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Food and Beverage Staffing Changes in Nevada Resorts After the Great Recession

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ABSTRACT

With profit margins averaging 5–7% and labor costs of 30–35% of revenue, restaurant managers need to carefully monitor expenses to maintain these already low profit margins. This study evaluates food and beverage departments within Nevada casinos from 2000 to 2018 to see if managers exhibited expense preference behavior prior to the Great Recession. Three models were tested: number of employees, salaries and wages, and total payroll. Results show that in all three models, there is a significant decrease postrecession versus prerecession, with a decrease of 12.8% in employees, 4.5% in salaries and wages, and 9.1% in total payroll. Only the employee model shows a significant decrease during the recession with a decrease of 9.2%. The postrecession was also compared to the Great Recession, and total payroll saw a 5.1% decrease.

Keywords: expense preference, payroll, Great Recession, food and beverage, labor

Introduction

Williamson (1963) introduced a notion called expense preference behavior, which explains that managers are more likely to increase their own well-being instead of maximizing shareholders wealth, which is the main goal of businesses. When managers exhibit expense preference behavior, they increase their personal benefits by increasing expenses, hence decreasing profits. Previous research has shown that when managers exhibit this type of behavior, they are more likely to over-staff and have higher labor and related costs (Edwards, 1977; Hannan, 1979; Williamson, 1963). This theory will be the core for this study on food and beverage labor costs in the Nevada casino resort industry.

Restaurants generally have very low profit margins, 3–5%, with goods and labor expenses accounting for approximately 60–70% of revenue (Toast, 2019). Average labor cost in the United States for the restaurant industry was approximately 30% from 2014 to 2017 (BDO, 2018), with fast food restaurants averaging 25% and fine dining restaurants reaching over 40% (Hall, 2018). These high expenses and low

profit margins indicate that managers need to carefully monitor their costs, especially labor, specifically in a time of rising minimum wages for many jurisdictions. Without carefully controlling these expenses, the company may risk even lower profit margins or potentially closure. Since expense preference behavior has most commonly been seen in the area of labor, it needs to be closely analyzed to make sure it is not occurring.

Prior to the Great Recession, many believed the casino industry was recession-proof and that while management may not expect to have increases during a recession, they did not believe there would be decreases (Headlee, 2008). However, U.S. gaming revenues decreased from \$37.52 billion in 2007 to \$34.28 billion in 2009 and did not rebound to those record 2007 levels until 2013 (American Gaming Association [AGA], 2016). Casino wages followed a similar trend, but the highest year was 2008, a lag of one year behind the record revenue year, at \$14.1 billion and did not rebound until 2015 (AGA, 2016). Nevada casinos also produced record total revenues in 2007 and did not rebound until 2017

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(Nevada Gaming Control Board [NGCB], 2018), taking 10 years to recover. This was the first time Nevada casino revenues decreased year over year for longer than one year, which only occurred once, in 2001 to 2002. Once Nevada gaming executives realized the industry may not be recession-proof in the long-run, they started making employment changes to compensate for the revenue decreases. MGM and Caesars Entertainment laid off 1,000 and 2,000 employees, respectively (Benston, 2008), and Wynn Resorts, instead of laying off employees, decreased management pay by 10%–15%, reduced full-time employee's hours, and let number of employees decrease through natural attrition (Spillman, 2009).

Before the Great Recession, food services and drinking places provided three-quarters of the job growth in the hospitality industry (Davila, 2011). However, during the Great Recession, the industry lost jobs in ten continuous months (Davila, 2011). From December 2007 to August 2008, the industry lost on average about 8,000 jobs each month and from September 2008 to December 2009, the industry lost an average of 18,000 jobs each month (Davila, 2011). This totaled a loss in the industry of 3.8%. Starting in 2010, the industry began to recover and from 2010 to early 2011, 97,000 jobs had been recovered; however, the total number of jobs was still 2.7% lower than the level in December 2007 (Davila, 2011).

