LLP to conduct a study of this issue using a unique data set that contains a variety of financial and other information for thousands of restaurant establishments. The objective of this study is to test whether past enactments of non-smoking laws have had measurable effects on their sales and profits.

Although this report does not contain a review of the previous literature on this subject, a recent summary of such studies indicates that previous researchers have had a different focus than that of this study.[2] Previous work has tended to examine whether *aggregate* restaurant sales in a community enacting a non-smoking ordinance were affected.

On the other hand, the Association was interested in a somewhat different question – does the enactment of these ordinances have any effect on any individual restaurants, specifically, tableservice restaurants? It is possible that some individual tableservice restaurants could be affected by an ordinance at the same time that aggregate sales are unaffected.[3] For example, some types of restaurants may benefit while others are harmed, or new restaurants may gain sales while certain existing restaurants are adversely affected. In addition, the Association was interested in the possible impact on profits, as well as sales, and in possible differential impacts on food and beverage sales.

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[1] This report was written by Jon Hakken, Ph.D. and Randall Weiss, Ph.D. of the National Tax Office, Deloitte & Touche LLP, Washington, D.C. Research assistance was provided by Waleed Ziad and by the staff of the National Restaurant Association.

[2] Michelle Scollo and Anita Lal, *Summary of Studies Assessing the Economic Impact of Smoke-Free Policies in the Hospitality Industry*, VicHealth Centre for Tobacco Control, Carlton, Vic, Australia, August, 2002. (available at http://www.vctc.org.au/tc-res/hospitalitysummary.pdf)

[3] Tableservice restaurants are those that provide waitstaff to bring food to the table, in contrast to quickservice (fast food) restaurants and cafeterias.

The remainder of this report describes our statistical analysis of this issue. Using regression analysis of data on individual restaurants, we estimate the impact of non-smoking ordinances on restaurant sales and profits, controlling for a variety of restaurant and community economic and demographic characteristics that could affect these measures. Our restaurant data come from annual operations surveys that have been conducted by Deloitte for the Association for many years. (These surveys of restaurant establishments are the basis for annual reports presenting operating ratios and other statistical information on the restaurant industry.[4]) We used the zip code of each restaurant to link its data to information published by the American Nonsmokers' Rights Foundation on the non-smoking ordinances applying to that geographic area and to information on community demographic and economic characteristics that could affect restaurant sales and profits. Our statistical analysis indicates that, in some cases, sales and profits of restaurants are systematically affected, both positively and negatively, by the enactment of non-smoking ordinances.

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[4] See, for example, National Restaurant Association and Deloitte & Touche, *Restaurant Industry Operations Report*, 2001 edition.

II. Non-smoking Ordinances and Restaurant Competition

As of March 2002, at least 32 states and more than 900 localities had ordinances that regulate smoking in restaurants. Four states (California, Utah, Vermont, and Maine) and nearly 400 localities (about 250 of which were outside of California) had ordinances that ban smoking in the main dining area, although some of these ordinances allowed smoking in bar areas and outside patios or in separately ventilated rooms. Many of the ordinances that regulate smoking in restaurants also regulate smoking in public or private workplaces. These broad ordinances may or may not have special rules applicable to restaurants. Other local non-smoking ordinances are applicable only to restaurants.

Non-smoking ordinances can be adopted only by government entities that have the legal authority to do so. In most states, only counties and incorporated cities have been granted such powers by the state. Minor civil divisions in New England and in a few other states also have been granted such powers.

At the state level, there are two kinds of non-smoking ordinances: those that preempt local ordinances and those that set "minimum standards" but allow localities the option of adopting stricter standards. At the county and city levels, there are also two kinds of smoking ordinances: those that conform to the state ordinance and those that are stricter than the state ordinance by local option.

In theory, a restaurant may be subject to multiple non-smoking ordinances imposed by the city, the county, and the state in which it operates. In cases where multiple overlapping jurisdictions have adopted ordinances, one ordinance may take precedence over the other ordinances, but that is not always the case. Where the state ordinance has preempted local ordinances, the state ordinance takes precedence. Where the state ordinance sets a minimum standard, the local ordinance takes precedence whenever it is stricter. Where a city and a county both have ordinances, there is no general rule governing precedence. Depending on the state, a restaurant located within a city may not be subject to the county ordinance at all, or it may be subject to the county ordinance only if the city does not have an ordinance, or it may depend on which agency is responsible for enforcing the ordinance. The restaurant may be subject to the county ordinance in cases where the ordinance is enforced by the county health department, but not where the ordinance is enforced by the county police department.

Most non-smoking ordinances include an enforcement mechanism. Typically, responsibility for enforcement goes to either the health department, the police department, or to the city or county manager. Since voluntary compliance with non-smoking ordinances is generally good, the enforcement mechanism may not have a significant influence on the degree of compliance.

Because spending on restaurant meals by consumers is largely discretionary, tableservice restaurants have to attract customers who would otherwise eat at home or at quickservice restaurants by providing customers with a pleasurable dining experience.

Moreover, each tableservice restaurant competes with other such restaurants for the pool of customers that patronize these restaurants. Some customers enjoy smoking during or after their meals, while other customers dislike breathing second-hand smoke. In order to be successful and remain in business, each restaurant must manage its restaurant to accommodate the preferences of all of its customers to the greatest extent possible.

In localities without a restrictive non-smoking ordinance, restaurants are largely free to manage air quality for their customers. When customers who do not smoke want to avoid customers who do, restaurants have an incentive to carefully manage air quality in order to provide both smokers and non-smokers with a pleasurable dining experience. Toward that end, many restaurants have voluntarily adopted measures to satisfy customers' demands. For example, some restaurants have restricted smoking to bar or patio areas and have encouraged smokers to dine there, while other restaurants have built separately ventilated dining areas expressly for smokers or have banned smoking throughout the facility. In such cases, these measures were undertaken, without legal requirement, to attract customers to the restaurant and to position it in the marketplace to effectively compete against other restaurants.

In contrast, in localities that have adopted restrictive non-smoking ordinances that either ban or severely limit smoking in restaurants, the restaurants' arrangements for smokers and non-smokers no longer serve as a significant dimension of competition under these restaurants' control. The result of this loss of control on affected restaurants is not theoretically predictable. Restaurants that allowed smoking before the ordinance may lose some smoking customers, but also may gain some non-smoking customers. Restaurants that did not allow smoking may lose non-smoking customers to restaurants that formerly allowed smoking. Thus, regardless of whether total restaurant sales in the locality increase or decrease in response to the ordinance, the patronage of each restaurant is likely to change. Some restaurants may decide to reposition themselves in the marketplace and may have to incur additional costs to do so. The data we use in this study do not allow identification of such costs, but our findings that revenue and gross profit may be affected by non-smoking ordinances suggest that additional costs may be another impact of such ordinances.

III. Methodology

In order to estimate the impact of non-smoking ordinances on the financial performance of individual restaurants, we use a model of the form:

$$Q = f(X,Y,L) + e$$

where Q is the annual sales or profits of a restaurant, X is a vector of economic and demographic measures (income per capita, population, and employment) relating to the geographic location of the restaurant, Y is a vector of characteristics of the restaurant (total seats, bar seats, alcohol service, and operating hours), L are variables relating to the non-smoking laws affecting the restaurant, and e is a random error term.

In our analysis, the coefficients of L are the major focus of interest; X and Y are included as controls to minimize the possibility of attributing to non-smoking ordinances any impact of other factors systematically affecting restaurant performance. The specification of the variables in the L vector is difficult because of the lack of a reasonable theoretical basis for developing expectations as to the sign of the impact of these ordinances. We expect that part of the impact of such ordinances is that various groups of customers could change their total purchases of restaurant meals in opposite directions in response to the ordinances. For example, after the enactment of a non-smoking ordinance, smokers could reduce their patronage of tableservice restaurants as a group, and nonsmokers could increase their patronage. Another part of the impact could result from the limited geographic applicability of the ordinances. Thus, ordinances could have an impact on restaurants directly subject to them by shifting customers from one jurisdiction to another that has different legal restrictions in place.

Additional complications in specifying the model's inclusion of the ordinances relate to timing effects, overlap of legal jurisdiction, and the ordinances' degree of restrictiveness. First, how recently an ordinance has become effective should affect its impact on a restaurant. In general, we would expect that any impact that ordinances may have would diminish over time. For example, if a restaurant experienced a negative effect of a non-smoking ordinance because it relied heavily on smokers, the owner would be likely to undertake changes in menu, appearance, or ambiance that would attract a different clientele rather than accept permanently reduced sales or profit. Conversely, if a non-smoking ordinance initially improved a restaurant's sales or profit because it attracted increased patronage from non-smokers, we would expect that benefit to decline over time as other restaurants intensified their efforts to compete for these customers' business. In addition, customers may take time to learn about and adjust to the changes in the dining experience at affected restaurants. For these reasons, we have incorporated the time of an ordinance's enactment into our specification of the L variables.

Second, in order to incorporate the ordinances into a statistical model, certain of their most salient characteristics must be defined and categorized. The ordinances often are complex, with elaborate provisions governing such issues as appropriate ventilation

systems and enforcement procedures. As discussed in more detail in the next section, we focus on (1) the percentage of seats required to be reserved for non-smokers and (2) whether a smoking ban imposed by an ordinance applies to a restaurant's bar area.

Finally, overlap of legal jurisdiction raises additional issues. Generally, states, counties, and various units of local government have the legal authority to enact non-smoking ordinances. The distribution of such authority, however, may vary substantially from state to state. With respect to a given restaurant, the governmental structure in some states dictates that only one sub-state level of government (e.g., the county) has the authority to enact non-smoking ordinances. In others, both the county and the city or town may enact such ordinances. And, of course, state governments have enacted statewide ordinances in a few states. In addition to imposing significant data issues, this complicates the timing issue described above. For example, suppose a county enacts a non-smoking ordinance and then, two years later, a town within that county enacts a more restrictive ordinance. It is reasonable to expect that the impact of the town ordinance on a restaurant located there is affected by the existence of the prior county ordinance that also applied to the restaurant.

We present the detailed specification of our regression analysis in section IV below after we describe the data available to us.

IV. Data Sources

The data we used for the economic analysis of the impact of smoking ordinances on tableservice restaurants came from: (1) the Restaurant Operations Surveys performed by Deloitte for the National Restaurant Association, (2) the Local Tobacco Control Ordinance Database compiled by the American Nonsmokers' Rights Foundation, and (3) Regional Economic Profile data compiled by the Bureau of Economic Analysis of the U.S. Department of Commerce. Each of these data sources is described below.

Restaurant Operations Surveys

The Restaurant Industry Practice of Deloitte has compiled detailed financial and operational information on restaurants for the Association for more than a decade.[5] The information has been collected annually from a national sample of Association member restaurants, and includes such items as sales, costs, pretax profits, location (by zip code), and restaurant characteristics. Individual establishments are the unit of the survey; the data for each individual unit is what is reported in the survey even in cases where two or more units are under common ownership. The survey includes a different sample of restaurants every year. In most years, financial information on each restaurant was collected for both the survey year and the prior year.

