

PRELIMINARY ESTIMATES OF THE  
ECONOMIC IMPACT OF THE ANCHORAGE  
SMOKING ORDINANCE

PREPARED FOR  
MUNICIPALITY OF ANCHORAGE

Prepared By  
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One part of the evaluation of the Anchorage smoking ordinance is an assessment of the "overall economic impact." Our major preliminary findings are the following:

- Based on Alaska Department of Labor estimates of employment for the first seven months of 2001, there was no detectable impact on total employment in the Anchorage hospitality industry *as a whole* after the smoking ban took effect.<sup>1</sup>
- Based on employment data for individual establishments for the first quarter of 2001, some types of establishments within the hospitality industry in Anchorage *may* have grown faster than other types after the smoking ban took effect.

These are preliminary findings of the direct short-term effects of the smoking ordinance on local businesses. Due to likely seasonal fluctuations during the summer tourist season, continued adaptations by businesses, employees, and customers, and the likelihood of broader, indirect economic impacts, these findings do not encompass the full, long-term economic impacts of the ordinance.

## **II. Impact on Total Employment for Whole Industries**

As shown in **Figure 1** on the next page, during the first seven months of 2001, total employment for all industries in the Anchorage economy grew at an annual rate of 1.4% relative to the first seven months of 2000. During the same period, total employment in all "Eating and Drinking Places" grew at the annual rate of 2.4%.<sup>2</sup>

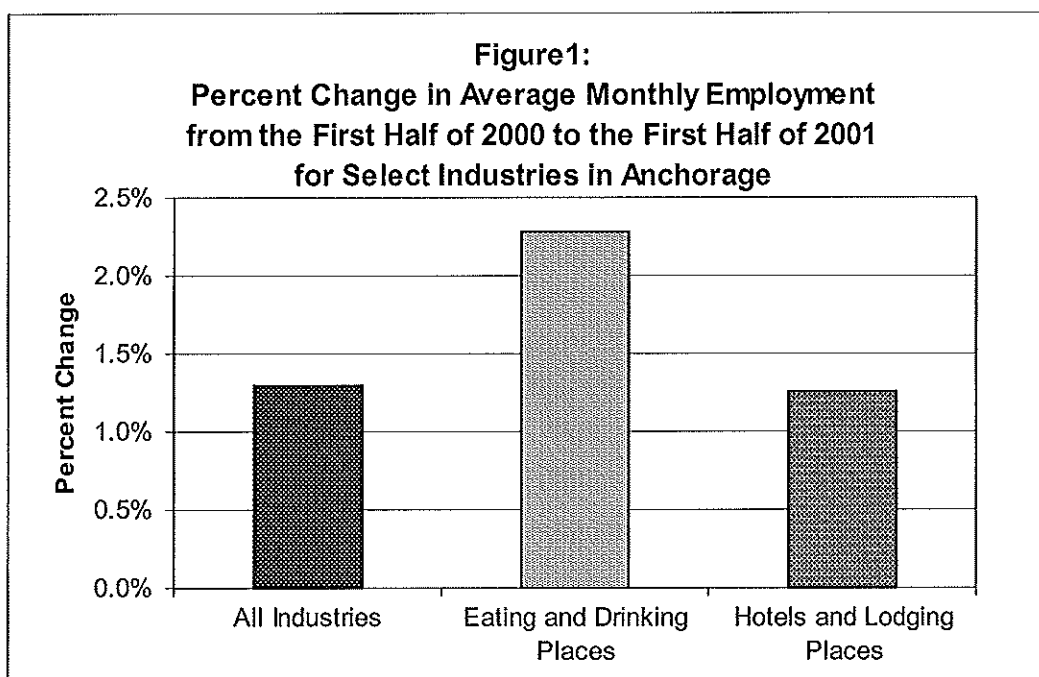
The eating and drinking industry continues to grow at a faster rate than the Anchorage economy. This pattern of growth is typical of the last few years. On average over the past six years, employment in the eating and drinking industry has grown about one-half percent faster than the economy as a whole.<sup>3</sup>

Because the hospitality industry continues to grow at an historically typical rate, the employment data *does not* support the claim that the smoking ban had

an impact on total employment in the eating and drinking industry as a whole. Furthermore, based on results from statistical regressions, the smoking ban had no statistically significant impact on total employment for the eating and drinking industry, as a *whole*, during the first seven months of 2001.<sup>4</sup>

The annual growth rate of employment in "Hotels and Lodging Places" was 1.1% during the first seven months of 2001. The growth rate of employment in hotels and motels is so highly variable across years and seasons, that we cannot draw meaningful conclusions from the limited data.<sup>5</sup>

Keep in mind that these calculations rely on seven months of *estimated* employment data that the Alaska Department of Labor may revise. In addition, the growth rates for most industries in Anchorage are substantially different for the first and second quarters of 2001.<sup>6</sup> The best use of available data is to calculate the average growth rate for the entire first half but keep in mind that there are substantial seasonal fluctuations. We would need at least one year of data to control for the effects of these seasonal variations.



