



Economic Impact of Lexington's Smoke-free Law: A Progress Report

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Executive Summary

In general, selected key business indicators in Lexington restaurants, bars, and hotels have not been affected by the smoke-free law. When taking factors into account such as population size, unemployment, and seasonal variation, there was a slight increase in restaurant employment; bar employment remained stable and hotel/motel employment declined in the 10 months after the smoke-free law took effect. There was no effect of the smoke-free law on payroll withholding taxes (workers' earnings) in restaurants, bars, or hotels/motels in the 10 months after the law went into effect, after taking seasonal variation into account. The smoke-free law was not related to business openings or closures in alcohol-serving establishments or at non-alcohol serving establishments. The findings are consistent with other economic impact studies of smoke-free laws.

Note to the reader: A simple comparison of data before and after the implementation of the law is not sufficient to evaluate the law's economic impact. We took into account other factors that could have influenced employment, payroll withholding taxes, and business openings and closings by estimating an economic model for each of the three indicators.

Purpose of the research study: To determine whether Lexington's smoke-free law has had an impact on employment, payroll withholding taxes (workers' earnings), and business closures in different types of businesses in Fayette County.

Background: Many studies find that smoke-free laws do not adversely impact the restaurant and bar industries. New York City's 1995 Smoke-free Air Act had no adverse effects on restaurant employment; restaurant employment growth was three times higher than the rest of the state from 1993 to 1997.¹ In 15 cities with ordinances banning smoking in restaurants and 15 cities without such ordinances from 1986 to 1993, smoke-free ordinances did not negatively impact restaurant sales as indicated by sales-tax receipts.² A study in Flagstaff, Arizona showed that gross restaurant sales increased 16% one year after a smoke-free ordinance.³ Similarly, studies examining bar and tourism receipts have shown no adverse effects of smoking ordinances on bar and tourism revenues.⁴⁻⁶ In a recent study of the El Paso, Texas smoke-free law, the strongest smoke-free ordinance in that state, there were no changes in restaurant or bar revenues when comparing sales tax and mixed-beverage tax data during the 12 years preceding and one year after the law was implemented.⁷ In only one study, funded by the tobacco industry, bars were found more than twice as likely to experience business losses as restaurants. This study relied on self-report survey data from restaurant, bar, and tavern owners.⁸

On April 27, 2004, Lexington-Fayette County implemented a smoke-free ordinance, prohibiting smoking in all public buildings, including restaurants, bars, bingo parlors, pool halls, public areas of hotels/motels, and all other buildings open to the public. The ordinance was scheduled to go into effect on September 26, 2003, but there was a 7-month delay in enforcement due to a legal challenge. Currently, about 34% of the U.S. population is protected by a local or state smoke-free law. Lexington-Fayette County is the only community in Kentucky with a smoke-free law.

Study Methods: We examined three monthly economic indicators: (1) employment, (2) payroll withholding taxes (a measure of workers' earnings), and (3) business opening/closings in restaurants, bars, and hotels/motels. Bars are defined as drinking places primarily engaged in preparing and serving alcoholic beverages for immediate consumption. These establishments also may provide limited food services. We computed monthly averages for each indicator in the periods before implementation of the smoke-free law and compared them to monthly averages after the law went into effect. We also examined the monthly averages for each indicator relative to its moving 3-5 year average. Finally, we estimated economic models for each of the three indicators to address more precisely the potential impact of the smoke-free law on each aspect of business activity. While the starting and ending points for the data vary across the three economic indicators, the beginning month for the post-law period in each case was May 2004.

Data Sources: The *employment data* were obtained from the ES-202 database, which is based on a federally required report on wages and employment gathered in association with each state's employment program. Kentucky's ES-202 data are produced by the Kentucky Workforce Cabinet and based on administrative records from the Unemployment Insurance Program of the U.S. Department of Labor. We analyzed

average monthly employment data for Fayette County from January 1999 through September 2004 (latest available), a total of 64 months pre-law and five months post-law.

The *payroll withholding tax data* were obtained from the Lexington-Fayette Urban County Government Department of Revenue. We aggregated all local payroll withholdings reported by each firm for each month. We analyzed average monthly payroll withholding taxes (based on the local occupational tax, which is a flat rate tax) by firm from January 2000 through February 2005 (latest available), a total of 52 months pre-law and 10 months post-law.

The *business opening/closings data* were obtained from the Lexington-Fayette County Health Department, Environmental Division, and include all permitted establishments that serve food and permitted bars that have glassware in Fayette County. Since there were very few openings or closings in the hotel industry over the study period, we could not examine the effect of the law on hotels/motels. Instead, we examined monthly openings and closings in establishments that served alcohol compared to those that did not. The data cover the period from July 2000 to February 2005 (latest available), a total of 46 months pre-law and 10 months post-law.