Three surveys of restaurant operations were available for the analysis, which collectively provided annual financial results for restaurant operations during 5 separate years. The survey conducted during 2001 provided annual results for 2000 and 1999. The survey conducted during 1998 provided annual results for 1997 and 1996. The survey conducted during 1992 provided results for 1991 only. Because our analysis of the impact of smoking ordinances was concerned only with tableservice restaurants, we eliminated data on other types of restaurants (such as quickservice restaurants, cafeterias, and caterers).

Local Tobacco Control Database

The American Nonsmokers' Rights ("ANR") Foundation has compiled detailed information about state and local nonsmoking ordinances in its Local Tobacco Control Ordinance Database ("ANR database") for more than a decade. Among other information, the ANR database includes details on the restrictions and exemptions applying to restaurants under each ordinance as well as the locality and enactment date of the ordinance. In recent years, the National Association of County and City Health Officials and the National Association of Local Boards of Health have helped to improve the coverage of the database.

Information from the ANR database is readily available to the public from two sources. The first source is a list of all of the local smoking ordinances in the database as of June

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[5] The results of the survey are summarized in annual reports prepared jointly by the National Restaurant Association and Deloitte. See, for example, *Restaurant Industry Operations Report 2001.*

30, 1998; this list was published as a chapter in a National Cancer Institute monograph.[6] The list includes about 750 city and county smoking ordinances affecting restaurants, with the largest number of such ordinances in California, Massachusetts, and Texas. For each ordinance, the list identifies: (1) the year the current ordinance was adopted, (2) whether the current ordinance amended a prior ordinance, (3) the minimum required share of seats for no-smoking sections, and (4) whether the ordinance applies to the bar area of a restaurant.

The second source of information is the ANR web site, which includes a list of cities and counties that have banned restaurant smoking.[7] We used lists of smoking bans in effect as of July, 2002 and as of March, 2003 to supplement the ordinance information contained in the monograph. The lists also identify four states that banned smoking in restaurants: Vermont in 1993, California and Utah in 1994, and Maine in 1999.

It should be noted that although these sources provide information about both county and place (e.g., city or town) ordinances, they do not provide information on which level of government has the authority to impose a non-smoking ordinance where jurisdictions overlap. In a number of instances, these sources list an ordinance both for a county as well as a place within the same county, but we are unable to determine from these sources which ordinance may apply (especially if the county ordinance was enacted later than the place ordinance) or whether the county ordinance applies to incorporated cities or towns that have not enacted their own ordinances.

Characterizing the Severity of the Local Smoking Ordinance

In order to perform meaningful statistical analysis of the impact of smoking ordinances on restaurant financial performance, we developed a categorization of ordinances based on the magnitude of the change in consumer and restaurant behavior that they were likely to cause. We defined three categories based on the extent that an ordinance required seating in restaurants and attached bars to be reserved for non-smokers:

- The first category includes ordinances that require that between 50 and 99 percent of seating must be reserved for non-smokers.
- The second category includes ordinances that require reserving all of the seating in the dining area for non-smokers, but do not totally exclude smokers from the bar area of a restaurant.
- The third category includes ordinances that reserve all of the seating in the dining area for non-smokers and that apply to the bar area as well.

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[6] "State Laws and Local Ordinances to Reduce Tobacco Use" in *State and Local Legislative Action to Reduce Tobacco Use*, Smoking and Tobacco Control Monograph No. 11, U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, NIH Pub. No. 00-4804, August 2000.

[7] The web site of the ANR Foundation is www.no-smoke.org.

We treated ordinances requiring that less than 50 percent of seating must be reserved for non-smokers as imposing no restrictions. It should be noted that although some ordinances provide exceptions for outdoor dining areas, separately ventilated rooms, and private banquet facilities, these exceptions were not taken into account in our categorization because this information was not available in the sources that we used for information on smoking ordinances.

Regional Economic Profile Data

The Bureau of Economic Analysis at the U.S. Department of Commerce compiles county-level economic and demographic data and makes the data available to the public via its web site.[8] The CA-30 Regional Economic Profiles from the Detailed County Annual Tables provide annual time-series data on county population (by place of residence), county per capita personal income (by place of residence), and county total full-time and part-time employment (by place of employment). We used this information to control for the impact of local economic conditions on the financial performance of the sampled restaurants.

Matching Surveyed Restaurants to Local Smoking Ordinances and Economic Data

In order to analyze the impact of local smoking ordinances on the financial results of the restaurants included in the restaurant operations surveys and to control for the impact of local economic conditions, the characteristics of the smoking ordinance and economic conditions in the locality where each restaurant operates were identified and matched to the restaurant. The matching was done based on the zip code of each restaurant.

Zip code areas, defined by the U.S. Postal Service, do not necessarily coincide with the jurisdictions of local governments, the entities (below the state level) that have the power to enact non-smoking ordinances. Most zip codes have a common name that may not accurately reflect whether an area is contained in a legally incorporated territory. For example, the designated common name of zip code may be the name of an unincorporated area. Also, a single zip code area may cover an area that is partly within the boundaries of an incorporated territory and partly outside of them. Because the common name associated with a zip code does not indicate reliably whether a zip code is located within the boundaries of a particular incorporated territory, we used a classification system developed by the Bureau of the Census – Zip Code Defined Area (ZCDA) – for the purpose of matching restaurants and ordinances.

The Census Bureau has defined ZCDAs to closely approximate the Postal Service's zip code areas using census block-level data. ZCDAs can be mapped to other Census-defined localities, such as counties and places, using the MABLE/Geocorr geographic

[8] The BEA web site for regional data is www.bea.gov/bea/regional/reis.

correspondence engine.[9] The Census Bureau defines a "place" as a concentration of population that has a unique identity. Under the Census definition, a place can be either a legally incorporated territory (e.g., a city or town) or an unincorporated area that the Census Bureau treats as a Census Designated Place ("CDP"). CDPs are not legally incorporated and thus lack the authority to enact smoking ordinances unless they have been granted such authority by their state as a minor civil division.

For each zip code that includes a restaurant for which we have data, the correspondence engine was used to determine the county and place, if any, of the zip code. Where the zip code spanned multiple counties, the correspondence engine identified all of the counties contained in the zip code and the share of the population in each county. Where the zip code spanned several areas designated as different places and non-place areas, the correspondence engine identified all of the areas and the share of the population in each area. The zip code was assigned to the county and the place (or area without a defined place) that had the largest share of the zip code's population.

The next step in the matching process was to determine whether either the county or place to which the zip code was assigned has a smoking ordinance. (In most states, only counties and those cities and towns that are incorporated as legal entities within the state have the authority to enact smoking ordinances. However, in New England, New York, Wisconsin, and Hawaii, some minor civil divisions may have the power to enact smoking ordinances.) The names of the county and place were checked against the list of local smoking ordinances and bans. In states where minor civil divisions have authority to enact ordinances, the name of the CDP was also checked against the lists. If the county or place had an ordinance, information about the ordinance from the ANR lists was associated with the zip code. If the county and place both had ordinances, information about both ordinances was associated with the zip code.

For the few zip codes where the lists of smoking bans in 2002 and 2003 indicated that a ban had gone into effect since the original ordinance list had been compiled, we researched the local smoking ban to determine the year when it was enacted.

The final step was to match the restaurant data with the economic and demographic data described above, based on the zip code of each surveyed restaurant.

As a result of this data merging process, the information for each restaurant in our data set included three sets of variables: (1) the restaurant characteristics and financial information available from the Operations Survey, (2) the information about smoking ordinances in effect in the state, county, and locality in which the restaurant was located, and (3) the economic and demographic variables in the county in which the restaurant was located.

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[9] A version of the geographic correspondence engine can be found at http://mcdc2.missouri.edu/websas/geocorr2k.html.

V. Estimation Strategy, Definition of Variables, and Screening Criteria

We developed an estimation strategy that reflected the major question we were investigating, the lack of a well-developed theory of the impact of non-smoking ordinances, and the limitations of our data. Our major question was, "What, if any, effects do non-smoking ordinances have on the financial performance of individual tableservice restaurants?" Without a well-developed theory of when and how such ordinances might affect restaurants and their customers, we pursue a reduced-form approach in specifying our regression analysis. That is, we convert the available information on the ordinances into a series of dummy variables, allowing for extensive interactions among ordinance characteristics, to enhance the flexibility of the specification.

This decision is also consistent with the limitations of the ordinance data available to us. As described above, we know only a few features of these ordinances, and we lack information on their exact geographic applicability. Further, we are unable to properly account for the influence on a restaurant of the laws in neighboring jurisdictions (which may be more or less conducive to the smokers who may otherwise patronize a restaurant directly affected by the ordinance on which we do have information). Our information on the time the ordinance has been in effect is imprecise, since we have only the year of the ordinance's enactment, not the date it became effective. Finally, we use ordinance information (such as whether the ordinance was amended) that may not have a clear theoretical effect but may in some way indicate the extent of its impact on restaurants.

We adopted the same flexible approach with respect to the specification of the impact of control variables, since we are not focusing on estimates of their precise impact. For example, we believed that both population and population growth in the county in which a restaurant was located could affect its financial performance. Rather than constraining the impact of these variables, however, we simply include in the equation the population level for the current and prior two years to allow maximum specification flexibility. Similarly, since we are pooling data for five different years, we included in our equation dummy variables for four of the five years to capture inflation as well as any other economy-wide influences on restaurants' financial performance.[10] Although we could have attempted to use real levels of restaurant sales and profits measures as our dependent variables in order to distinguish between these two influences, we simply entered dummy variables to capture the combination of both of these factors.

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[10] A dummy variable is defined to have a value of 1 if an observation includes a specific characteristic and a value of 0 in all other cases. For example, if the financial data for an individual restaurant observation pertained to 1997, the 1997 dummy variable was set equal to 1. If the data pertained to any other year, the 1997 dummy variable was set equal to 0.

The variables for each restaurant were keyed to the year to which the restaurant's financial data applies. For example, if an observation used 1997 financial data for a restaurant, then the ordinance variables were defined using 1997 as the current year and the community characteristics were defined as of 1997.