Source: Employment figures are from the Alaska Department of Labor web page at <http://www.labor.state.ak.us/research/region/anc.htm>. ISER adjusted these employment figures to remove new employment generated by the 2001 Special Olympics World Winter Games held in Anchorage during March 2001. These Special Olympics impact estimates come from an ISER survey of Special Olympics visitors and Special Olympics Game Organizing Committee records.

These findings are consistent with previous studies that use sales tax to measure changes in the eating and drinking industry in other areas that have enacted smoking bans.<sup>7</sup> These earlier studies have consistently found that smoking bans do not have a detectable effect on total sales tax revenues in the eating and drinking industry as a whole. These studies have refuted the claim

that there was a large negative impact on all eating and drinking places, as reported in other studies of smoking bans.<sup>8</sup>

### **III. Impact on Particular Types of Establishments**

In order to look more closely at the impacts on particular types of establishments within the hospitality industry, we created a database of individual establishments most likely affected by the ordinance. The database included employment data for all 522 establishments in the Anchorage hospitality industry and selected amusement services industries that reported employment to the Alaska Department of Labor during the first quarter of 2000 or 2001.<sup>9</sup>

In addition, business license data from the Alaska Department of Community and Economic Development provided more specific information about establishments' activities.<sup>10</sup> To determine the smoking status of individual establishments both before and after the smoking ban, we gathered information from Municipality of Anchorage records, Alaska Alcohol Control Board files, published lists, and about one hundred telephone calls to establishments.<sup>11</sup>

#### **A. Eating and Drinking Establishments**

Using this combined database, we investigated how the smoking ban affected different types of establishments. The largest component of the hospitality industry likely affected by the ordinance is the eating and drinking industry.<sup>12</sup> As shown in **Figure 2** on the next page, the eating and drinking industry is composed of several types of establishments:

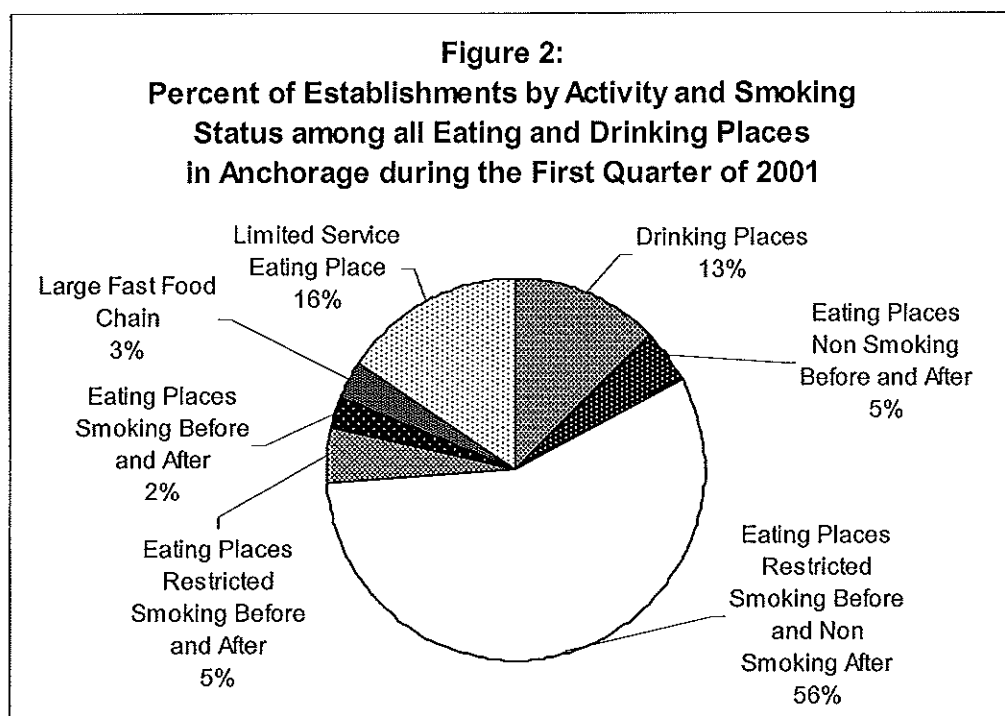
**1) Eating places that changed smoking status:** The largest component of the eating and drinking industry is full-service eating places (restaurants) that changed their smoking status to non-smoking *after* the smoking ban took effect. These establishments are the group most likely affected by the ban and include about 218 establishments and 4,360 employees. This group employs about 48% of all employees in the eating and drinking industry.