Data Analysis and Interpretation: A simple comparison of these data before and after the implementation of the law is not sufficient to evaluate the law's economic impact. We took into account other factors that could have influenced employment, payroll withholding taxes, and business openings and closings by estimating an economic model for each of the three indicators. These "other factors" include general macroeconomic conditions, business condition fluctuations across counties in Kentucky, demographics, and seasonal fluctuations.

Findings:

Restaurant employment has increased, bar employment has remained stable, and hotel/motel employment has decreased in the five months (May-September 2004) after the law went into effect compared to the pre-law period from January 1999 to April 2004; see Figure 1-6 and Table 1 in Appendix).

Restaurant employment increased in the five months after the law went into effect.

Figures 1 and 2 show monthly employment levels over time in Lexington restaurants compared to the moving 5-year average. In the five months following the law's implementation (May-September 2004), monthly employment was above the 5-year average. Before taking population size, unemployment, and seasonality into account, average monthly restaurant employment increased by about 3% after the smoke-free law went into effect. After controlling for these factors in the economic model, there remained a positive relationship between the law and restaurant employment.

Bar employment remained stable in the five months after the law went into effect.

Figures 3 and 4 show monthly averages for bar employment relative to moving averages over a 5-year period. While monthly employment dropped below the moving 5-year average following the law, it was also below average in the few months prior to implementation of the law. Before taking population size, unemployment, and seasonality into account, the average monthly bar employment decreased by about 5% after the smoke-free law went into effect. After controlling for these factors in the economic model, there was no significant effect of the law on bar employment.

Hotel/motel employment declined in the five months after the law went into effect.

Figures 5 and 6 show similar graphs over time for hotel/motel employment. Monthly employment in 2004 was below the moving 5-year average both before and after the smoke-free law. Before taking population size, unemployment, and seasonality into account, the average monthly hotel employment decreased by about 7.5% after the smoke-free law went into effect. After controlling for these factors in the economic model, there was a significant negative relationship between the law and hotel/motel employment. However, there was no significant change in hotel/motel payroll withholding taxes in the 10 months after the law went into effect, as shown in the results below.

Local payroll withholding taxes remained stable in restaurants, bars, and hotels/motels after the smoke-free law went into effect.

After taking seasonal variation into account, there was no significant change in restaurant, bar, or hotel/motel payroll withholding taxes in the 10 months after the smoke-free law went into effect (see Figures 7-12 and Table 2 in Appendix).

Figures 7 and 8 show monthly local payroll withholding taxes over time in Lexington restaurants compared to a moving 4-year average. In the eight months following the law's implementation (May-December 2004), monthly withholdings were slightly below the 4-year average. Figure 8 shows a fairly consistent pattern of local payroll withholding taxes in restaurants that has not changed over time. Before taking seasonal variation into account, the average monthly local payroll withholding taxes for restaurants decreased by about 12.5% after the smoke-free law went into effect. After controlling for seasonal variation in the economic model, however, there was no significant effect of the law on restaurant payroll withholdings.

Figures 9 and 10 show monthly local payroll withholding taxes over time in Lexington bars compared to the moving 4-year average. In the eight months following the law's implementation (May-December 2004), monthly withholdings were very similar to the 4-year average. Figure 10 shows a fairly consistent pattern of local payroll withholding taxes in bars that have not changed over time. Before taking seasonal variation into account, the average monthly bar payroll withholding taxes decreased by about 5% after the smoke-free law went into effect. After controlling for seasonal variation in the

economic model, however, there was no significant relationship between the law and bar payroll withholdings.

Figures 11 and 12 show monthly local payroll withholding taxes over time in Lexington hotels/motels compared to the moving 4-year average. In the eight months following the law's implementation (May-December 2004), monthly withholdings were similar to the 4-year average. Figure 12 shows a fairly consistent pattern of local payroll withholding taxes in hotels/motels that have not changed over time. Before taking into account seasonal variation, the average monthly hotel/motel employee payroll withholding taxes increased by about 10% after the smoke-free law went into effect. After taking seasonal variation into account in the economic model, however, there was no significant relationship between the law and hotel/motel payroll withholdings.

Business openings and closures at alcohol-serving establishments as well as at non-alcohol serving establishments remained stable after the smoke-free law went into effect.

There was no significant change in openings or closings in food service establishments in Fayette County in the 10 months after the smoke-free law went into effect when taking seasonal variation into account. Similar to the overall sample, there was no significant change in openings or closings in both establishments that served alcohol and those that did not when controlling for seasonal variation (see Figures 13-14 in Appendix). Before taking seasonal variation into account, average monthly business openings declined slightly in alcohol-serving establishments and increased slightly in non alcohol-serving establishments in the 10 months after the law took effect (see Table 3). Before taking seasonal variation into account, average monthly business closures increased post-law in both types of establishments (see Table 4).

