



# Impact of Hawaii's Smoke-free Law on Tourism and the Hospitality Industry



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## Objective

- Determine the impact of the smoke-free law on the tourist industry in Hawaii

## Motivation

- Hawaii's economy depends immensely on tourism
- The health benefits of smoke-free laws are well studied
- The economic impact of smoke-free laws on an entire state's tourism industry is relatively unknown

## Background

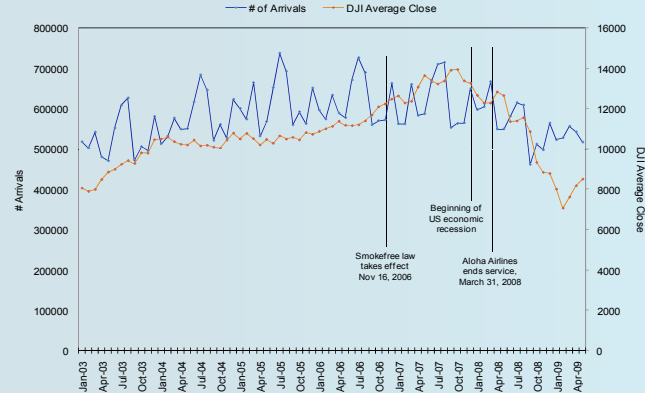
- Smoke-free law took effect November 16, 2006
- >85% of voters in Hawaii were in favor of the law
- Requires all indoor workplaces provide a completely smoke-free environment
  - Includes indoor and outdoor areas of bars and restaurants

## Methods

- Data acquisition: Hawaii's Department of Business, Economic Development & Tourism website
  - Number of tourist arrivals
  - Length of stay
  - Average daily spending
    - Adjusted to 2008 to control for inflation
  - Average monthly spending calculated by multiplying the above three variables
  - Number of employees in the accommodation and food service and drink place sectors
- Descriptive statistics: determine tourist variable and hospitality indicator variables trends over time
- Linear regressions: determine relationship between the implementation of the law, time of the year, economic factors, and the tourism indicator variables for visitors to Hawaii

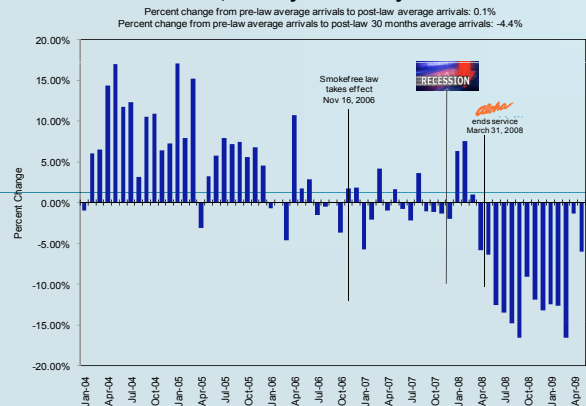
## Results: Tourist Arrivals Trends Over Time

Figure 1. Number of Arrivals into Hawaii, January 2003 to May 2009



- Annual spike in arrivals in summer months (June, July, August)
- Slight increase annually in winter months (December, January, February)
- Fluctuations year-to-year percent change in arrivals for 17 months after smokefree law before steady decline began in April 2008

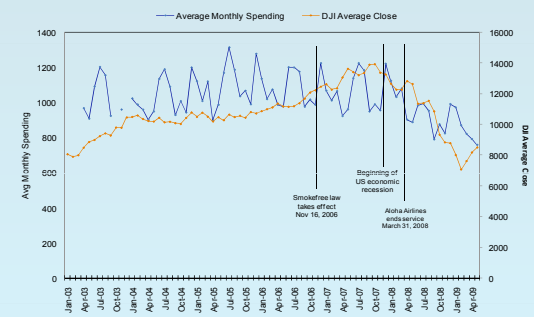
Figure 2. Year-Over-Year Percent Change in the Number of Arrivals into Hawaii, January 2004 to May 2009



- Decline continues through May 2009
- Appears that national and global economic events are driving decline in arrivals rather than smokefree law