This group includes 21 establishments (with a total of 1192 employees) that hold beverage dispensary licenses (full liquor licenses). They had the option to continue to allow smoking if they met certain requirements in the ordinance; however, these 21 establishments instead chose to not allow smoking after the ban.

**2) Eating and drinking places that did not change smoking status** include restaurants that were non-smoking before the ordinance and remained non-smoking after the ordinance. In addition, some restaurants with beverage dispensary licenses chose to remain smoking after the ban. Other restaurants with beverage dispensary licenses continued to restrict smoking to particular areas within their establishments. Nearly all bars (drinking places) allowed smoking before and after the ban.<sup>13</sup> The ordinance is less likely to directly affect

these types of establishments because they did not change their smoking status after the smoking ban took effect.

**3) Limited service eating places and fast food chains.** The remaining eating and drinking establishments are limited-service eating places with drive-through service, take-out service, or limited seating with no table service. Since many customers do not go inside these establishments or do not stay as long, the smoking ban likely did not affect them as directly as other eating places.<sup>14</sup>

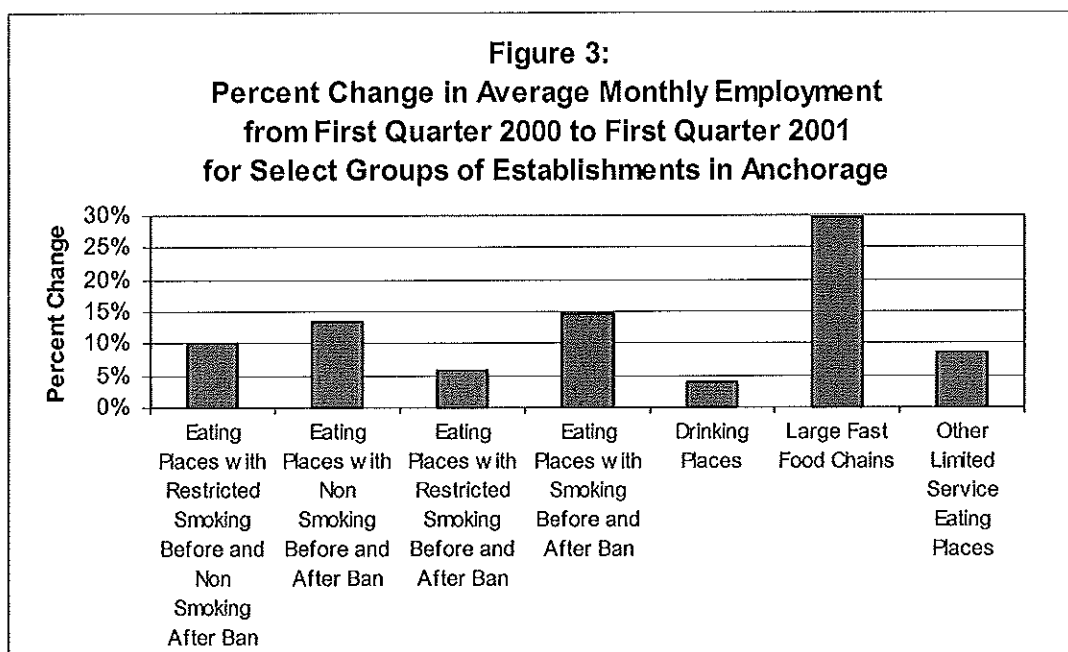


Source: ISER tabulations of employment data from Alaska Department of Labor. Business License records from Alaska Department of Community and Economic Development determine whether the establishment is a limited-service eating place. Smoking status is from liquor license records from Alaska Alcohol Control Board, Municipality of Anchorage records, and American Lung Association publications, and telephone interviews conducted by University of Alaska Anchorage.