We defined a number of dummy variables to represent various combinations of features of the non-smoking ordinances that applied to the restaurants. As explained above, we used an approach of allowing many interactions because of the uncertainty about the direction and structure of the ordinance's impact. The specific dummy variables were as follows:

Three *county* ordinance categories (see above) reflecting the severity of the ordinance in effect in the current year, interacted with three categories of time elapsed between current year and year of ordinance enactment (0-1 years, 2-3 years, or 4 or more years) (9 dummy variables)

Three *place* ordinance categories (see above) reflecting the severity of the ordinance in effect in the current year, interacted with three categories of time elapsed between current year and year of ordinance enactment (0-1 years, 2-3 years, or 4 or more years) (9 dummy variables)

Amended *county* ordinance interacted with the two most severe ordinance types and the three time periods (6 dummy variables)

Amended *place* ordinance interacted with the two most severe ordinance types and the three time periods (6 dummy variables)

Place and county ordinance interaction dummy variables – if both the county and place where the restaurant is located have ordinances and (1) the county ordinance was enacted earlier, or (2) the place ordinance was enacted earlier and is less restrictive than the county ordinance, or (3) the place ordinance was enacted earlier and is equally or more restrictive than the county ordinance (3 dummy variables)

The other variables we used in the equations were defined as follows:

Community characteristics

County employment (current year and the two prior years)
County population (current year and the two prior years)
Real income per capita (current year and the two prior years; deflated using Consumer Price Index with 1989 as base year)

Year of financial data

1996 (dummy variable)

1997 (dummy variable)
1999 (dummy variable)
2000 (dummy variable)

Restaurant Characteristics (current year)

Dependent variables

Gross food revenue (log)
Gross alcohol beverages revenue (log)
Gross total revenue (log)
Gross profit (log)

Independent variables

Number of bar seats as percent of total seats
Number of total seats (log)
Breakfast served (dummy variable)
Dinner served (dummy variable)
Open 24 hours per day (dummy variable)
Alcohol served (dummy variable) – (reports beer, wine, full liquor service, or gross beverage revenue)

A number of observations were deleted from the sample before any statistical estimation was performed. First, clubs were deleted, since they often are treated differently under non-smoking ordinances than restaurants open to the public. Second, restaurants subject in the year of the financial data to a statewide non-smoking ordinance mandating a complete ban on smoking in restaurants (the most restrictive category of ordinance we defined) were deleted. Statewide bans cover a much larger area than the county and place bans, and we were not confident that our community characteristic control variance would adequately capture factors unique to an entire state that may affect restaurant sales and profits. Third, in order to eliminate very large or very small or part-year restaurants, establishments with total revenue greater than $10 million or more than 1500 seats were deleted, as were restaurants with revenue less than $50,000. Further, in regressions using beverage sales and food sales as dependent variables, restaurants were deleted if the values of the dependent variable were less than $5,000 or $50,000, respectively. Fourth, in order to eliminate restaurants in which the bar area was dominant, establishments with bar seats comprising more than 60 percent of total seats were deleted. Finally, restaurants with missing values for the independent variables described above were deleted; in individual regressions, observations with missing values of the dependent variable were also screened out.

Table 1: Number of Restaurants, by Year of Financial Data and Type of Ordinance Applicable in that Year

		Type of Ordinance Applicable			
Year of Financial Data		**Total Number of Restaurants**	**100 Percent Non-Smoking**	**50 – 100 Percent Non-Smoking, Bar Exempt**	**Less Restrictive or No Ordinance**
	1991	1266	2	56	1208
	1996	569	10	32	527
	1997	575	14	36	525
	1999	367	10	31	326
	2000	368	9	32	327
Total		3145	45	187	2913

Table 1 contains descriptive information on our sample after the eliminations described in the previous paragraph. Table 1 indicates that 1991 is year with the largest number of restaurants. In this year, hardly any of the restaurants were subject to the most severe category of non-smoking ordinance. In later years, a higher percentage of restaurants became subject to this category of ordinances, as well as the three categories as a group. Overall, about 7 percent of the sample was subject to a non-smoking ordinance in the year for which financial information was reported.

Geographically, the surveyed restaurants in the combined sample span 48 states (all except Colorado and Connecticut) and the District of Columbia. The two states with the largest number of restaurants included in the combined sample are Texas and Ohio.

VI. Results of the Regression Analysis

We estimated regression equations using each of the four dependent variables listed above. The complete regression results are presented in Appendix A; a table of means, standard deviations, and ranges of the variables is in Appendix B. This section contains an overview of the most significant findings.[11]

For each equation, we first tested the hypothesis that all of the coefficients of the ordinance dummy variables are jointly zero, i.e., that non-smoking ordinances have no effect on restaurant sales and profits. The results of these tests are shown in Table 2. For each equation, this hypothesis is rejected with a low level of significance.[12] Thus, our data provides strong evidence that these ordinances do affect restaurant financial performance.

Table 2: Significance level of tests that ordinance variables are jointly zero

Dependent Variable	F-statistic (degrees of freedom)	Significance Level
Beverage sales	1.66 (28,2338)	0.0162
Food sales	1.68 (28,3087)	0.0143
Total sales	1.76 (28,3097)	0.0083
Gross profit	1.73 (28,3097)	0.0103

Table 3 presents estimates of the impact of non-smoking ordinances on restaurant sales and profits. This table was constructed in several steps. First, from the regression results in Appendix A, we identified the cases in which any of the nine ordinance dummy variables for county ordinances or the nine dummy variables for place ordinances are significantly different from zero at the 10 percent level and entered the coefficient into the table. Second, where none of the 12 dummy variables associated with the two most restrictive ordinance types is significant in an equation in Appendix A, we tested whether the sum of the dummy variable plus the corresponding coefficient associated with an amended ordinance was significant. If so, we entered the sum of these two coefficients into Table 3. Finally, taking account of the log-linear form of the

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[11] Regression analysis is a statistical technique that provides an quantitative estimate of the impact of a change in the value of one variable in the equation, holding constant the values of all the other variables, on the dependent variable in the equation.

[12] The significance level is an estimate of the probability that the tested hypothesis actually is true in spite of the information provided by the (necessarily) limited sample. For example, there is a 1.62 percent probability that all of the coefficients of the ordinance dummy variables in the beverage sales equation actually are equal to zero, i.e., that the ordinances have no systematic effect on beverage sales.

equations, we converted these coefficients into estimated percentage changes of the ordinance on the dependent variable. The table distinguishes between the 5 and 10 percent levels of significance, and indicates cases in which a significant result applies only to an amended ordinance. Thus, for example, in our beverage sales equation, the coefficient of the dummy variable for a county non-smoking ordinance that (1) reserves all seats for non-smokers but does not apply to the bar and (2) was enacted two to three years before the year for which we measure financial performance, is -1.081. This estimate is significantly different from zero at a 5 percent level of significance. Converting this estimate into percentage terms, a restaurant subject to such an ordinance is estimated to have beverage sales 66.1 percent lower than a restaurant not subject to any of the three categories of ordinances; this is the figure that appears in the table.

Table 3: Estimates of Impact of Anti-Smoking Ordinances on Restaurant Sales and Profits

Percentage Change In Sales and Profit Measures

Ordinance Geographic Area	County									Place								
Nature of Ordinance	50-99% non-smoking			100% non-smoking except bar			100% non-smoking			50-99% non-smoking			100% non-smoking except bar			100% non-smoking		
Years Since Enactment	0-1	2-3	4+	0-1	2-3	4+	0-1	2-3	4+	0-1	2-3	4+	0-1	2-3	4+	0-1	2-3	4+
DEPENDENT VARIABLE																		
Beverage Sales					**-66.1%**		-66.0%	-45.2%				**73.5%**			69.0%			181.2%
Food Sales					**-42.4%**		-54.7%				**43.3%**	**39.8%**			***-42.2%***			
Total Sales			-19.8%		**-49.0%**		-55.2%				**35.9%**	**42.9%**			***-35.9%***			
Gross Profit					**-51.5%**		-56.6%				**37.1%**	**41.9%**			***-42.0%***			

Estimates shown are significant at 10 percent level; bold estimates are significant at 5 percent level.
Italicized figures indicate estimate is for an amended ordinance.

The estimates in Table 3 indicate that non-smoking ordinances have impacts on restaurants in several ways. First, county 100 percent non-smoking ordinances (not applying to the bar) have an estimated negative impact on all performance measures in the period two to three years after enactment. Further, there is an indication that the most restrictive type of ordinance, which applies to the bar as well as the restaurant, has an impact in the first year or so after enactment, but the significance level of this result is not as high. The only impact of county ordinances reserving less than 100 percent of seats for non-smoking is on total restaurant sales, and only four or more years after enactment, at a lower significance level.

The estimated pattern of impact of place ordinances is somewhat different. The type of ordinance that has a significantly negative effect if enacted by the county – reserving 100 percent of seats for non-smokers (not applying to the bar)—also has an estimated significantly negative impact, but only for the period four or more years after enactment and only when the ordinance has been amended. Interestingly, place ordinances that require that less than 100 percent of seats be reserved for non-smokers actually appear improve sales and profits, presumably because the introduction of large non-smoking section attracts non-smokers to the restaurant without discouraging the patronage of smokers. Finally, the data indicate, although at the lower significance level, that the most restrictive types of ordinances actually improve beverage sales. We cannot explain why the different ordinances appear to have a positive effect on beverage sales while having a negative effect on the other financial performance measures.

It should be emphasized that these results should be interpreted with caution because the pattern of results summarized in Table 3 does not appear to reflect a systematic influence of all types of ordinances at any given time period. Further, some of the estimated effects are statistically different from zero only at a relatively high 10 percent significance level. In addition, the estimated percentage impacts of the ordinances appear to be larger in some cases than have been claimed by restaurant owners. However, the combination of the significant joint tests that all ordinance variables are not zero, as well as the substantial number of significant coefficients, indicates that local non-smoking ordinances appear to affect the financial performance of restaurants.

VII. Conclusion

This study has focused on statistical analysis of the impact of non-smoking ordinances on restaurant financial performance. Unlike a number of previous research efforts, we have used data on individual restaurants rather than aggregate restaurant sales in localities subject to these laws. We have created a unique data set, starting with surveys of individual restaurants finished well before this study began. We linked the surveys to information on the local non-smoking ordinances applicable to these particular restaurants in the years for which the survey information was collected and to contemporaneous community economic and demographic characteristics. Using regression analysis to control for other influences on restaurant sales and profits, we produced estimates of the impact of ordinance characteristics.

Our estimates indicate that non-smoking ordinances have significant effects on restaurants sales and profits. We strongly reject the hypothesis that these ordinances have no impact on individual restaurants. The majority of our statistically significant estimates of specific ordinance types enacted at different times indicate negative effects on restaurants, although we show positive effects in a few cases as well.

These estimates should be interpreted with caution, however. The estimates for county and place ordinances are somewhat inconsistent, and the estimates depend to some extent on ordinance features (such as whether the ordinance is amended) that do not have a strong intuitive connection to an ordinance's effect. In spite of these caveats, the statistical analysis appears to confirm some of the anecdotal reports that restaurants are indeed affected by the enactment of these ordinances.