Similarly, in Nevada, casino food and beverage departments during the Great Recession decreased the number of jobs, and recovery did not start until 2014, although the number of jobs as of 2019 are still lower than prerecession levels (See Figure 1). Revenues were also decreasing at this time, but when revenues rebounded in 2015, jobs were still lower than prerecession levels, indicating an increase in employee productivity.

This purpose of this study is to examine the changes in food and beverage department payroll expenses within Nevada casinos from 2000 to 2018 and test whether managers show expense preference behavior in labor expenses. This study will compare three periods: prerecession (2000–2007), the Great Recession (2008–2010), and postrecession (2011–2018) and will be the first known study to analyze payroll related expenses in food and beverage outlets and changes that pertain to the Great Recession. This is important as the job losses in food

and beverage over the entire United States were larger during the Great Recession than since at least before 1948 (Davila, 2011) and understanding what changes pertain to the decreases in revenue and what pertain to overstaffing initially are crucial for the industry. The large job losses and low profit margins are reasons to ensure management is properly staffing in food and beverage and ultimately maximizing shareholder's wealth.

Literature Review

The goal of management should be to increase shareholders' wealth, either through dividend distributions or earnings, but this may not always occur. The main reason management may not maximize shareholders' wealth has to do with the agency relationship between the owner (principal) and management (agent) and that each may have different interests that maximize their own wealth over the wealth of the other (Jensen & Meckling, 1976). This is considered an agency problem. One type of agency problem, moral hazard, is considered a problem of asymmetry of information and occurs when an individual's actions cannot be readily observed (Holmstrom, 1979). Employee supervision is an example of where moral hazard can occur (Holmstrom, 1979). Williamson (1963) coined the term expense preference behavior to explain the phenomenon that occurs when managers maximize their own personal utility over that of owners (Williamson, 1963), even after agency costs.

Numerous studies further build on Williamson's (1963) findings. Previous research on expense preference behavior has covered different industries, such as banking and savings and loans (Blair & Placone, 1988; Gropper & Hudson, 2003; Gropper & Oswald, 1996; Rhoades, 1980; Smirlock & Marshall, 1983), hospitals (Carey & Dor, 2008; Dor et al., 1997; Lovell et al., 2009), and hospitality (Kim et al., 2007; Repetti, 2016; Repetti & Dalbor, 2014; Repetti et al., 2015; Upneja et al., 2010). Kim et al. (2007) conduct a study to test the cost management behavior for small restaurant firms and whether restaurant managers will behave differently in different organizational structures. They examine 87 small restaurant firms and find that there is a significant difference in profit margins among firms that have different organizational structures. When

firms have a lower percentage of prime ownership, managers will exhibit more expense preference behavior. Upneja et al. (2010) research 4,131 firm-years for public restaurants from 1963 to 2007 and find that other expenses increase when interest rates increase. Therefore, they conclude that restaurant managers will experience expense preference behavior when faced with the external shock of rising interest rates. These two studies are the only known studies concerning expense preference behavior in restaurants. This study will expand this research by testing expense preference behavior in food and beverage within casino resorts and will evaluate the external shock of a recession.

Existing research uses different dependent variables to test expense preference behavior, such as firm size, regulations, competition, and organizational structure. The variable that most commonly indicates expense preference behavior and has the most consistent results is firm size. Additionally, various independent variables are tested including labor expenses, number of employees, administrative and general expenses, and total costs, although the most common independent variables are those representing labor expenses.