Figure 13 shows monthly openings over time in Lexington food service establishments compared to the moving 3-year average. In the eight months following the law's implementation (May-December 2004), monthly openings were similar to the 3-year average except in May when the openings were slightly over 1% of all establishments. Figure 14 shows a fairly consistent pattern of establishment openings that has not changed over time.

Figure 15 shows monthly closures over time in Lexington food service establishments compared to the moving 3-year average. In the eight months following the law's implementation (May-December 2004), monthly closures were similar to the 3-year average except in November and December when closures rose to 2% of all establishments. Figure 16 shows that the percent of business closures in the first two months of 2005 dropped to less than 1%, similar to previous years.

Funding: University of Kentucky Internal Research Grants Program.

References

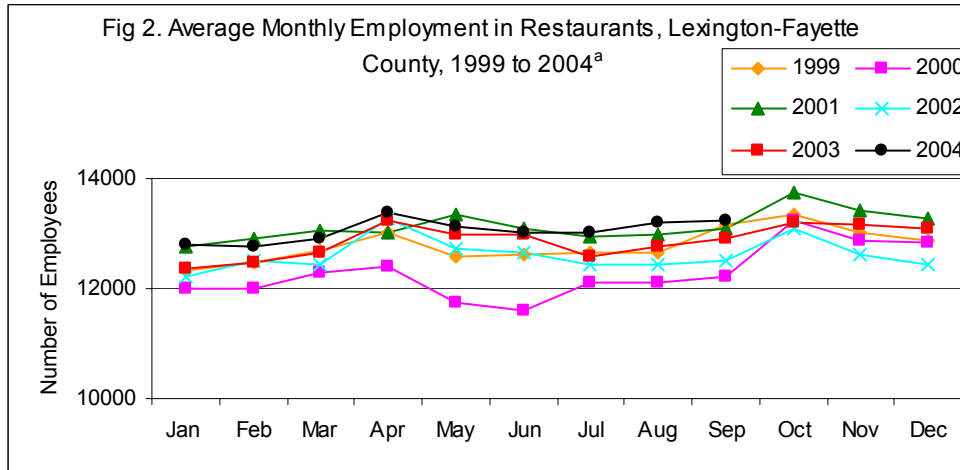
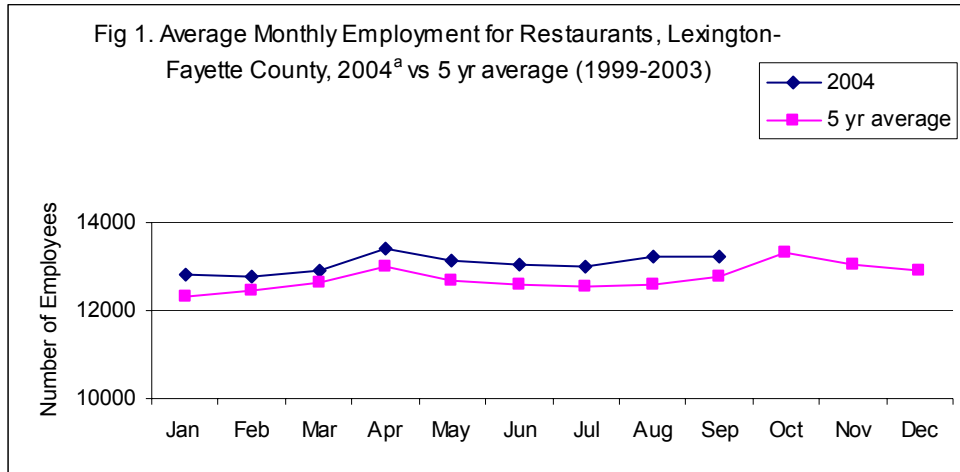
- ¹Hyland, A., et al. Restaurant employment before and after the New York city smoke-free air act. *Journal of Public Health Management Practice*, 1999, 5(1), 14 -21.
- ²Glantz, S., and Smith, L. The Effect of Ordinances Requiring Smoke-free Restaurants on Restaurants Sales. *American Journal of Public Health*. 1994, 84 (7), 1081 -1085.
- ³Sciacca, J., and Eckrem, M. Effects of a City Ordinance Regulating Smoking in Restaurants and Retail Stores. *Journal of Community Health*. 1993, 18 (3), 175-181.
- ⁴ Glantz S., Charlesworth MA. Tourism and Hotel Revenues Before and After Passage of Smoke-free Restaurant Ordinances. *Journal of American Medical Association*. 1999, 281 (20), 1911-1918.
- ⁵ Glantz S., Smith L. The Effect of Ordinances Requiring Smoke-Free Restaurants and Bars on Revenues: A Follow-Up. *American Journal of Public Health*. 1997, 87, 1687-1693.
- ⁶ Dresser et al. Multiple Impacts of a Bar Smoking Prohibition Ordinance in Corvallis, Oregon. Pacific Research Institute. 1999.
- ⁷ Impact of a smoking ban on restaurant and bar revenues---El Paso, Texas, 2002. *Morbidity & Mortality Weekly Report*. 2004;53(07):150-152.
- ⁸ Dunham J., Marlow, M.L. Smoking laws and their differential effects on restaurants, bars, and taverns. *Contemporary Economic Policy*. 2000, 18(3), 326-333.