APPENDIX A. REGRESSION EQUATIONS

1. Beverage Sales

Source	SS	df	MS		
Model	1048.23991	46	22.787824	Number of obs	2385
Residual	1684.3156	2338	.720408724	F(46, 2338)	31.63
Total	2732.5555	2384	1.14620617	Prob > F	0.0000
				R-squared	0.3836
				Adj R-squared	0.3715
				Root MSE	.84877

log Bev Sales	Coef.	Std. Err.	t	P>|t|	[90% Conf.	Interval]
County c1 0-1 yrs	.188685	.2128601	0.89	0.375	-.1615775	.5389475
County c2 0-1 yrs	.0633481	.8508455	0.07	0.941	-1.336723	1.463419
County c3 0-1 yrs	-1.077674	.6033819	-1.79	0.074	-2.070542	-.0848052
County c1 2-3 yrs	.1779771	.2718633	0.65	0.513	-.2693755	.6253297
County c2 2-3 yrs	-1.081443	.4296512	-2.52	0.012	-1.788436	-.374449
County c3 2-3 yrs	-.6008507	.3485573	-1.72	0.085	-1.174404	-.0272978
County c1 4+ yrs	-.1171638	.2221809	-0.53	0.598	-.4827637	.2484361
County c2 4+ yrs	-.5392524	.35008	-1.54	0.124	-1.115311	.0368062
County c3 4+ yrs	-.2286523	.3482588	-0.66	0.512	-.801714	.3444095
County c2 0-1 yrs amd	-.1202626	.8865163	-0.14	0.892	-1.57903	1.338505
County c3 2-3 yrs amd	.1009738	.6968418	0.14	0.885	-1.045683	1.247631
Place c1 0-1 yrs	-.2231085	.425796	-0.52	0.600	-.9237582	.4775411
Place c2 0-1 yrs	.10437	.8505894	0.12	0.902	-1.29528	1.50402
Place c3 0-1 yrs	.9764619	1.245226	0.78	0.433	-1.072565	3.025489
Place c1 2-3 yrs	-.2059153	.196336	-1.05	0.294	-.5289872	.1171567
Place c2 2-3 yrs	.5535591	.3860915	1.43	0.152	-.0817566	1.188875
Place c3 2-3 yrs	.3539598	.3487718	1.01	0.310	-.2199461	.9278657
Place c1 4+ yrs	.5510697	.1663068	3.31	0.001	.2774109	.8247285
Place c2 4+ yrs	.5247187	.2863199	1.83	0.067	.0535777	.9958597
Place c3 4+ yrs	1.024837	.6045299	1.70	0.090	.0300796	2.019594
Place c2 0-1 yrs amd	.4547984	.9201006	0.49	0.621	-1.059232	1.968829
Place c3 0-1 yrs amd	-1.522728	1.294639	-1.18	0.240	-3.653064	.6076089
Place c2 2-3 yrs amd	-.1873128	.5521247	-0.34	0.734	-1.095837	.7212115
Place c2 4+ yrs amd	-.5962483	.4006612	-1.49	0.137	-1.255539	.063042
Place c3 4+ yrs amd	-1.215555	.6668044	-1.82	0.068	-2.312786	-.1183249
Co&Pl:Place later	.3209983	.9715366	0.33	0.741	-1.277671	1.919667
Co&Pl Pl less sev.	-.2119023	.901382	-0.24	0.814	-1.695132	1.271327
Co&Pl Pl more restr.	-.4524056	.6616788	-0.68	0.494	-1.541202	.6363907
log seats	.6988054	.028308	24.69	0.000	.6522245	.7453864
Breakfast dummy var	-.5307721	.0437909	-12.12	0.000	-.6028303	-.4587139
Dinner dummy var	1.280835	.1833586	6.99	0.000	.9791179	1.582553
24 hours dummy var	.5431622	.1851206	2.93	0.003	.2385452	.8477792
% bar seats	2.406414	.1383217	17.40	0.000	2.178805	2.634023
Per Capita Inc.	-.000105	.0000462	-2.27	0.023	-.000181	-.000029
Per Capita Inc.(-1)	.0000618	.0000685	0.90	0.367	-.0000509	.0001745
Per Capita Inc.(-2)	.0000919	.0000458	2.01	0.045	.0000166	.0001673
Employment	3.53e-06	1.01e-06	3.49	0.001	1.86e-06	5.20e-06
Employment (-1)	-5.43e-06	3.00e-06	-1.81	0.071	-.0000104	-4.88e-07
Employment (-2)	2.15e-06	2.39e-06	0.90	0.370	-1.79e-06	6.08e-06
Population	6.11e-06	2.64e-06	2.32	0.021	1.77e-06	.0000104
Population (-1)	-.0000139	4.72e-06	-2.95	0.003	-.0000217	-6.16e-06
Population (-2)	7.78e-06	2.47e-06	3.14	0.002	3.71e-06	.0000119
y1996	.1579542	.0580085	2.72	0.007	.062501	.2534075
y1997	.1969096	.0631679	3.12	0.002	.0929664	.3008528
y1999	.2985394	.0731172	4.08	0.000	.1782247	.4188542
y2000	.2907073	.0681701	4.26	0.000	.178533	.4028816
Constant	5.903005	.253814	23.26	0.000	5.485353	6.320658

2. Food Sales

Source	SS	df	MS		
Model	868.433384	47	18.477306	Number of obs	= 3135
Residual	1258.49113	3087	.407674482	F(47, 3087)	= 45.32
				Prob > F	= 0.0000
Total	2126.92451	3134	.678661299	R-squared	= 0.4083
				Adj R-squared	= 0.3993
				Root MSE	= .63849

Log Food Sales	Coef.	Std. Err.	t	P>|t|	[90% Conf.	Interval]
County c1 0-1 yrs	.1683487	.1437561	1.17	0.242	-.0681801	.4048775
County c2 0-1 yrs	.7115468	.6396811	1.11	0.266	-.3409508	1.764044
County c3 0-1 yrs	-.7906035	.4534917	-1.74	0.081	-1.536755	-.0444521
County c1 2-3 yrs	.0316427	.1864736	0.17	0.865	-.2751711	.3384566
County c2 2-3 yrs	-.5506519	.2624702	-2.10	0.036	-.9825065	-.1187973
County c3 2-3 yrs	-.3479536	.2618853	-1.33	0.184	-.7788459	.0829386
County c1 4+ yrs	-.2229947	.134969	-1.65	0.099	-.4450656	-.0009238
County c2 4+ yrs	-.1333398	.2622363	-0.51	0.611	-.5648096	.29813
County c3 4+ yrs	.2058771	.26173	0.79	0.432	-.2247597	.6365139
County c2 0-1 yrs amd	-.7808308	.6634432	-1.18	0.239	-1.872425	.3107637
County c3 2-3 yrs amd	.6696102	.5236377	1.28	0.201	-.1919557	1.531176
Place c1 0-1 yrs	.0332748	.2998759	0.11	0.912	-.4601252	.5266748
Place c2 0-1 yrs	-.4072767	.639586	-0.64	0.524	-1.459618	.6450644
Place c3 0-1 yrs	.3851219	.7322073	0.53	0.599	-.8196135	1.589857
Place c1 2-3 yrs	.3595008	.1371802	2.62	0.009	.1337917	.5852099
Place c2 2-3 yrs	-.1197375	.289485	-0.41	0.679	-.5960409	.3565659
Place c3 2-3 yrs	.064675	.2267434	0.29	0.775	-.3083967	.4377466
Place c1 4+ yrs	.3351684	.1149702	2.92	0.004	.1460024	.5243344
Place c2 4+ yrs	.0475992	.214779	0.22	0.825	-.305787	.4009853
Place c3 4+ yrs	.4434344	.4538453	0.98	0.329	-.3032988	1.190168
Place c2 0-1 yrs amd	.5131632	.6875047	0.75	0.455	-.6180209	1.644347
Place c3 0-1 yrs amd	-.2237237	.771849	-0.29	0.772	-1.493683	1.046236
Place c2 2-3 yrs amd	.3481247	.4135496	0.84	0.400	-.3323082	1.028557
Place c2 4+ yrs amd	-.5959907	.2920735	-2.04	0.041	-1.076553	-.1154284
Place c3 4+ yrs amd	-.4161669	.500874	-0.83	0.406	-1.240279	.4079448
Co&Pl:Place later	.0044155	.4400342	0.01	0.992	-.7195937	.7284247
Co&Pl Pl less sev.	.2504113	.4995076	0.50	0.616	-.5714521	1.072275
Co&Pl Pl more restr.	-.8881191	.485145	-1.83	0.067	-1.686351	-.0898871
log seats	.6979451	.018148	38.46	0.000	.6680853	.727805
Breakfast dummy var	-.1397889	.0266644	-5.24	0.000	-.1836612	-.0959166
Dinner dummy var	.3283266	.0617546	5.32	0.000	.2267188	.4299344
24 hours dummy var	.7029649	.0695947	10.10	0.000	.5884575	.8174723
Alcohol dummy var	-.0901261	.0458454	-1.97	0.049	-.1655577	-.0146945
% bar seats	-.5075758	.0944733	-5.37	0.000	-.6630173	-.3521343
Per Capita Inc.	-.0000697	.0000295	-2.36	0.018	-.0001182	-.0000212
Per Capita Inc.(-1)	.0000405	.0000424	0.95	0.340	-.0000293	.0001103
Per Capita Inc.(-2)	.0000576	.000029	1.98	0.048	9.77e-06	.0001054
Employment	2.80e-06	7.02e-07	3.99	0.000	1.64e-06	3.95e-06
Employment (-1)	-4.93e-06	2.09e-06	-2.37	0.018	-8.37e-06	-1.50e-06
Employment (-2)	2.35e-06	1.67e-06	1.41	0.159	-3.96e-07	5.11e-06
Population	2.33e-06	1.84e-06	1.27	0.204	-6.88e-07	5.35e-06
Population (-1)	-2.73e-06	3.26e-06	-0.84	0.402	-8.08e-06	2.63e-06
Population (-2)	3.64e-07	1.69e-06	0.22	0.830	-2.42e-06	3.15e-06
y1996	.1955697	.0376443	5.20	0.000	.1336318	.2575076
y1997	.2372825	.0408762	5.80	0.000	.170027	.304538
y1999	.2576731	.0471718	5.46	0.000	.180059	.3352872
y2000	.2866144	.0442798	6.47	0.000	.2137587	.3594701
Constant	9.114477	.1228324	74.20	0.000	8.912375	9.316579

3. Total Sales

Source	SS	df	MS		
Model	980.059393	47	20.8523275	Number of obs	3145
Residual	1159.24493	3097	.374312214	F(47, 3097)	55.71
Total	2139.30432	3144	.680440306	Prob > F	0.0000
				R-squared	0.4581
				Adj R-squared	0.4499
				Root MSE	.61181