In order to compare how employment in each group of establishments changed after the smoking ban, we calculated the percent change in total employment for each group from the first quarter of 2000 to the first quarter of 2001. As shown in **Figure 3** and **Table 1**, employment *grew* in every group; however, the groups may have grown at different rates.<sup>15</sup>

The most important comparison is between eating places that changed their smoking status to those that did not. Those establishments that changed their smoking status to non-smoking after the ban grew at 10%. Various groups of establishments that did not change their smoking status grew at rates both greater and less than 10%. Those restaurants that remained smoking grew at 15%. In contrast, the restaurants that continued to allow restricted smoking grew

at only 6%. Those that were non-smoking both before and after the ban grew at 14%. Bars that allowed smoking before and after the ordinance grew only 4%.



Source: Special ISER tabulations of employment data from Alaska Department of Labor, business license information from Alaska Department of Community and Economic Development, and smoking status from Municipality of Anchorage records, published lists, and telephone surveys.

These relative rates do not provide consistent evidence that the ordinance had an impact on employment at establishments that changed their smoking status to non-smoking. On the one hand, these establishments grew *less* than restaurants that either continued to allow smoking or never allowed smoking in the first place. On the other hand, these same establishments (that changed their smoking status to non-smoking) grew *more* than restaurants that continued to allow restricted smoking and *more* than bars that continued to allow smoking.

Aside from this inconsistent evidence, statistical tests show that the relative growth rates of different groups are not statistically significantly different. Because of the small group sizes and substantial variation in growth rates *within* each group, we could not detect any statistically significant difference in growth rates between the groups.<sup>16</sup>

We investigated whether the size and activities of establishments could help clarify these results. We calculated the growth in employment for both small establishments (with fewer than twenty employees) and large establishments (with twenty or more employees). We also investigated the growth rate of bars that have food services.

It is important to note that these calculations required us to divide establishments into very small groups that, in some cases, include fewer than ten

establishments. Because the groups are so small, estimates of their growth rates are not statistically precise, and we cannot draw statistically significant conclusions from these small samples. We can only present preliminary hypotheses that will require additional quarters of data to verify.

**Table 1:**  
**Preliminary Estimates of Employment**  
**During the First Quarter 2000 and First Quarter 2001 in Anchorage**  
**For Establishments Most Likely Affected by Smoking Ordinance**

Category	Smoking Status Before Ordinance	Smoking Status After Ordinance	Number of Establishments				Total Employment		
			2000	2001	New in 2001	Percent Change	2000	2001	Percent Change
Drinking Places			49	47	2	-4%	714	742	4%
Eating Places	Non Smoking	Non Smoking	19	18	1	-5%	276	313	14%
	Restricted Smoking	Non Smoking	209	218	38	4%	3957	4360	10%
	Restricted Smoking	Restricted Smoking	18	18	0	0%	436	461	6%
	Smoking	Smoking	9	9	0	0%	108	124	15%
	Large Fast Food Chain Companies		10	12	2	20%	2125	2755	30%
Limited Service Eating Places			55	59	15	7%	417	453	9%
Bowling			4	4	0	0%	102	104	2%
Bingo			6	4	0	-33%	90	100	11%
Hotels and Motels			51	55	12	8%	2650	3262	23%

Source: Special ISER tabulations of employment data from Alaska Department of Labor, business license information from Alaska Department of Community and Economic Development, and smoking status from Municipality of Anchorage records, published lists, and telephone surveys conducted by the Institute of Circumpolar Health, University of Alaska Anchorage.

Based on the very limited data currently available, small restaurants that changed their status to non-smoking and large restaurants that continued to allow restricted smoking *may* have grown more slowly than other types of restaurants. Large restaurants that changed to non-smoking and small restaurants that remained smoking *may* have grown faster than other establishments. In addition, bars (which are typically hire fewer employees than restaurants) *may* have grown more slowly than most eating places. Small bars, as a group, actually experienced a decline in employment. Bars that offer some food service *may* have grown faster than bars that did not.

One plausible hypothesis that partially explains these observations is that *large* eating and drinking establishments, as a group, grew faster than small establishments -- independently of the smoking ban. Aside from this independent shift to larger establishments, the smoking ban *may* have encouraged a redistribution of smoking customers *away* from small restaurants that no longer allow smoking and *toward* both small restaurants that allow

smoking and *toward* bars that serve food. As mentioned above, these are preliminary hypotheses that will require additional quarters of data to verify statistically.<sup>17</sup>

## **B. Other Types of Establishments**

Aside from eating and drinking places, we also investigated several other types of establishments likely affected by the ordinance, including hotels and lodging places, bingo parlors, billiard parlors, and bowling alleys.