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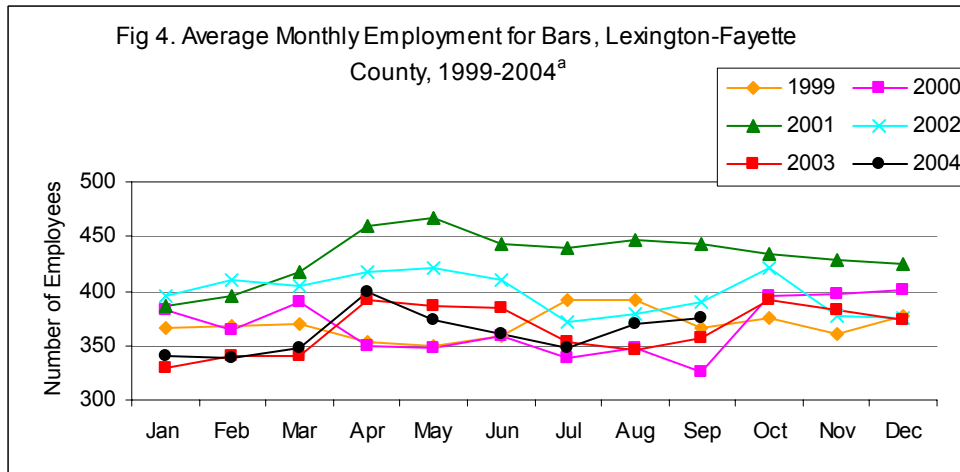
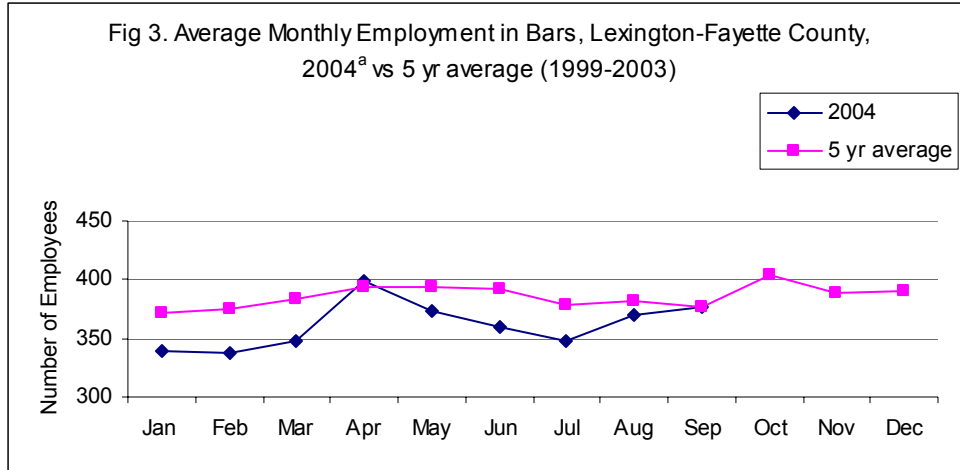
Appendix