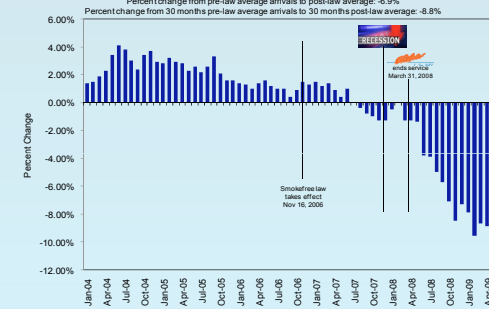
## Results: Tourist Average Monthly Spending Trends Over Time

Figure 3. Total Real Monthly Spending by Visitors, January 2003 to May 2009



- Spending increases in the winter and summer months, similar to tourist arrival peaks
- Fluctuations in spending for 17 months after the smokefree law until a sharp and steady decline began in April 2008

Figure 4. Year-Over-Year Percent Change in the Total Real Monthly Spending per Visitor, January 2004 to May 2009



## Results:

Table 1. Linear Regression Coefficients and 95% Confidence Intervals for All Visitors to Hawaii

	Overall Visitor Arrivals	Overall Visitor Monthly Spending
Month	705.4 (-4304.8, 5715.5)	3.7 (-6.8, 14.2)
Smokefree Law	-12836.8 (-68847.8, 43174.3)	-90.4 (-200.6, 19.8)
DJI Avg in thousands	19808.7 (10909.6, 28707.8)	34.1 (16.4, 51.7)
Time*Law	-1639.9 (-9359.3, 6079.5)	-2.6 (-18.0, 12.8)
R <sup>2</sup>	0.222	0.261

Note: Orange highlighting indicates significant variables

### Tourist Arrivals:

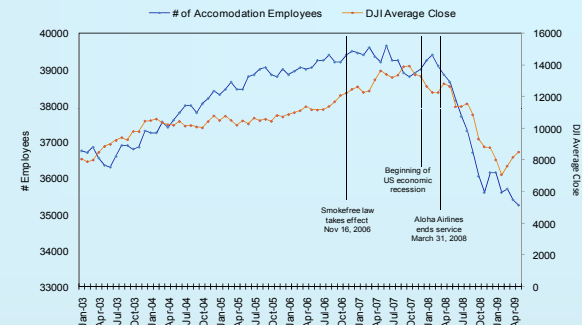
- Increase in arrivals significantly correlates with increased monthly average of the Dow Jones Industrial stock index volume

### Tourist Average Monthly Spending:

- Increase in overall tourist spending significantly correlates with increased monthly average of Dow Jones Industrial stock index volume

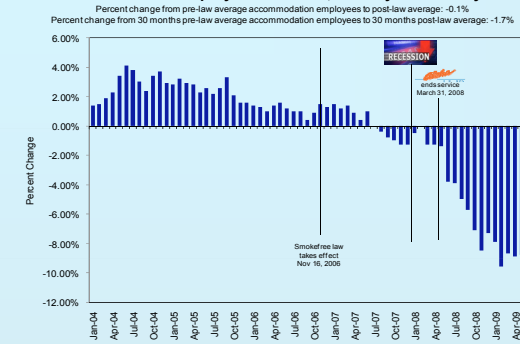
## Results: Accommodation Employment Trends Over Time

Figure 5. The Number of 'Accommodation' Employees in Hawaii, January 2003 to May 2009



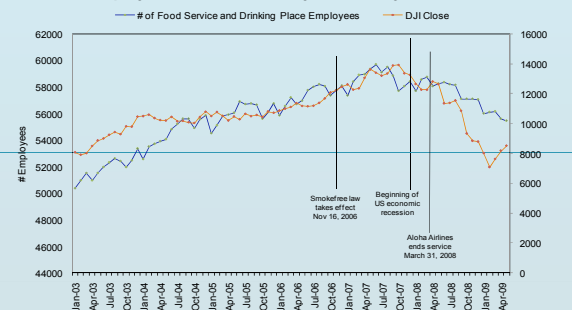
- The number of employees in the accommodation sector had a slight increase the year following the implementation of the smokefree law, but has subsequently seen a sharp and steady decline year-over-year percent change since August 2007

Figure 6. Year-Over-Year Percent Change in the Number of 'Accommodation' Employees in Hawaii, January 2004 to May 2009