**Hotels and Lodging Places:** According to Alaska Department of Labor revised estimates, employment in this industry grew at 5.2% during the first quarter of 2001 and declined by -2.1% during the second quarter of 2001. On average for the first half of 2001, employment grew by 1.3%. Municipality of Anchorage hotel bed tax receipts confirm that the industry grew strongly during the first quarter of 2001 when bed tax receipts increased by 18% relative to the first quarter of 2000.<sup>18</sup>

The growth rates of both employment and bed tax receipts for hotels and lodging places vary substantially across years and quarters. In addition, many hotels and lodging places report total employment for the entire establishment and do not separate the employment for bars, restaurants, and other services within the hotel.<sup>19</sup> For these reasons, with the available data, we cannot accurately describe the impact of the smoking ban on hotels and lodging places.

**Bingo:** Most bingo parlors now allow smoking and have a separate, restricted area for *non*-smoking. The four Anchorage bingo parlors that reported employment to Alaska Department of Labor experienced an 11% increase in employment during the first quarter of 2001. However, the small number of establishments reporting employment in this industry makes it impractical to draw conclusions about how much of their growth was attributable to their smoking status.

**Billiard Parlors:** Several of the major billiard parlors in town hold beverage dispensary licenses (full liquor licenses). They have the option to allow smoking if they meet certain requirements in the ordinance. They likely attract similar customers as bars that have separate rooms with billiard tables. We included billiard parlors with full beverage dispensary licenses in our analysis of drinking places described above. A few of the remaining billiard parlors are part of larger amusement centers where various types of entertainment are available. With available data, we cannot separate out the employment for just the billiard operations of these establishments.

**Bowling Alleys:** Most, but not all, of the bowling alleys in town have separate bars, and some still allow smoking. We included these separate bars in our analysis of drinking places described in the previous section. There are four bowling alleys that report employment for the bowling alley operations separately from their bar. These four bowling alleys experienced a 2% increase in employment during the first quarter of 2001.



#### IV. Conclusions

Based on revised estimates of employment from the Alaska Department of Labor, the smoking ban had no detectable impact on total employment in the hospitality industry *as a whole* in Anchorage during the first seven months of 2001. Based on detailed employment data for over 500 establishments during the first quarter of 2001, some specific types of establishments *may* have grown faster than other types after the smoking ban took effect.

These results are preliminary and subject to revision for several reasons.

- 1) The results rely on just a few months of data that do not include the entire summer tourism season.
- 2) Employment in the Anchorage economy grew at substantially different rates during the first and second quarters of 2001. We would need at least one year of data to control for these seasonal fluctuations.<sup>20</sup>
- 3) Businesses, employees, and customers likely continue to adapt to the smoking ban.
- 4) Long-run, indirect economic impacts, such as cost savings from improved employee and customer health, may have not yet occurred.

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## Endnotes for Economic Impact Analysis

<sup>1</sup> We investigated four other measures of economic activity, but determined that employment data was the best available: 1) Many previous studies of the economic impact of smoking bans have relied on sales tax revenues to measure changes in business activity. However, neither the Municipality of Anchorage nor the State of Alaska collects a sales tax. 2) The Alaska Department of Revenue collects the state alcohol tax from *wholesale* distributors. Because the tax is collected from wholesalers, it is not possible to separately measure how much of the alcohol tax is paid by retail establishments located in Anchorage and how much is paid by retail establishments outside Anchorage. 3) State corporate income tax figures for 2001 will not be available from the Alaska Department of Revenue until after July 2002. 4) Building permits issued by the Municipality do not provide sufficient detail to determine whether a firm made renovations in response to the ordinance.

<sup>2</sup> "Eating and Drinking Places" include all establishments with four-digit SIC (Standard Industrial Classification) codes 5812 or 5813 and "Hotels and Lodging Places" include all establishments with SIC code 7011. We calculated all growth rates reported in this section using the following formula:

Percent Change in average monthly employment =

$$\frac{(\text{Avg. monthly employment from Jan 2001 to July 2001} - \text{Avg. monthly employment Jan 2000 to July 2000})}{(\text{Avg. monthly employment Jan 2000 to July 2000})}$$

This formula uses "revised estimates" of average monthly employment from the Alaska Department of Labor at their web site <http://www.labor.state.ak.us/research/region/anc.htm>. Notably, these are not final numbers and are subject to revisions by the Alaska Department of Labor. In early October 2001, the Alaska Department of Labor also provided "preliminary" estimates of average monthly employment for August 2001. These "preliminary" estimates are less reliable than the "revised" estimates and more likely subject to revision. When we included the "preliminary" estimates for August 2001 in our calculations, our findings did not change.