Average Monthly Employment in Restaurants, Lexington- Fayette County, 1999-2004



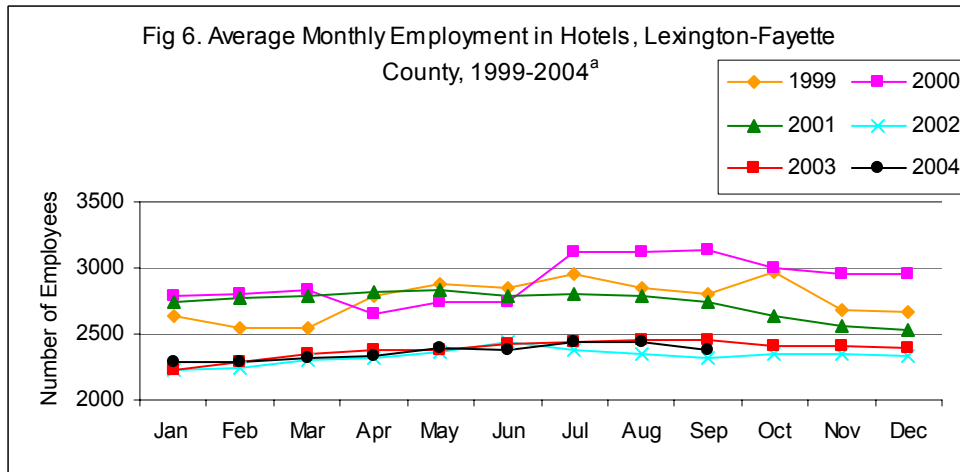
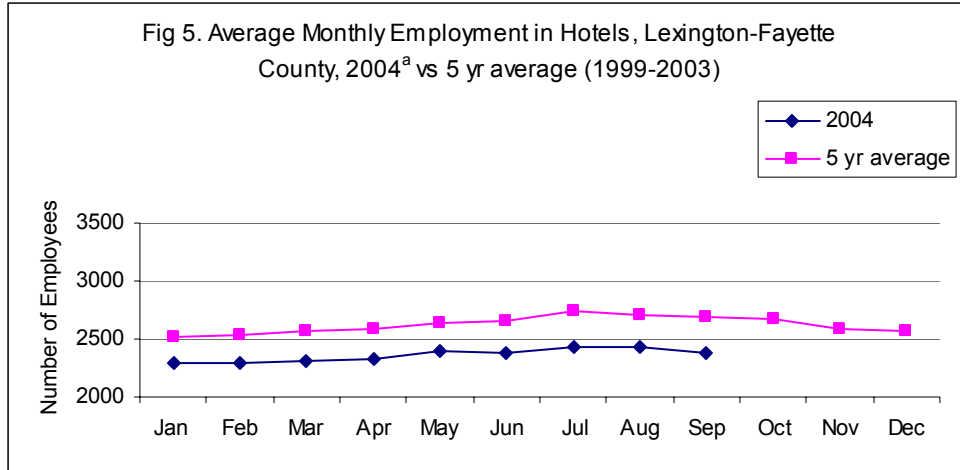
^a Post-law data available for only January-September 2004.

Average Monthly Employment in Bars, Lexington-Fayette County, 1999-2004



Note. ^a Post-law data available for only January-September 2004.

Average Monthly Employment in Hotels, Lexington-Fayette County, 1999-2004



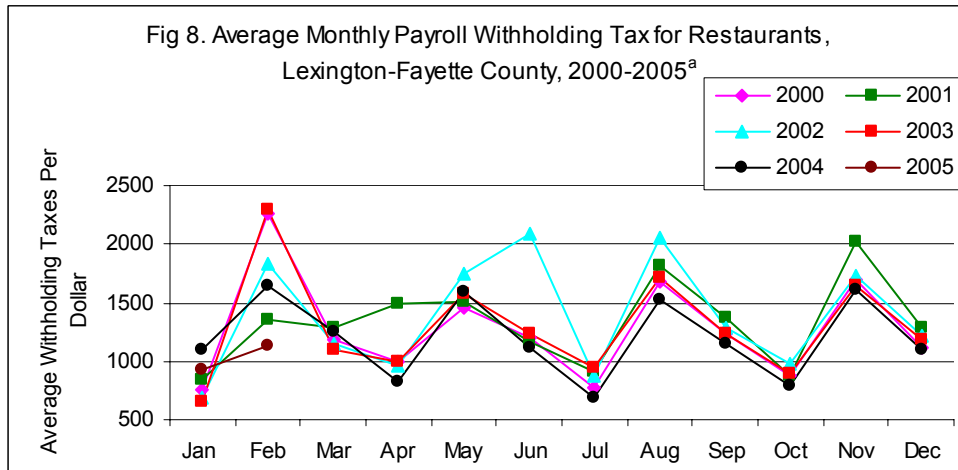
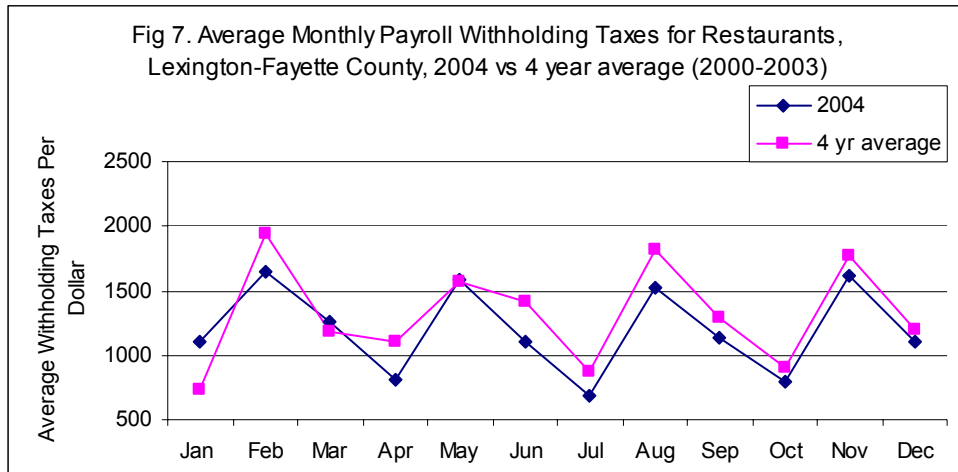
Note. ^a Post-law data available for only January-September 2004.