Log Total Sales	Coef.	Std. Err.	t	P>|t|	[90% Conf.	Interval]
County c1 0-1 yrs	.0622507	.1352392	0.46	0.645	-.1602646	.2847659
County c2 0-1 yrs	.6106542	.6129405	1.00	0.319	-.3978449	1.619153
County c3 0-1 yrs	-.8018065	.4345238	-1.85	0.065	-1.516748	-.0868646
County c1 2-3 yrs	.0687968	.1786713	0.39	0.700	-.2251793	.3627729
County c2 2-3 yrs	-.6732123	.2514992	-2.68	0.007	-1.087015	-.2594092
County c3 2-3 yrs	-.3902205	.250938	-1.56	0.120	-.8031003	.0226593
County c1 4+ yrs	-.220781	.1293212	-1.71	0.088	-.4335591	-.0080029
County c2 4+ yrs	-.1898329	.2512735	-0.76	0.450	-.6032648	.2235989
County c3 4+ yrs	.1671865	.2507874	0.67	0.505	-.2454455	.5798185
County c2 0-1 yrs amd	-.6691555	.6357095	-1.05	0.293	-1.715117	.3768064
County c3 2-3 yrs amd	.6141815	.5017462	1.22	0.221	-.2113644	1.439727
Place c1 0-1 yrs	.08779	.2873243	0.31	0.760	-.3849579	.5605379
Place c2 0-1 yrs	-.2876259	.6128528	-0.47	0.639	-1.295981	.7207289
Place c3 0-1 yrs	.6950867	.7015323	0.99	0.322	-.4591765	1.84935
Place c1 2-3 yrs	.3069277	.1314464	2.34	0.020	.0906529	.5232026
Place c2 2-3 yrs	.0540667	.2773727	0.19	0.845	-.4023073	.5104407
Place c3 2-3 yrs	.1671943	.2172582	0.77	0.442	-.1902706	.5246593
Place c1 4+ yrs	.3571432	.1101642	3.24	0.001	.1758849	.5384014
Place c2 4+ yrs	.162172	.2057963	0.79	0.431	-.1764341	.500778
Place c3 4+ yrs	.5335418	.4348742	1.23	0.220	-.1819767	1.24906
Place c2 0-1 yrs amd	.4670426	.658765	0.71	0.478	-.6168536	1.550939
Place c3 0-1 yrs amd	-.5749767	.7395166	-0.78	0.437	-1.791737	.6417839
Place c2 2-3 yrs amd	.2645998	.3962534	0.67	0.504	-.3873741	.9165736
Place c2 4+ yrs amd	-.6072665	.2798523	-2.17	0.030	-1.06772	-.1468126
Place c3 4+ yrs amd	-.4805591	.4799389	-1.00	0.317	-1.270225	.3091064
Co&Pl:Place later	-.1305334	.4215284	-0.31	0.757	-.8240934	.5630266
Co&Pl Pl less sev.	.1845607	.478627	0.39	0.700	-.6029463	.9720677
Co&Pl Pl more restr.	-.7387597	.4648663	-1.59	0.112	-1.503626	.0261061
log seats	.7137541	.0172572	41.36	0.000	.68536	.7421482
Breakfast dummy var	-.1927714	.0254716	-7.57	0.000	-.234681	-.1508619
Dinner dummy var	.3584225	.0588812	6.09	0.000	.2615425	.4553025
24 hours dummy var	.6440847	.06589	9.78	0.000	.5356728	.7524965
Alcohol dummy var	.0119027	.043903	0.27	0.786	-.0603329	.0841383
% bar seats	.1008116	.089902	1.12	0.262	-.0471083	.2487314
Per Capita Inc.	-.0000777	.0000282	-2.75	0.006	-.0001241	-.0000312
Per Capita Inc.(-1)	.0000382	.0000406	0.94	0.347	-.0000287	.0001051
Per Capita Inc.(-2)	.0000725	.0000278	2.61	0.009	.0000267	.0001182
Employment	2.73e-06	6.72e-07	4.07	0.000	1.63e-06	3.84e-06
Employment (-1)	-5.22e-06	2.00e-06	-2.61	0.009	-8.51e-06	-1.93e-06
Employment (-2)	2.69e-06	1.60e-06	1.68	0.094	5.13e-08	5.32e-06
Population	3.72e-06	1.76e-06	2.12	0.034	8.28e-07	6.62e-06
Population (-1)	-5.32e-06	3.12e-06	-1.71	0.088	-.0000104	-1.86e-07
Population (-2)	1.58e-06	1.62e-06	0.98	0.328	-1.08e-06	4.25e-06
y1996	.2033203	.036004	5.65	0.000	.1440812	.2625594
y1997	.2477507	.0390938	6.34	0.000	.1834279	.3120736
y1999	.2699381	.0451295	5.98	0.000	.1956845	.3441917
y2000	.2850153	.0423247	6.73	0.000	.2153765	.3546542
Constant	8.957134	.1172553	76.39	0.000	8.764208	9.150059

4. Gross Profits

Source	SS	df	MS		
Model	1035.71766	47	22.036546	Number of obs	= 3145
Residual	1312.13507	3097	.423679391	F(47, 3097)	= 52.01
				Prob > F	= 0.0000
Total	2347.85273	3144	.746772498	R-squared	= 0.4411
				Adj R-squared	= 0.4327
				Root MSE	= .65091

log Gross Profits	Coef.	Std. Err.	t	P>|t|	[90% Conf.	Interval]
County c1 0-1 yrs	.0456315	.1438813	0.32	0.751	-.191103	.2823659
County c2 0-1 yrs	.6273843	.6521087	0.96	0.336	-.44556	1.700329
County c3 0-1 yrs	-.8342026	.4622908	-1.80	0.071	-1.594831	-.0735743
County c1 2-3 yrs	.0998665	.1900888	0.53	0.599	-.2128953	.4126282
County c2 2-3 yrs	-.7243631	.2675705	-2.71	0.007	-1.164609	-.2841171
County c3 2-3 yrs	-.4030841	.2669735	-1.51	0.131	-.8423477	.0361796
County c1 4+ yrs	-.1521118	.1375851	-1.11	0.269	-.3784869	.0742633
County c2 4+ yrs	-.1868418	.2673304	-0.70	0.485	-.6266928	.2530091
County c3 4+ yrs	.1958343	.2668132	0.73	0.463	-.2431657	.6348343
County c2 0-1 yrs amd	-.7455519	.6763326	-1.10	0.270	-1.858353	.3672492
County c3 2-3 yrs amd	.5529775	.5338088	1.04	0.300	-.3253226	1.431278
Place c1 0-1 yrs	.1752821	.305685	0.57	0.566	-.3276754	.6782396
Place c2 0-1 yrs	-.2519487	.6520154	-0.39	0.699	-1.32474	.8208421
Place c3 0-1 yrs	.8176568	.7463617	1.10	0.273	-.4103662	2.04568
Place c1 2-3 yrs	.3156648	.1398461	2.26	0.024	.0855695	.54576
Place c2 2-3 yrs	.0512152	.2950974	0.17	0.862	-.4343221	.5367525
Place c3 2-3 yrs	.2224321	.2311415	0.96	0.336	-.1578756	.6027398
Place c1 4+ yrs	.3502257	.1172039	2.99	0.003	.1573847	.5430667
Place c2 4+ yrs	.192467	.2189471	0.88	0.379	-.1677767	.5527107
Place c3 4+ yrs	.590998	.4626636	1.28	0.202	-.1702436	1.35224
Place c2 0-1 yrs amd	.5068309	.7008615	0.72	0.470	-.6463286	1.65999
Place c3 0-1 yrs amd	-.6667489	.7867733	-0.85	0.397	-1.961263	.6277652
Place c2 2-3 yrs amd	.3196516	.4215748	0.76	0.448	-.3739848	1.013288
Place c2 4+ yrs amd	-.7365913	.2977355	-2.47	0.013	-1.226469	-.2467135
Place c3 4+ yrs amd	-.5793388	.5106081	-1.13	0.257	-1.419466	.260788
Co&Pl:Place later	-.2303484	.448465	-0.51	0.608	-.9682284	.5075315
Co&Pl Pl less sev.	.3460435	.5092123	0.68	0.497	-.4917868	1.183874
Co&Pl Pl more restr.	-.6589341	.4945722	-1.33	0.183	-1.472676	.1548083
log seats	.7267582	.01836	39.58	0.000	.6965497	.7569668
Breakfast dummy var	-.1846496	.0270993	-6.81	0.000	-.2292372	-.1400619
Dinner dummy var	.3457077	.0626439	5.52	0.000	.2426369	.4487786
24 hours dummy var	.6866811	.0701005	9.80	0.000	.5713415	.8020207
Alcohol dummy var	.024798	.0467085	0.53	0.596	-.0520536	.1016497
% bar seats	.0974583	.0956469	1.02	0.308	-.0599139	.2548306
Per Capita Inc.	-.0000786	.00003	-2.62	0.009	-.000128	-.0000291
Per Capita Inc.(-1)	.0000391	.0000432	0.90	0.366	-.000032	.0001103
Per Capita Inc.(-2)	.0000753	.0000296	2.54	0.011	.0000266	.000124
Employment	3.00e-06	7.15e-07	4.19	0.000	1.82e-06	4.18e-06
Employment (-1)	-5.39e-06	2.13e-06	-2.53	0.011	-8.88e-06	-1.89e-06
Employment (-2)	2.63e-06	1.70e-06	1.54	0.123	-1.77e-07	5.43e-06
Population	4.15e-06	1.87e-06	2.22	0.027	1.08e-06	7.23e-06
Population (-1)	-5.87e-06	3.32e-06	-1.77	0.077	-.0000113	-4.07e-07
Population (-2)	1.69e-06	1.72e-06	0.98	0.328	-1.15e-06	4.52e-06
y1996	.1910357	.0383048	4.99	0.000	.1280111	.2540603
y1997	.2415494	.041592	5.81	0.000	.1731162	.3099826
y1999	.2515698	.0480133	5.24	0.000	.1725713	.3305684
y2000	.2653184	.0450294	5.89	0.000	.1912295	.3394073
Constant	8.392999	.1247481	67.28	0.000	8.187745	8.598252

APPENDIX B. DESCRIPTIVE STATISTICS

Variable	Mean	Std. Dev.	Min	Max
Total sales	1448457	1185451	53975	9873058
Food sales	1186464	949988.7	53975	7858957
Beverage sales	350463	350603.8	5127	3785068
Gross Profits	962635.7	813990.1	15000	7720606
County c1 0-1 yrs	.0076312	.0870364	0	1
County c2 0-1 yrs	.0057234	.0754482	0	1
County c3 0-1 yrs	.0015898	.0398472	0	1
County c1 2-3 yrs	.0038156	.0616622	0	1
County c2 2-3 yrs	.0019078	.0436435	0	1
County c3 2-3 yrs	.0025437	.0503791	0	1
County c1 4+ yrs	.0079491	.0888169	0	1
County c2 4+ yrs	.0019078	.0436435	0	1
County c3 4+ yrs	.0019078	.0436435	0	1
County c2 0-1 yrs amd	.0054054	.0733341	0	1
County c2 2-3 yrs amd	.0019078	.0436435	0	1
County c3 2-3 yrs amd	.0006359	.0252136	0	1
County c2 4+ yrs amd	.0019078	.0436435	0	1
Place c1 0-1 yrs	.0015898	.0398472	0	1
Place c2 0-1 yrs	.0028617	.0534266	0	1
Place c3 0-1 yrs	.0031797	.0563076	0	1
Place c1 2-3 yrs	.0069952	.0833577	0	1
Place c2 2-3 yrs	.0031797	.0563076	0	1
Place c3 2-3 yrs	.0025437	.0503791	0	1
Place c1 4+ yrs	.0114467	.1063923	0	1
Place c2 4+ yrs	.0066773	.0814542	0	1
Place c3 4+ yrs	.0034976	.0590465	0	1
Place c2 0-1 yrs amd	.0025437	.0503791	0	1
Place c3 0-1 yrs amd	.0022258	.0471329	0	1
Place c2 2-3 yrs amd	.0015898	.0398472	0	1
Place c3 2-3 yrs amd	.0025437	.0503791	0	1
Place c2 4+ yrs amd	.0038156	.0616622	0	1
Place c3 4+ yrs amd	.0028617	.0534266	. 0	1
Co&Pl:Place later	.0019078	.0436435	0	1
Co&Pl:Pl less sev.	.0006359	.0252136	0	1
Co&Pl:Pl more sev.	.0006359	.0252136	0	1
Total Seats	228.1393	172.8646	20	1500
Breakfast dummy var	.2833068	.4506758	0	1
Dinner dummy var	.936089	.2446332	0	1
24 hours dummy var	.0476948	.2131535	0	1
Alcohol dummy var	.917965	.2744616	0	1
% bar seats	.1228565	.1309135	0	.6
Per Capita Inc.	19728.89	4931.134	8622.056	65457.17
Employment	495192.5	839114.4	766	5189821
Population	776282.5	1378377	1162	8948125
y1996	.1809221	.3850148	0	1
y1997	.1828299	.3865885	0	1
y1999	.1166932	.3211054	0	1
y2000	.1170111	.3214847	0	1