We have adjusted all employment growth rates to remove new employment attributable to the Special Olympics 2001 World Winter Games held in Anchorage during March 2001. These employment estimates are based on a surveys conducted by the Institute of Social and Economic Research for the 2001 World Winter Games Organization Committee.

<sup>3</sup> For the purposes of this report, the eating and drinking industry is defined as all establishments with four digit SIC code 5812 or 5813.

The table below summarizes the annual percent change in average monthly employment for the first seven months of each year using the same formula described in endnote two. Only in 1998 did the eating and drinking industry grow more slowly than the economy as a whole. In all others years since 1995, the eating and drinking Industry grew faster than both the economy as a whole and all of retail trade (which includes eating and drinking places).

**Table 2:  
Annual Percent Change in Average Monthly Employment  
For the First Seven Months of each Year  
Relative to First Seven Months in the Previous year  
For Select Industries in Anchorage**

Industry	1995 to 1996	1996 to 1997	1997 to 1998	1998 to 1999	1999 to 2000	2000 to 2001
All Industries in Anchorage	0.0%	2.3%	4.0%	1.9%	2.5%	1.4%
Total Retail Trade (including Eating and Drinking Places)	-0.4%	4.5%	1.4%	1.6%	1.5%	0.8%
Eating and Drinking Places	0.4%	5.3%	2.5%	2.6%	2.5%	2.4%
Hotels and Lodging Places	-4.2%	2.8%	3.8%	11.9%	-1.4%	1.1%
All Industries <i>other</i> than Eating and Drinking Places and Hotels and Lodging Places	0.1%	2.1%	4.1%	1.6%	2.6%	1.3%

Source: Alaska Department of Labor revised estimates of employment from <http://www.labor.state.ak.us/research/region/anc.htm>.

<sup>4</sup> We conducted statistical tests to see if the growth in employment during the first eight months of 2001 is significantly different from the growth rate in previous years. We did an Ordinary Least Squares time series regression using eighty observations of monthly employment data from Alaska Department of Labor.

The dependent variable in the regression was the natural logarithm of the ratio employment in eating and drinking industry to employment in the Anchorage economy as a whole. We also investigated several alternative specifications of the dependent variable. The first alternative was the natural logarithm ratio of eating and drinking employment to total employment in all industries *other than eating and drinking*. The second alternative was the natural logarithm of the ratio of eating and drinking employment to total retail employment.

The three independent variables in the regression were a time trend variable and two fixed effect variables. The time trend variable is equal to one in the first period and incremented by one in each succeeding period. The first fixed effect variable is equal to one in March 2001 and zero otherwise and controls for the effect of the Special Olympics. The second fixed effect variable is equal to one for January through August 2001 and is equal to zero in all months prior to January 2001. This fixed effect variable controls for the effect of the smoking ban that took effect in January 2001.

The table below summarizes the regression results. The fixed effect variable for 2001 was *not* statistically significant at the 95% confidence level. These results imply that the smoking ban did not have statistically significant impact on total employment in eating and drinking places during the first eight months of 2001.

**Table 3:  
Time Series Regressions of the Employment Share  
of the Eating and Drinking Industry in the Anchorage Economy**

Dependent Variable	Independent Variables					R <sup>2</sup>
	Statistics for Independent variables	Constant	Time Trend Variable	Fixed Effect Variable for Special Olympics	Fixed Effect Variable for 2001	
Ln (Employment in Eating and Drinking / Total Anchorage Employment)	Coefficient (Std Error)	-2.7038 (0.0234)	0.0007 (0.0001)	-0.0269 (0.0250)	-0.0023 (0.0107)	0.32
Ln (Employment in Eating and Drinking / Total Anchorage Employment – Employment in Eating and Drinking)	Coefficient (Std Error)	-2.6345 (0.0251)	0.0008 (0.0001)	-0.0290 (0.0268)	-0.0025 (0.0115)	0.32
Ln (Employment in Eating and Drinking / Total Employment in Retail Trade)	Coefficient (Std Error)	-1.0639 (0.0231)	0.0009 (0.0001)	-0.0176 (0.0247)	0.0165 (0.0105)	0.51

Regressions used Ordinary Least Squares and 80 observations of average monthly employment data from January 1995 through August 2001 from Alaska Department of Labor. "Ln" indicates the natural logarithm of the specified ratio.