Firm Size

Researchers use firm size as a variable to test expense preference behavior or to categorize and group the datasets (Blair & Placone, 1988; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996; Repetti, 2016; Repetti & Dalbor, 2014; Repetti et al., 2015; Smirlock & Marshall, 1983; Williamson, 1973). The most common measures for firm size are total assets, revenue, and business volume. As firms get bigger, there are more layers and with more layers there is a separation of ownership that makes controlling expenses and people more difficult. The likelihood that managers will not operate as efficiently increases as a firm increases in size (Williamson, 1973). The less efficient management is believed to be due to the larger span of control given to managers, which comes only by sacrificing attention to detail of the employees they are managing (Williamson, 1973). Smirlock and Marshall (1983) support this and believe that no matter what the level of the organization, some expense preference behavior will occur and as an organization gets

more complex and has more layers. Expense preference behavior will increase since some amount is happening at each level, and it amplifies with more layers. Previous research shows that firm size has a positive relationship with labor-related expense (Gropper & Beard, 1995; Gropper & Oswald, 1996; Repetti, 2016; Repetti & Dalbor, 2014; Repetti et al., 2015).

Within hospitality, Repetti and Dalbor (2014) find that if rooms occupied increases 1%, there will be a 0.91% increase in the number of hotel employees, a 1.04% increase in salaries and wages, and a 1.05% increase in total payroll in the room division. Another study in casinos shows similar results: with a 1% increase in total casino revenue, there will be a 0.80% increase in the number of employees in the casino department, a 0.91% increase in total salaries and wages, and a 0.95% increase in total payroll (Repetti, 2016). In both these studies, firm size was included as a control variable and not as an indicator of expense preference behavior.

Economies of Scale

Cullen (1997) indicates that “economies of scale exist when the long-run average cost falls as the rate of output increases” (p.140). Economies of scale can exist internal or external to a particular firm. External economies of scale occur to an entire industry and as the industry grows, all companies can benefit from the decrease in average costs (Cullen, 1997). The gaming industry has seen significant growth over the past few decades and Nevada casinos are no different (AGA, 2016; NGCB, 2018). Internal economies of scale occur when a particular firm has an advantage over other similar firms (Cullen, 1997). The economies of scale theory has been tested across a variety of industries including banking, insurance, transportation, and utilities and has been studied in both manufacturing and service-based industries, but within the hospitality industry, economies of scale research is limited and it is even more limited in gaming.

Eadington’s (1976) seminal work on economies of scale in casinos finds that anecdotally the industry exhibits economies of scale since larger Nevada gaming regions grow faster than smaller ones, but when tested empirically there is no significant difference. Eadington’s (1976) study evaluates external

economies of scale. Marfels (1995) and Gu (2001) evaluate internal economies of scale and find that larger casinos have lower average costs when evaluating the entire property. Gu (2001) also evaluates individual departments and finds large casino food departments, in addition to beverage departments, had lower payroll percentages, although the variances were not tested for significant differences. O'Donnell, Lee, and Roehl (2012), using a much longer time period than previous studies, also test internal economies of scale for Atlantic City casinos. The results indicate that when casino floor size increases, average cost per square foot will decrease and operating income per square foot will significantly increase even though revenue per square foot significantly decreased. This indicates that the average cost saving exceeds that of the lower average revenue per square foot. O'Donnell et al. (2012) also test the differences between multi-unit and single-unit casinos and find similar results. Lastly, O'Donnell et al. (2012) find that even during a recession, economies of scale benefit casinos.

Economies of scale is sometimes considered to be in direct contrast to agency theory since agency theory indicates that as firms get larger there is a further separation of ownership and hence an increase in monitoring costs. Accounting for firm size alone may lead to conflicting results under these two theories. Additionally, since the gaming industry and all of hospitality is service intensive, some casinos may not be able to experience economies of scale since increased revenue requires increased labor (Marfels, 1995; Vogel, 2001) so testing this variable separate from firm size is important when evaluating labor in service industries and not just general expenses.

Economic Conditions

Economic conditions, such as recessions, are external shocks to companies as they have no control of it occurring and instead are reactive. Good management can be proactive in adjusting to what they believe will happen, but the company is still at the mercy of what is occurring in the economy. Prior research finds that external shocks like this be may indicators of expense preference behavior (Upneja et al., 2010). Downsizing is a popular management practice (Koretz, 1997; Murray, 1995) to help

companies improve companies' performance and profits (Saïd et al., 2007) and is very common during recessions at times of decreasing profits.