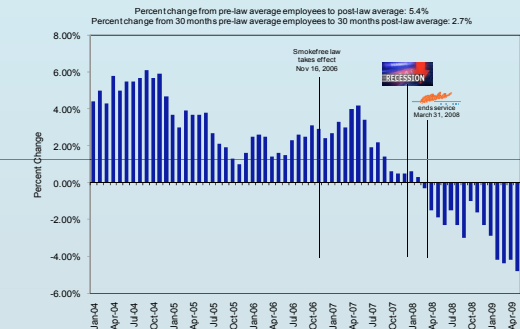
## Results: Food Service and Drinking Place Employment Trends Over Time

Figure 7. The Number of 'Food Services and Drinking Places' Employees in Hawaii, January 2003 to May 2009



- The food services and drinking places sector had a slight increase in the average number of employees post-law compared to the pre-law average despite a small decline in the year-over-year percent change beginning in March 2008

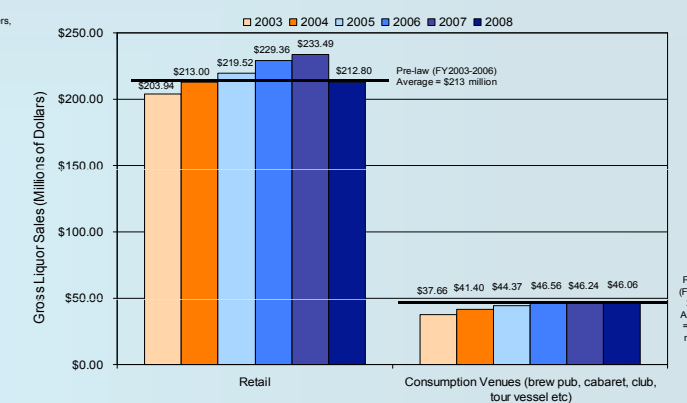
Figure 8. Year-Over-Year Percent Change in the Number of 'Food Services and Drinking Places' Employees in Hawaii, January 2004 to May 2009



## Results: Gross Liquor Sales Trends over Time:

Note: Retailers may sell liquor during specified times, but consumption on premise is not allowed. Brew pubs, cabarets, clubs, dispensers, hotels, restaurants, and tour/cruise vessels each allow liquor/alcohol consumption on premise.

Figure 9. Total Gross Liquor Sales by Venue Type: Oahu, HI



- Very slight decrease in retail venue liquor sales after the implementation of the law compared to the pre-law average
- Increased in consumption venues since the implementation of the smokefree law, in comparison to the pre-law average sales

## Results:

Table 2. Linear Regression Coefficients and 95% Confidence Intervals for Hospitality Employees in Hawaii

	Accommodation Employees	Food Service and Drink Employees
Month	-0.6 (-46.7, 45.5)	114.8 (-4.3, 234.0)
Smokefree Law	-383.4 (-898.8, 132.0)	2902.0 (1570.1, 4233.8)
DJI Avg in thousands	696.6 (614.7, 778.5)	800.5 (588.8, 1012.1)
Time*Law	-68.6 (-139.7, 2.4)	-104.5 (-288.0, 79.1)
R <sup>2</sup>	0.803	0.696

Note: Orange highlighting indicates significant variables

### Accommodation Employees:

- Increase in employees significantly correlated with an increase in the Dow Jones Industrial stock index average

### Food Service and Drinking Places Employees:

- Increase in employees significantly correlated with an increase in the Dow Jones Industrial stock index average and the presence of the smokefree law

## Conclusions:

- No statistical association observed between the smokefree law and tourism indicators, or the number of accommodation employees, when controlling for seasonal and economic trends
- The presence of the smokefree law is significantly associated with an increase in the number of employees at food service and drink places
- The variable for economic trend was significant in all four regression models
  - Suggests underlying economic turmoil may have caused a decline in tourist arrivals, tourist spending, and in the number of hospitality industry employees
- Economic events that may have affected tourism and hospitality:
  - 2006: Housing bubble bursts and sub-prime mortgage crisis begins
  - December 2007: US enters economic recession
  - March 2008: US dollar hit record low against the Euro, and lowest value against the Japanese Yen since 1995. Also, major financial institutions, banks, and car companies announced bankruptcy, causing lack of consumer confidence, and a sharp then steady decline in the global stock market
- Not only are smokefree laws beneficial for the health of the patron and worker, but it does not appear to have a negative impact on tourism, employment, or patronage to venues that once allowed smoking

## References:

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