Table 1. Average Monthly Employment in Fayette County, January 1999-September 2004

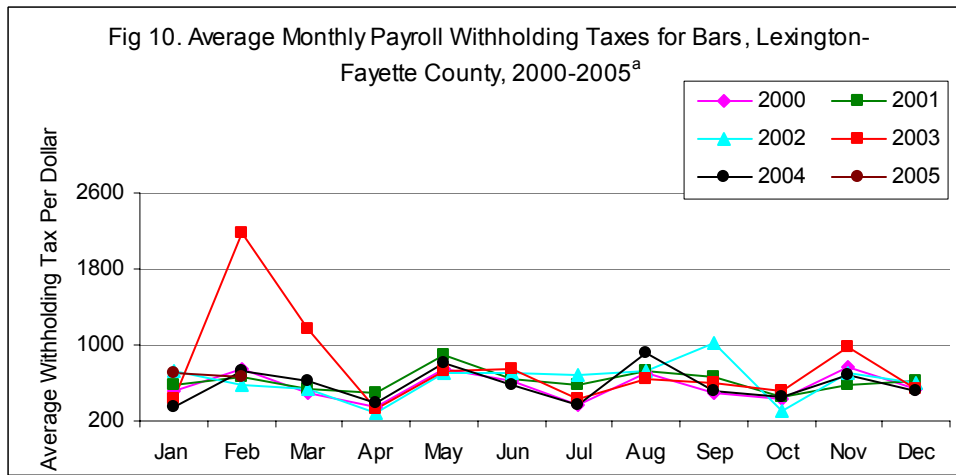
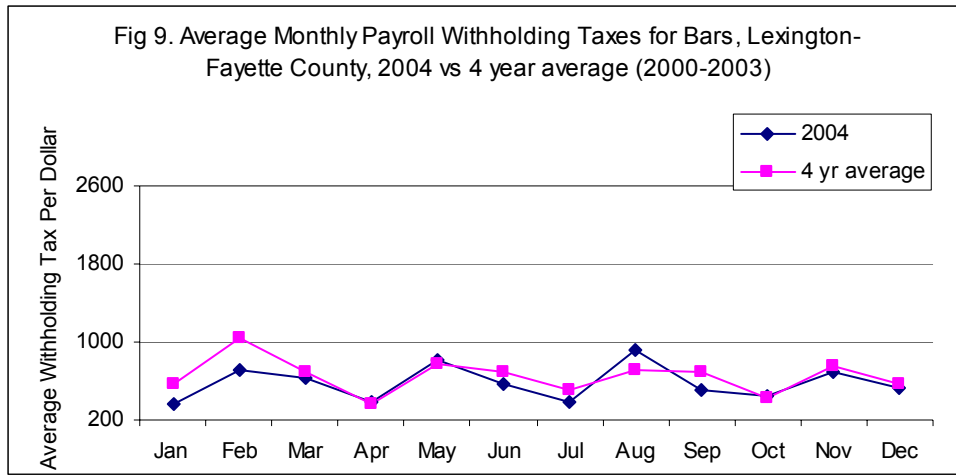
	Pre-Law	Post-Law
Number of Months	64	5
Restaurants	12,752.36	13,128.40
Bars	384.09	365.40
Hotels	2,603.11	2,404.20
Population	262,931.75	268,862.00
Unemployment	2.82	3.14

Note: Averages are not adjusted for population size, unemployment, or seasonal variation.

Average Monthly Payroll Withholding Taxes for Restaurants, Lexington-Fayette County, 2000-2005



Average Monthly Payroll Withholding Taxes for Bars, Lexington-Fayette County, 2000-2005



Average Monthly Payroll Withholding Taxes for Hotels, Lexington-Fayette County, 2000-2005