Note: This table reflects the 3145 observations used in Total Sales and Gross Profits regressions, except that means of Beverage Sales and Food Sales were computed using sample used in corresponding regressions.


FORWARD

The Economic Impact of the New York State Smoking Ban on New York's Bars

Prepared for the

New York Nightlife Association

Empire State Restaurant and Tavern Association

This document was prepared on
May 12, 2004

by

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About REA and its Founder, Brian O'Connor, Ph.D.

Brian O'Connor, formerly IBM's director of U.S. economics, is credited with creating a database combining elements of macroeconomics, industry and regional forecasting to gauge the impact of the economy on the company's business. He established an internal consulting practice to serve the planning needs of IBM U.S. and many of its key clients.
Brian's doctorate, at the University of Maryland, was in input/output analysis and econometric modeling. He served as technical consultant to the Federal Trade Commission in the late 1960's, where he designed a quantitative system to support the agency's enforcement mission.

Brian came to IBM in 1969 to develop an input/output model for forecasting the industrial composition of the United States. He took over the running of IBM's quarterly econometric model in 1975 and was responsible for all U.S. macroeconomic forecasting: assessing current conditions, evaluating public policy and providing IBM senior management with economic forecasts to run its domestic operations.

For twenty-five years, he has worked with IBM and customer executives to help them assess the impact of economic conditions on their businesses, to anticipate developments in their markets and to track their performance against potential.

In 1993, Brian founded Ridgewood Economic Associates (REA), a consulting firm, dedicated to helping business clients meet the challenge of today's competitive environment. Its primary focus is on the development of economic databases and a system of interlocking forecasting models designed to improve operating and strategic planning systems.

For the last few years, Brian has held the position of Senior Technical Consultant to Texas Perspectives, Inc., an economic consulting firm based in Austin, Texas which specializes in regional economic and public policy analysis.

The Economic Impact of the New York State Smoking Ban on New York's Bars

I. Executive Summary

Since its passage in July 2003, a significant amount of anecdotal evidence has suggested that New York's statewide smoking ban has negatively affected bars, clubs and taverns across New York State. Countless media accounts have described a dramatic drop in customers for bars throughout the state, as well as a steep decline in bar revenue and significant job losses.

To date, the only statistical evidence put forth to gauge the ban's economic impact has analyzed the combined revenue and job totals from both restaurant and bar industries. The following economic study is the first detailed economic analysis focused exclusively on the economic effects of the state smoking ban on New York State's bars. This report measures the direct and indirect economic impact of the New York smoking ban on bars, taverns and clubs*.

The major findings are that the passage of the state smoking ban in 2003 has directly resulted in a dramatic loss in revenue and jobs in New York's bars, taverns and clubs.

Specifically, the following statewide economic losses have occurred in New York's bar and tavern industry as a direct result of the statewide smoking ban:

- 2,000 jobs (10.7% of actual employment)
- $28.5 million in wages and salary payments
- $37 million in gross state product

In addition, there are indirect losses to other businesses which supply and service the state's bars and taverns:

- 650 jobs
- $21.5 million in labor earnings
- $34.5 million in gross state product

In summary, the enactment of the New York State smoking ban has had a dramatic negative impact on the bar and tavern business and related businesses. The total economic impact is:

- 2650 jobs
- $50 million in worker earnings
- $71.5 million in gross state product (output)

**This analysis, defines bars, taverns and clubs using the following North American Industry Classification System (NAICS) definition: "This industry comprises establishments known as bars, taverns, nightclubs, or drinking places primarily engaged in preparing and serving alcoholic beverages for immediate consumption. These establishments may also provide limited food services."*

Direct Economic Impacts

The main focus of the economic analysis is on industry employment. While industry revenue would be a preferred indicator of industry economic health, these data are normally not available at the regional level on a consistent basis over time. In these instances, economists tend to study industry employment patterns. An industry employment function was estimated separately for the bar/tavern and restaurant industries. A multiple regression approach was used to explain the number of employed workers in each industry as a function of personal income, an industry price factor and proxy variables to capture the impacts of anti-smoking regulations and the transitional recovery from the 2001 attack on the World Trade Center. These functions were estimated at the state level, using a log - log format (see Appendix II for the regression results).

The employment function for the bar/tavern industry exhibited strong statistical properties. The coefficient of the price deflator is negative, reflecting the normal inverse relationship that exists between price and sales volume and, in a derived manner, with employment. Adjusting the estimated price impact from the regression by industry labor productivity, the price elasticity of demand (customer sensitivity to changes in product price) is -1.9. The magnitude of the number puts the elasticity in the elastic zone, indicating a relatively high price sensitivity of bar/tavern patrons to prices. The income elasticity (the responsiveness of product demand to changes in consumer income) derived from the employment function is estimated to be 1.65, indicating that the bar/tavern industry provides products that economists call "normal" goods. These types of products respond positively to income gains. Both elasticities are consistent with the existing body of research literature.

Employment losses from the anti-smoking regulations are estimated by comparing two versions of industry employment predictions. The first estimate of employment comes from the fitted regression with the ban-coverage proxy variable coded to reflect the current status of these regulations. The alternate estimate uses the same regression parameters, but sets the proxy variable to zero to simulate the removal of all anti-smoking rules. The difference between these two estimates indicates that approximately 2,000 jobs (10.7% of actual employment) were lost in New York State last year.

Using data from the New York State Department of Labor, the average wage per employed worker in 2003 was approximately $14,175 per year. Combining the job loss with the average annual worker compensation estimate, lost wage and salary payments amounted to $28.5 million in 2003. These 2,000 workers would have added nearly $37 million to constant-dollar Gross State Product (output) in New York State.

A similar approach was used to calculate loss jobs in the restaurant industry. The price elasticity of restaurant meals is quite similar to the price sensitivity of bar/tavern patrons (-1.8 versus -1.9 for bars). However, in contrast, the income elasticity in this segment of the hospitality industry is significantly greater than for bars/taverns. Based on the fitted regression, the elasticity is approximately 2.1 (versus 1.65 for bars/taverns). This

difference is a major reason why the recent employment pattern in the restaurant industry is substantially stronger than for bars/taverns. The upturn in general economic conditions, combined with the increase in State tourism following 9/11, have added significant income to the local economy. Also, the data analysis suggests that the impact of the anti-smoking regulations is smaller on restaurants than on bars/taverns.

Indirect Economic Impacts

These direct output/employment/earnings effects are only the first wave of economic change. In addition to the direct economic impacts, there are indirect and induced changes to the local economic landscape. A system of regional input/output multipliers was used to assess these total changes. These effects are: (1) the change in output for a given industry needed to meet the initial dollar change in spending by final users (customer purchases at bars/taverns); (2) changes in the output of all industries to meet the direct requirements of a given industry; (3) changes in the output of all industries to meet the changes in production in (2) above; and (4) the regional production required to meet changes in demand by final users created by higher local income generated by the first three effects. These regional impact factors were developed by researchers at the U.S. Bureau of Economic Analysis, U.S. Department of Commerce. These output, employment and earnings multipliers provide the basis for translating the estimated direct impacts on the bar or restaurant industry into total economic change.

The New York State employment multiplier for the bar and tavern industry is 1.33. This factor implies that for each job created in the bar industry, the ultimate change in employment across all industries in New York State is 1.33 jobs. The direct loss of slightly more than 2,000 workers from the 2003 smoking ban regulations means a total reduction in job count of more than 2,650 jobs across the State.

The local regional earnings multiplier is 1.76, indicating a decline of $1.76 dollars for each dollar lost in the bar/tavern industry. The direct earnings loss of $28.5 million by workers in the bar/tavern industry would result in a total change of labor earnings of $50 million. When the indirect impacts are taken into account, the $37 million loss in gross state product by the bar industry would translate into a total decline in production of slightly more than $70 million. These losses are occurring in the context of the current weakness in local job markets and the lack of strong growth in the State's economy.

Conclusion

New York State's public smoking ban has resulted in dramatic economic losses in bars and taverns across the state. This reduction translates into a negative overall economic impact in 2003 of more than $70 million in economic activity, $50 million in lost wages, and the elimination of more than 2,650 jobs statewide. These dramatic economic losses to the state should be factored into the public policy debate going forward.

II. Background

Overview

Restrictions on the time, place and manner in which public smoking may occur have been increasing over the last several years. While the early focus of anti-smoking initiatives was on consumer education and industry advertising restrictions, over past two decades, smoking opponents have increasingly taken their battle to state and local governments, seeking prohibitions on smoking in a wide variety of public establishments. Advocates of these bans claim to be protecting the nonsmoking public and workers from the adverse health effects of secondhand smoke. Opponents of smoking restrictions dispute the existence and/or severity of these adverse consequences and claim that bans have the unintended consequence of hurting business.

State and Local Smoking Ordinances Nationwide

Nationwide, the number of local communities implementing full or partial bans on smoking in public facilities --including worksites, bars and restaurants -- has increased more than eight-fold over the past two decades. More than 200 U.S. municipalities had local clean indoor air laws in effect during 1985; by April 2004, over 1,700 communities had enacted such laws.1 Almost one-third of the U.S. population now is subject to some type of smoking restriction, with various combinations of constrains being imposed.

Some smoking laws are less restrictive than others. Many provide for full or partial bans on smoking; some apply only to workplaces, restaurants, or bars, or a combination of these three.

A total of 80 out of 291 municipalities with 100% smoke free provisions apply that restriction to all three target environments - workplaces, restaurants, and bars, more than four times the number of communities with such full-scale bans in effect in the year 2000. Approximately one-third of the U.S. population is estimated to live in areas covered by these ordinances and laws providing for 100% smoke free workplaces, restaurants and bars.