<sup>5</sup> "Hotels and Lodging Places" includes all establishments with the four-digit SIC code 7011. See the table in endnote three for the annual rates of growth of employment in "Hotels and Lodging Places" over the past six years.

<sup>6</sup> During the first quarter of 2001, employment in "Eating and Drinking Places" grew at 4.8%, Hotels and Lodging Places grew at 5.2%, and the economy as a whole grew at 2.4% relative to the first quarter of 2000. In contrast, during the second quarter of 2001, the economy as a whole and most industries grew more slowly relative to the second quarter of 2000. During the second quarter, employment in the economy as a whole and "Eating and Drinking Places" industry remained nearly constant, while "Hotels and Lodging Places" contracted by -2.1%.

<sup>7</sup> For the most recent and comprehensive application of this methodology, see Sciacca (1998) For an application of this methodology to California, see Glantz and Smith (1994 and 1997). Other studies that use this methodology and found similar results include Bartosch (1999), Corsun (1996), Glantz and Charlesworth (1999), Glantz and Smith (1994a) Glantz and Smith. (1994b), Glantz and Smith (1997), Goldstein and Sobel (1998), Hyland and Nauenberg (1999), Sciacca (1993), Sobel et al. (1998). See Evans (1997) for a critique of this methodology.

<sup>8</sup> For example, see Peat Marwick, LLP (1998). This study surveyed a sample of bars in California. Of those surveyed, they perceived an average decrease in sales of 26.2% after smoking ban in bars went into effect.

Some previous studies have compared the impact of smoking bans across different communities. For example, see Lilley (1996) for a comparison of the impact of smoking bans across cities in Massachusetts. They found that cities in Massachusetts with the most restrictive smoking bans experienced a decline in employment. See Glantz (1994) and Glantz (1997) for a comparison of the impact of smoking bans across towns in California and Colorado. These two studies by Glantz find that smoking bans did not have a detectable impact.

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Some previous studies have conducted surveys of customers who ask specific questions about how they would adapt (or how they actually adapted) to smoking bans. For example, see CCG Consulting Group Limited (1995 and 1996) and Corsun (1996). These studies found that smokers and non-smokers respond differently to smoking bans.

<sup>9</sup> Alaska Department of Labor provided us with the names and number of people employed in each establishment in the Municipality of Anchorage with four-digit SIC (Standard Industrial Classification) code 5812, 5813, 7011, 7933, or 7999. They included all establishments that reported employment in Anchorage during January, February, or March in either 2000 or 2001. From SIC industry 7999 (Miscellaneous Amusement Services), we included only bingo halls and billiard parlors and excluded all other types of amusement establishments. These employment figures are from final data submitted by the establishments to the Alaska Department of Labor. The final data for individual establishments for the first quarter of 2001 was available in August 2001. Final data for the second quarter 2001 was not available in early October 2001.

<sup>10</sup> Business license records from the Division of Occupational Licensing in the Alaska Department of Community and Economic Development list the primary and secondary activities of individual establishments. This information enabled us to separate "Eating and Drinking Places" into groups of bars, bars with food service, full service restaurants, fast food companies, and limited service eating places. The names of owners and addresses in the business license files were useful when matching employment and liquor license files. The business license files contained many businesses that were not in operation but still had active business licenses. Business licenses last for two years and the licenses remained in effect even after some of the businesses closed and no longer reported employment. In addition, business licenses include many establishments that do not have any employees. Notably, hundreds of bed and breakfasts have business licenses, but do not report employment. We excluded all businesses that did not report employment to the Alaska Department of Labor.

<sup>11</sup> From the State of Alaska Alcohol Control Board master file of all liquor licenses in the state, we extracted the names, owners, and addresses of establishments that had any one of the following types of full beverage dispensary licenses: Beverage Dispensary, Beverage Dispensary Tourism-Seasonal, Beverage Dispensary-Duplicate, Beverage Dispensary-Seasonal, Beverage Dispensary-Tourism AS 04.11.400(d), and Beverage Dispensary-Tourism Duplicate. We extracted information for only those liquor licenses that had "Anchorage" as their "city code" or an Anchorage address. We excluded liquor licenses issued for Anchorage but used in establishments located outside Anchorage. We matched the remaining full beverage dispensary licenses to the business license files and the employment files described above.