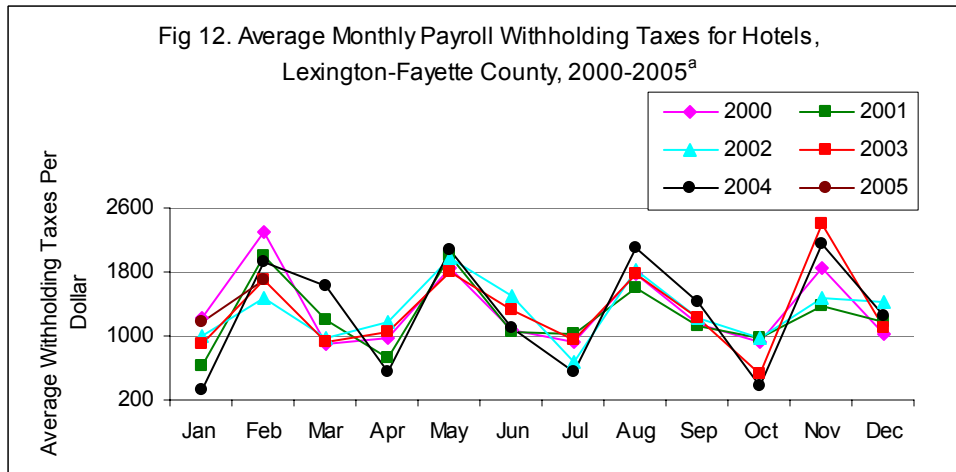
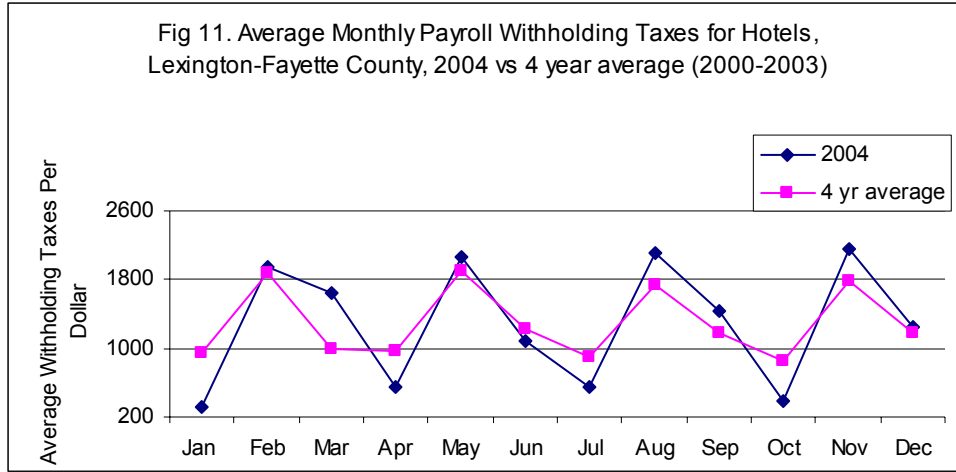
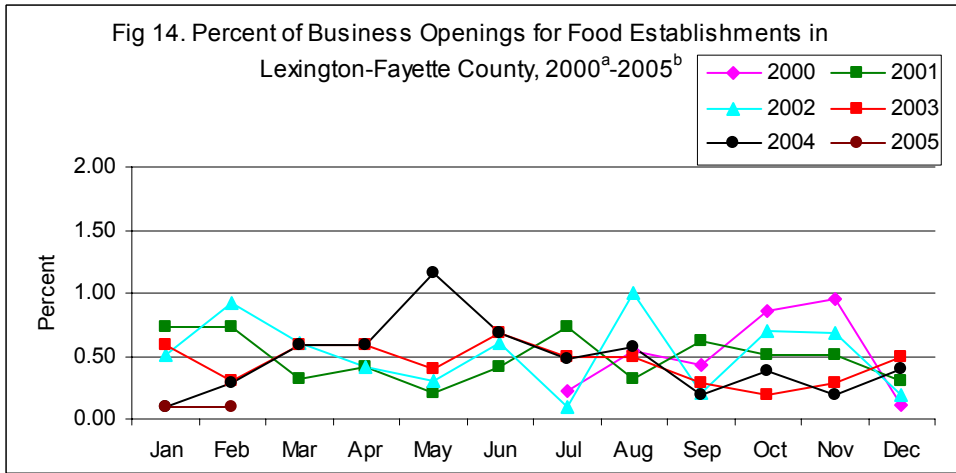
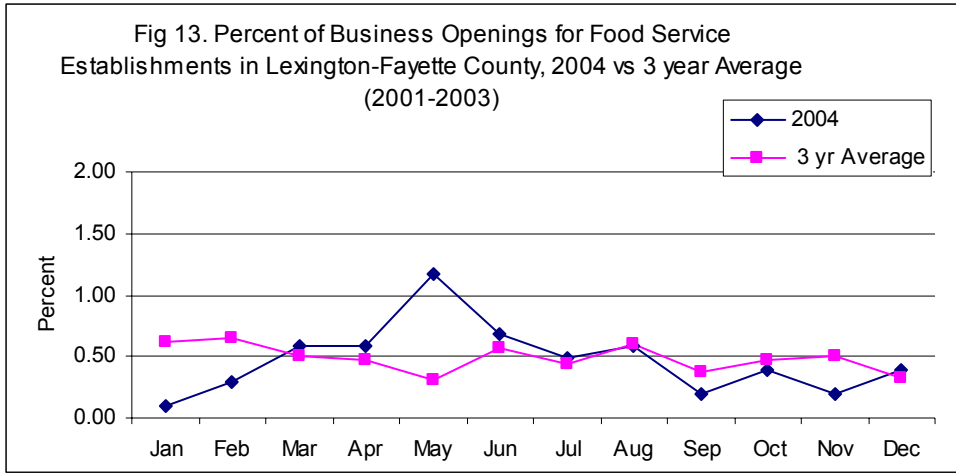