While these 80 municipalities are scattered across 15 states, Massachusetts (with 45 such areas) and California (with 11) account for 70 percent of the total. Eight states have only one municipality within their borders that has this blanket prohibition. The first such comprehensive ban was enacted just over 11 years ago, and the movement did not grow rapidly, reaching a total of just 20 localities over seven years by 2000. Sixty more municipalities have signed on to full-scale bans since then.

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[1] *See* http://no-smoke.org/lists. *Unless otherwise noted. all data concerning the spread of smoking ban ordinances in* the United States are derived from the ANRF surveys reported at this website.

Statewide Bans

While every state except Alabama has some kind of clean indoor air legislation or policy in effect, only a handful have enacted complete smoking bans in workplaces, restaurants, or bars. Proposed anti-smoking regulations failed to pass in at least 21 states during 2003.

As of April 2004, a total of eight states had enacted 100% smoke free bans in workplaces, restaurants, or bars. In most cases, these laws are more stringent than any local ordinances that preceded them, creating potential conflicts between local and state requirements.

California and Utah initiated the process, with laws banning all smoking in restaurants that took effect January 1, 1995. Three years later, California extended this prohibition to all free-standing bars in the state.

At the time it implemented the statewide ban in restaurants, California was at the tail end of a recessionary period, with the economy exhibiting essentially zero growth. Nevertheless, eating establishments that do not serve alcohol had increased sales of about 11.7 percent in the four years leading up to the ban, while restaurants and bars increased sales by just 1.2 percent. Following the ban, taxable sales statewide increased by 31.9 percent in the following five years, but restaurants and bars were well below this figure, and more than a thousand went out of business.2

More than seven years passed before another state, South Dakota, implemented a smoking ban. South Dakota's ban applied only to workplaces, exempting alcohol-serving restaurants and bars. One of the interesting and unanticipated consequences of this legislation was the surge in applications for liquor licenses by restaurants that had previously been dry. The law exempted restaurants that served alcohol, and many business owners felt it necessary to begin serving alcohol so that their patrons could continue to smoke and their revenue streams would be safeguarded.

Delaware's ban was signed into law in November 2001. Delaware's law included a pre-emption provision under which municipal governments couldn't implement their own anti-smoking policies. Similar preemption laws are included in state laws in 18 other states. The Delaware smoking ban was modified in March 2003. Among other things, the amendment permitted smoking in bars, casinos that install air systems, and nursing homes.

About a year later, Florida banned smoking in workplaces and restaurants. In contrast to most other states where bans have been put into place, the issue was settled by voter referendum (November 2002), rather than enacted as legislation by state lawmakers.

Connecticut banned smoking in restaurants effective October 1, 2003, and extended the

[2] See http://www.forces.[illegible]/[illegible]files/[illegible].htm

ban to bars on April 1, 2004. Workplaces remain free of state restrictions. The ban exempts private clubs and the state's two casinos. While an analysis of the impact of this law has not yet been prepared, some Connecticut bar owners claim to have seen a drop of 60 percent in revenues as smokers flock to places where they can still light up while they drink, and these owners are forming an alliance to fight for repeal of this measure.

Maine implemented full bans on smoking in restaurants and bars at the beginning of 2004, keeping workplaces free of state intervention. Within weeks of the ban's effective date, the Associated Press reported that many restaurant and bar patrons were driving across the border to New Hampshire or Canada in order to avoid standing out in the winter cold if they wished to light up. An unusual degree of opposition has arisen in Maine, with one former state representative going so far as to advise bar owners to file a class-action suit against the measure.

New York Smoking Policy

In August of 2002, New York City Mayor Michael Bloomberg signaled his intention to prohibit smoking in establishments that had been exempted from the City's earlier smoking ban enacted in 1995. Free-standing bars, smaller restaurants, pool halls, bingo parlors and bowling alleys were now to be required to implement smoke free policies and environments. Predictably, there was much acrimony in the months that followed, as representatives of the city's 13,000 bars and smaller restaurants that had allowed smoking complained businesses would suffer, while public health advocates pushed the case for protecting the tens of thousands of customers and workers in those establishments from second-hand smoke.

By the end of the year, however, New York City had adopted its new law and businesses had three months to prepare their facilities and clientele for a smoke free environment by the end of March 2003. Many bars and smaller restaurants took advantage of those three months to construct separate smoking areas and install costly ventilation systems that they anticipated would qualify them for exemptions from the ban, as had been negotiated.

However, just days before the New York City ban was scheduled to go into effect, the New York State Legislature approved a statewide smoking ban in workplaces, including bars and restaurants, that was considerably more stringent than the City ordinance and superseded most of the exemptions that had been included in the City version. New York joined just five other states - California, Delaware, Utah, Vermont and Maine - that had implemented smoking bans at that time, and the severity of its provisions was only surpassed by the original Delaware law (which was subsequently weakened with respect to bars).

Comprehensive economic evidence is difficult to assemble with respect to assessing the impact of this new law. In early December of 2003, eight months after the City's ban went into effect, International Communications Research (ICR) released an impact study[3] claiming that:

[3] Reported at [illegible]

- One-third of New York City bars, hotels and nightclubs have reduced staffing by an average of 16 percent since the ban took effect, and three-fourths of them cited the ban as the cause.

- Three-fourths of all affected bars and restaurants have experienced a decline in patronage averaging 30 percent, and almost 80 percent of businesses claim to have been negatively affected by the bans.

- Bars and nightclubs that do not offer food reported a reduction in alcohol sales approaching 20 percent.

But the City and Mayor remain upbeat about the consequences of the ban. One year after the ban went into place, four City departments released a joint report[4] asserting that:

- Business tax receipts in bars and restaurants had grown almost 9 percent.
- An additional 10,600 jobs had been created in these establishments.
- 150,000 fewer New Yorkers were exposed to second-hand smoke on the job.

Each of these analyses has been subjected to criticism from the opposition, generally either because it is overly anecdotal or overly aggregated.

The Status of the Bar and Restaurant Industries in New York

Historically, the financial performance of eating and drinking establishments has tended to track the overall economy, as economic growth creates disposable income which is spent at New York's bars and restaurants. However, the recent past has seen a deviation from the long-term trend, as bars have reduced payrolls more sharply in the last two years than restaurants and the overall economy.

In terms of structure, bars and restaurants are somewhat different, as bars tend to employ far fewer people per establishment. As Figure 1 indicates, nearly 75% of all bars employ less than 5 people, while the comparable figure for restaurants is 41%. Overall, average bar employment across New York is 5 workers, while restaurants average over 15 employees per establishment statewide. Within the alcoholic beverage sector, bars and restaurants account for a rising share of liquor licenses, with the vast majority of those licenses authorizing the sale of beer, wine, and liquor. See Figures 2 and 3 for more details.

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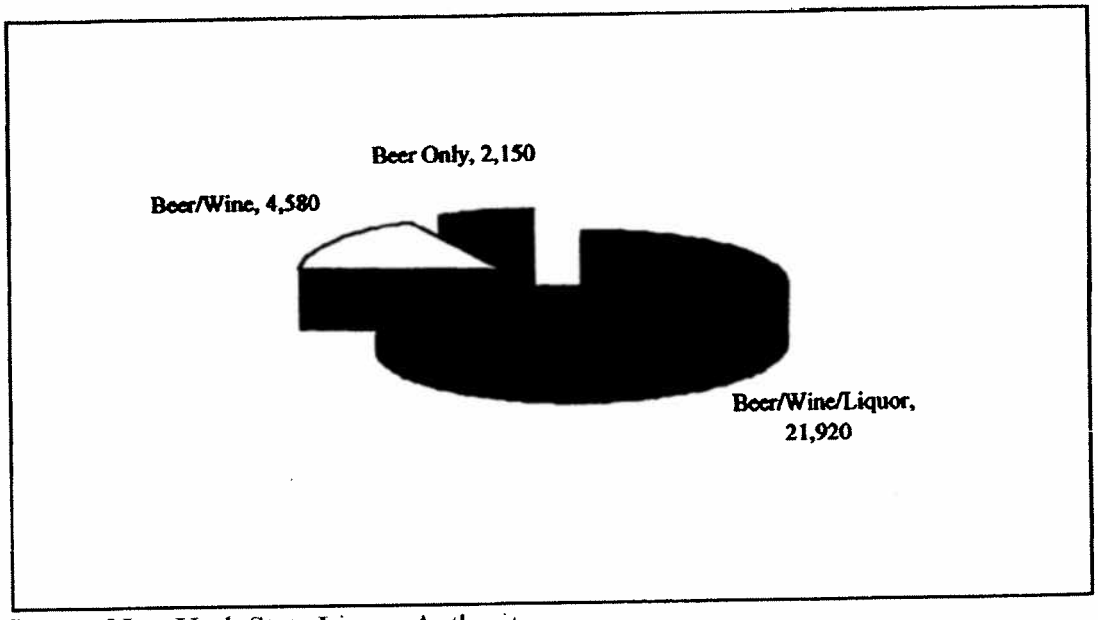
[4] "The State of Smoke-Free New York City: A One-Year Review," New York City department of Finance, New York City Department of Health & Mental Hygiene, New York City Department of Small Business Services, New York City Economic Development Corporation, March 2004.

Figure 1: Distribution of New York Establishments by Number of Employees (2001)

Figure 2: 2004 Bar and Restaurant Share of Total New York state Liquor licenses

Figure3: 2004 Distribution of New York Bar and Restaurant Liquor Licenses by Type



Source: New York State Liquor Authority


FORWARD

Lies, Damned Lies and Statistics

– Sir Winston Churchill's reaction to conflicting data

The Impact of Smoking Bans on Eating and Drinking Establishments

"Our results and those of previous studies indicate that communities considering implementing smoke-free bylaws need not be concerned that bars and restaurants will be adversely affected."

Ontario Tobacco Research Unit; Toronto, June 2003

"Research confirms the negative economic impact of the smoking ban on Dublin pubs with average sales down 16% and employment levels cut by 14%."

Licensed Vintners Association; Dublin, Ireland, July 2004

Introduction

With the possible exception of smoking itself, nothing seems as controversial as research into the impact of smoking bans on the hospitality industry. Anti-smoking advocates have sponsored numerous studies concluding that smoking bans don't hurt the industry. Studies funded by the industry reach a different conclusion, indicating that sales are down and employment off. Meanwhile, the media are able to produce anecdotal stories supporting one side or the other, depending on the editor's angle.