For our analysis, we needed to determine the smoking status of each establishment both before and after the smoking ban. We assumed that establishments complied with the ordinance and were non-smoking if required by the ordinance. We assumed all bars were smoking before and after the ordinance. We assumed hotels were restricted smoking before the ordinance and non-smoking after the ordinance. The reliability of these assumptions depends critically on whether or not establishments complied with the smoking ban. Evidence from site visits, citations, and complaints to the Municipality suggests that public establishments such as eating and drinking places, hotels and lodging places, and amusement places have complied with the ordinance. To supplement these assumptions, we telephoned all restaurants with full beverage dispensary licenses and asked whether they still allow smoking and whether it was restricted to a particular area.

<sup>12</sup> As mentioned above, for the purposes of this report, the eating and drinking industry is defined as all establishments with SIC code 5812 or 5813.

<sup>13</sup> For the purposes of this report, "drinking places" are defined as all establishments that have a four digit SIC code of 5813. Eating places are defined as all establishments with an SIC code of

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5812. Notably, these classifications by SIC code in the Alaska Department of Labor database are not always consistent with the self-reported industry designation in the Alaska Department of Community and Economic Development business license database. When there was an inconsistency, we used the Alaska Department of Labor SIC classification to group establishments by industry.

<sup>14</sup> The count of fast food “establishments” reported in the figures and tables is a total number of *companies* (such as McDonalds, Burger King, Subway, and Taco Bell). Each one of these companies operates numerous locations within the Municipality. There are about twelve major fast food companies operating a total of over one hundred fast food locations in Anchorage. Employment data available from the Department of Labor does not always clearly distinguish the different locations for a single company. However, we can calculate employment for all locations operated by a particular company. Notably, even though fast food companies comprise only 3% of establishments, these large companies employ about 30% of all workers in the Anchorage eating and drinking industry.

<sup>15</sup> These counts of establishments and employment include most, but not all, establishments in Anchorage. The numbers in this section of the report are *samples* rather than a complete *census* of all establishments. About 90% of all drinking places and 70% of all eating places are included in the sample. The reasons that we excluded establishments from the sample are unrelated to their smoking status or their rate of growth in employment. As a result, for the purposes of the statistical tests in this analysis, the samples are unbiased and representative. We excluded establishments from the samples for a number of different reasons:

- Some establishments do not report employment because they are proprietorships and do not have any employees.
- Some establishments have headquarters located outside Anchorage and report a single comprehensive count of total employment for all of their locations. The employment for these types of establishments is reported in the city where the headquarters are located rather than in Anchorage.
- Some establishments have headquarters in Anchorage and report a single total employment at those headquarters. Some of these companies include employment for locations both inside and outside Anchorage. In particular, some fast food companies that report employment at their Anchorage headquarters include in these totals some employees at locations in both Anchorage and the Matanuska Susitna Borough.
- A few establishments changed ownership or mailing addresses, and we cannot reliably match the employment data from 2000 and 2001 to calculate the growth rate.

<sup>16</sup> We calculated the mean and the standard deviation of the percent change in employment *within* each group of establishments. We used these statistics to test the hypothesis that the mean growth rates of different groups are different. Because of the very small sample sizes (sometimes fewer than ten establishments) and large variation in growth rates *within* each group, we could not detect any statistically significant difference in growth rates *between* most groups. Only the growth rate of fast food restaurants was statistically significantly greater than other groups. We would need larger groups of establishments or more quarters of data to reliably test these hypotheses.

<sup>17</sup> These conjectures are comparable, but not identical, to results reported in Applied Economics (1996a). With only two months of sales tax data, this study investigated the impact on different types of establishments in Mesa Arizona. Their preliminary findings were that sales in bars grew while sales in bowling alleys, billiard parlors, and restaurants declined after the smoking ban. Applied Economics (1996b) conducted extensive interviews with businesses in Mesa and developed hypotheses about how the smoking ban affected different types of businesses.



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<sup>18</sup> Over two hundred bed and breakfast lodging places have business licenses in Anchorage. Nearly all are proprietorships that do not report employment to the Department of Labor. As a result, we cannot measure the impact of the smoking ban on this group of lodging places using employment data. However, the Municipality does report hotel bed tax receipts collected by "Other" types of lodging, including bed and breakfasts. This group of "other" lodging places experienced a 29% increase in bed tax receipts during the first quarter of 2001 relative to 2000. Some of this increase may be attributable to the Special Olympics.

<sup>19</sup> When a hotel reports employment for a bar or restaurant separately from employment for the rest of the hotel, we included the bar or restaurant in our analysis of eating and drinking places.

<sup>20</sup> A full year of final employment data would likely be available from the Alaska Department of Labor by fall 2002. State corporate income tax receipts for both 2000 and 2001 would also likely be available by fall 2002.