Table 2. Average Monthly Local Payroll Withholding Taxes by Firm in Fayette County, January 1999-February 2005

	Pre-Law	Post-Law
Number of Months	52	10
Restaurants	1,405.88	1,227.08
Bars	669.29	632.51
Hotels	1,381.09	1,522.82

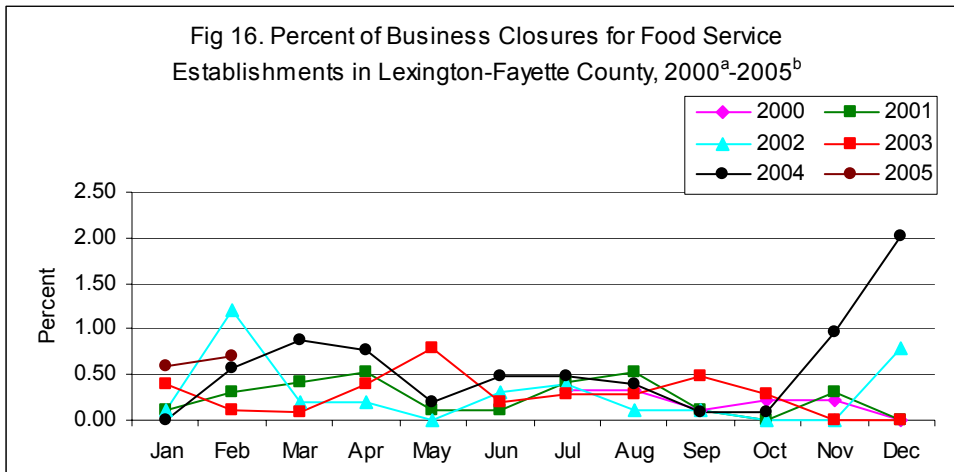
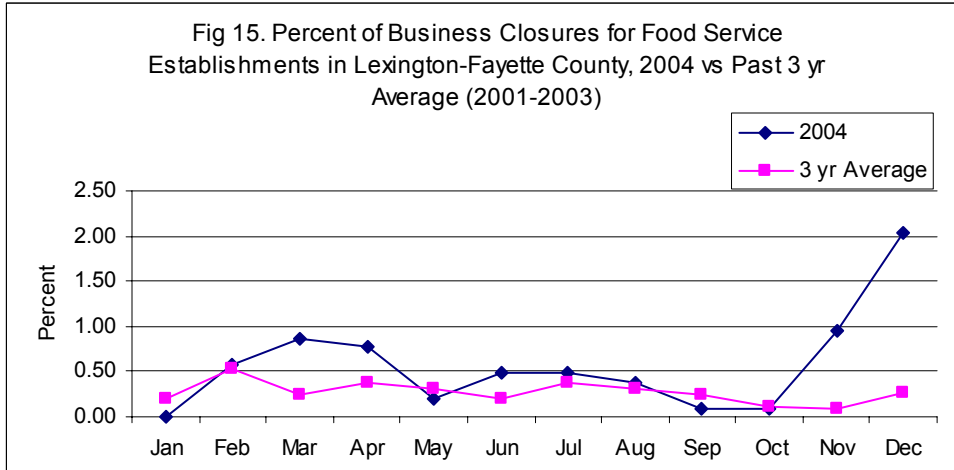
Note: Averages are not adjusted for seasonal variation.

Percent of Business Openings for Food Service Establishments in Lexington-Fayette County, 2000-2005.



Note. ^a 2000 data available for only July-December.
^b Post-law data available for only January-February 2000.

Percent of Business Closures for Food Service Establishments in Lexington-Fayette County, 2000-2005



Note. ^a 2000 data available for only July-December.
^b Post-law data available for only January-February 2000.

Table 3. Average Monthly Business Openings by Establishment in Fayette County, July 2000-February 2005

	Pre-Law	Post-Law
Number of Months	46	10
Alcohol-serving	1.72	1.30
Non alcohol-serving	2.76	3.00

Note: Averages are not adjusted for seasonal variation.

Table 4. Average Monthly Business Closures by Establishment in Fayette County, July 2000-February 2005

	Pre-Law	Post-Law
Number of Months	46	10
Alcohol-serving	1.02	2.00
Non alcohol-serving	1.48	3.70

Note: Averages are not adjusted for seasonal variation.