So what's the correct answer? It all depends on the methodology. When the Canadian Restaurant and Foodservices Association (CRFA) analyzed the same data used in the Ontario Tobacco Research Unit (OTRU) study quoted above, it reached quite a different conclusion...that a smoking ban in the City of Ottawa had a measurable negative impact on the city's drinking establishments.

crfa.ca

Canadian Restaurant and Foodservices Association

Association canadienne des restaurateurs et des services alimentaires

A Diverse Industry

"We went non-smoking in 1993. We may have lost a few heavy smokers but we gained all the non smokers who enjoyed eating in a smoke-free environment."
Restaurant; Kamloops, British Columbia

"Our sales are down 70% from December 2002 to December 2003 and I've reduced employees from 30 to 6."
Sports Bar; Chatham, Ontario

"It was the best thing that could have happened. The reduced cost of cleaning and better use of space have been positive impacts."
Golf Club; Toronto, Ontario

"We have lost 14.75% of our sales in the first year and laid off 8 employees."
Pub; Ottawa, Ontario

Although eating and drinking establishments represent a huge proportion of Canada's economy with $46 billion in annual sales and more than 1,000,000 employees, it is a very diverse collection of businesses with dramatic differences in concepts, clientele and food and beverage offerings. The industry's only common denominator is the service of food and/or beverages to the public at a retail level.

This wide diversity helps explain the apparent conflict among studies which seek to analyze the impact of smoking bans on an industry-wide basis. The impact isn't uniform. If one simply contrasts the two extremes within the industry...fast food restaurants versus pubs, for instance...it is only logical to expect that a smoking ban would have significantly different effects on the two sectors because their customer base is different, the duration of visitation is different and the environment is different.

In fact, the food and beverage service industry must be viewed in a continuum ranging from limited-service establishments offering convenience foods and non-alcoholic beverages for basic sustenance, to drinking establishments in which alcoholic beverages dominate sales and the product offered is socialization and entertainment. And between these two extremes are a wide variety of concepts, many of which blur the lines by marrying two or more concepts like a restaurant with a substantial bar business.

The Continuum of Eating and Drinking Establishments

LIMITED SERVICE EATING ESTABLISHMENTS	FULL SERVICE EATING ESTAB. ESTABLISHMENTS	EATING & DRINKING ESTABLISHMENTS	DRINKING & ENTERTAINMENT ESTABLISHMENTS
Product:			
Food/Sustenance	Food with Service	Food & Drink	Drinking, Socializing, Entertainment
Examples:			
Fast Food Cafeteria Coffee Shops	Restaurant without bar/ lounge	Liquor-licensed restaurant with bar/ lounge	Bars, Legions Lounges, Nightclubs, Pool Halls
Clientele:			
Virtually all consumers	Families	Primarily adult	Adult
Duration of Visitation:			
Brief	Moderate	Moderate to Lengthy	Lengthy

Smoking Bans and Drinking Establishments

"This examination of Wisconsin restaurants and bars indicates that smoking bans exert effects on profits that vary by establishment, and that bars are more likely to experience losses than restaurants."

Dunham & Marlow; New York, 2003

Research on the impact of smoking bans in both Canada and the United States has consistently failed to isolate the experience of establishments in which the predominant activity is drinking as opposed to eating.

The Conference Board of Canada's research, "The Economics of Smoke-Free Restaurants" (1996), explicitly excluded bars, pubs and taverns in its case study of restaurants that went smoke-free voluntarily. Of the 16 restaurants in the case study, 13 successfully converted to smoke-free status while three converted back to establishments that permit smoking.

KPMG's research, "Economic Impact Analysis of the Smoke Free By Laws on the Hospitality Industry in Ottawa" (2002) encompassed both bars and restaurants. Though it concluded that it was impossible based on the survey results to provide an estimate of the financial health of the bar and pub industry as a whole, it did acknowledge that, "The smoking restrictions may have contributed to changing consumer preferences and pressures on bars in some niches."

In the United States, many more studies have been undertaken. Glantz and Smith (1994, 1997), Bartosch and Pope (1990), Sciacca and Ratliff (1998) and Goldstein and Sobel (1998) are frequently cited as evidence that smoking bans don't impact negatively on industry sales, but all of these studies are either limited to restaurants or lump drinking establishments in with the much larger restaurant sector.

One U.S. exception is the work of Dunham and Marlow (2000, 2003) who have studied the impact of smoking laws on bars and taverns as compared to restaurants. Their 2000 study, "Smoking Laws and their Differential Effects on Restaurants, Bars and Taverns," reported evidence indicating that bars are more than twice as likely to experience revenue drops as restaurants. Their follow-up study, "The Economic Incidence of Smoking Laws," concluded that smoking bans do not impose identical economic effects across establishments and that bars are much more likely to experience profit losses than restaurants.

One of the few studies that restricted its analysis to drinking establishments was undertaken among Dublin pubs in July 2004 by the marketing research company Behaviour and Attitudes, in an effort to measure the impact of the first two months of Ireland's smoking ban. That study was based on a survey of 277 pubs - approximately half the Dublin trade - and concluded that pub sales were down 16% on average while pub employment was down 14% since the ban took effect.

The Ottawa Smoking Ban Re-visited

"Sales at Ottawa bars, taverns and other drinking establishments were 10% lower than they would have been without the smoking ban."

Canadian Restaurant and Foodservices Association; Toronto, August 2004

On August 1st 2001, the City of Ottawa implemented a smoking ban in eating and drinking establishments. The impact of this ban was analyzed the following year by the Ontario Tobacco Research Unit (OTRU) with funding from the Ontario Ministry of Health and Long-Term Care.

The OTRU study based its analysis on monthly taxable sales of (1) licensed restaurants, including bars, (2) unlicensed restaurants excluding take-outs, franchises, coffee and ice cream shops, and (3) goods and services subject to retail sales tax using data obtained from the Ontario Ministry of Finance for the period March 1998 to June 2002. As outcome measures, the OTRU used the ratio of licensed restaurant and bar sales to retail sales minus all restaurant and bar sales as well as the ratio of unlicensed restaurant sales to retail sales minus all restaurant and bar sales. The study concluded that there was no evidence that the Ottawa smoking ban adversely affected restaurant and bar sales.

In the summer of 2004, the Research Department of the Canadian Restaurant and Foodservices Association obtained the same data from the Ontario Ministry of Finance. It undertook a similar analysis but, unlike the OTRU study, the sales of bars, taverns and other drinking establishments were separated from those of licensed restaurants. CRFA found that the Ontario Ministry of Finance data for the first eight months of the Ottawa smoking ban, compared to the same eight months a year earlier, revealed that sales in drinking establishments had dropped 5.8%. When the growth of the Ottawa economy was factored in, using the same retail sales benchmark as in the OTRU study, it was concluded that sales in Ottawa bars, taverns and drinking establishments were 10% lower than they would have been without the smoking ban. (see Appendix for CRFA's methodology).

It is clear that the OTRU study suffers from its implicit assumption that liquor licensed establishments are homogeneous and that any impact of a smoking ban would be apparent by measuring the sales of all establishments that sell liquor. Within this category, however, there is a wide range of establishment types ranging from family-style restaurants, like Swiss Chalet - which has a very small proportion of beverage alcohol sales - to bars, pubs, taverns, nightclubs and pool halls in which beverage alcohol represents the majority of sales. This shortcoming is exacerbated by the fact that the sales of drinking establishments are a relatively small proportion (9%) of the total sales of all liquor-licensed establishments. The result is that the impact of the Ottawa smoking bylaw on drinking establishments was effectively masked in the OTRU study.

Gaming and Smoking Bans

"The ban has caused some smokers to stop gambling. At the casinos of Winnipeg for example, we've had a decline [in revenues] of about $21 million."
Manitoba Lotteries Corporation; Winnipeg, August 2004

It appears that drinking establishments aren't the only operations that are affected by smoking bans. Establishments that feature gaming - such as bingo halls, casinos and racetracks - have also been reporting a significant decline in revenues following smoking bans.

Like drinking establishments, gaming operations attract an adult clientele with visitations of an extended duration. For whatever reason, both sectors are patronized by a high proportion of smokers. For example, operators of bingo halls estimate that 75% – 80% of their customers smoke as compared to 21% of the adult Canadian population.

Comprehensive research on the impact of smoking bans in the gaming industry hasn't been undertaken, but a variety of reports indicate that this business is subject to the same impacts as drinking establishments:

- Mohawk Raceway slot machines experienced a 14% decline in "net wins" (total revenue less winnings) in the first 7 months of the smoking ban. (Ontario Lottery & Gaming Corporation)

- Brantford's charity casino reported a 20% drop in net wins the first 12 months of that city's smoking ban. (Ontarion Lottery & Gaming Corporation)

- Eleven month's after Winnipeg's smoking ban was implemented, casinos gave 269 employees severance packages because of the revenue losses created by the city's ban. (Manitoba Lotteries Corporation)

Conclusion

"The drop in sales was immediate and real. The smokers that were a fixture in my bar chose to stay home, go elsewhere or spent most of the time outside smoking instead of spending money inside. I heard all the comments by the people who want to ban smoking, about how much better business would be. I am proof that they know nothing about the bar business. Thankfully, the Mayor and Council realized that they made a mistake and changed the bylaw which saved my business."

Lounge and Sports Bar; Kentville, Nova Scotia, November 2002

For certain types of establishments, in certain sectors, the negative impact of a smoking ban is very real and measurable. Research on the issue has produced conflicting conclusions, but the discrepancy lies in the methodology. The eating and drinking industry is huge and diverse encompassing some 63,500 establishments in Canada. An analysis of the industry as a whole, or even liquor-licensed establishments, captures a disparate collection of operations with dramatically different concepts and customers, with the result that the impact of a smoking ban is hidden in a much larger group where the effects are muted.

It is widely acknowledged that smoking is a highly addictive activity. Logic dictates and research shows that a ban which allows smokers to move the location of their behaviour to other venues, such as private homes will have a negative impact on certain types of eating and drinking establishments that have a substantial smoking clientele.

Appendix: CRFA's Methodology

Using a similar methodology as the OTRU, the ratio of tavern sales to retail sales was generated and an econometric model was then specified for the period March 1998 to May 2002 to determine the full impact of the smoking ban. An intervention dummy variable was included to measure the impact of the smoking ban, which came into effect on August 1, 2001. Other variables were included in the model to capture the economy (the employment rate), seasonal variation, and a spike in sales in April 2000 due to the hockey playoffs. Variables to account for tourism, September 11th, the weather, the trend in sales and population growth were tested in the model, but were not statistically significant.

The model was able to explain 80% of the ratio between drinking places and retail sales.

The estimated coefficient on the variable to capture the impact of the smoking ban was statistically significant and negative - indicating drinking establishment sales were adversely affected by the impact of the smoking bylaw. Based on the model results, while the benchmark retail industry continued to grow, monthly sales at bars, taverns and other drinking places in Ottawa were 10% lower than normal because of the introduction of the smoking bylaw.

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About the CRFA

Incorporated in 1944, CRFA is one of the largest business associations in Canada, representing 17,500 members. CRFA members include restaurants, quick-service establishments, bars, hotels, caterers, institutions and foodservice suppliers.

CRFA's mission is to create a favourable business environment and deliver tangible value to its members in all sectors of Canada's foodservice industry. CRFA provides a variety of services to members including representation to government, research and information, group buying and national trade shows.

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