Decreasing demand is one common phenomenon that represents poor economic conditions. Research show that changes in the economic environment, like decreasing demand, significantly affect companies' downsizing decisions (Baumol et al., 2003; Filatotchev et al., 2000). Ahmakjian and Robinson (2001) also find that economic pressure can trigger downsizing, but social and institutional pressures cause downsizing to spread. However, Budros (2000; 2002) finds a differing result, which shows that an economic depression does not have a significant effect of downsizing for all kinds of companies. Prior research also does not provide a clear answer on how economic conditions and downsizing may affect company performance. Mass lay-offs will not always provide the benefits of increased profits and productivity that some people expect (Van Dalen & Henkens, 2013) and some companies will have a worse performance after downsizing (Gandolfi & Hansson, 2011).

During the Great Recession the job loss rate in the United States was 16% and by 2010 less than half of those that lost jobs had been reemployed, which was the lowest reemployment rate over the last three recessions (Belsie, 2011). Job loss was not the only effect. Employees that were reemployed saw a decrease in earnings, with those that were full-time employees prior to the Great Recession experiencing a 21.8% decrease in earnings and overall reemployed employees experiencing a 17.5% decrease in earnings (Belsie, 2011). After the Great Recession, MGM and Caesars Entertainment laid off 3,000 total employees (Benston, 2008) while Wynn Resorts took a different approach and instead of voluntarily downsizing, they allowed this to happen naturally through attrition and by not refilling jobs after employees quit (Spillman, 2009). Upon coming out of the Great Recession, job growth started to occur again in the United States (Davila, 2001), and Nevada casinos finally saw an increase in employees in 2015 (NGCB, 2016). Whether this downsizing was due to a decrease in demand or something else, has had limited research attention.

Evaluating Nevada casino properties before and during the Great Recession, Repetti and Dalbor (2014) find that within hotels there is no significant

effect of further downsizing on payroll related indicators after taking into account the downsizing that did occur due to the decrease in occupied rooms. However, Repetti et al. (2015) and Repetti (2016) find different results. In both studies there is an indication of downsizing due to both the decrease in demand and the Great Recession within entire casino properties and casino departments. Repetti (2016) is the first known study to further evaluate the post-Great Recession and finds that casino management further decreased payroll related expenses and employees as compared to prerecession levels, even though revenues remained relatively flat postrecession.

The Great Recession, lasting 18 months, was the longest U.S. recession since the Great Depression of 1929 (National Bureau of Economic Research [NBER], 2010). Additionally, the Great Recession had a longer-term effect than any recession after 1948, in terms of employment levels in hospitality. After all prior recessions, employment recovered within less than 18 months after the recession (Davila, 2011), while employment did not recover from the Great Recession for 46 months (Bureau of Labor Statistics [BLS], n.d.).

Hypotheses

Based on prior research, three hypotheses are proposed that center around the effects of the Great Recession on payroll indicators. All three of these hypotheses are after considering the control variables already discussed. It is understandable that factors such as revenue and economies of scale will effect payroll related indicators in food and beverage outlets since the business is so service driven, but if management is efficiently scheduling, using, and controlling labor the decreased volumes occurring during a recession, or the increases back up after, should have no further effect on labor besides those attributable to the revenue changes. Hypothesis one evaluates the effect of the Great Recession to the period immediately preceding, while hypothesis two evaluates the postrecession period to the period immediately preceding the Great Recession. These hypotheses are tested using the prerecession period as the base time period. Hypothesis three evaluates the postrecession to the Great Recession as an indicator of any further changes made after the Great

Recession. The alternative hypotheses tested are the following:

- H1: Number of food and beverage employees, salaries and wages, and total payroll significantly decreased during the Great Recession.
- H2: Number of food and beverage employees, salaries and wages, and total payroll was significantly lower after the Great Recession ended than prior.
- H3: Number of food and beverage employees, salaries and wages, and total payroll will be significantly different after The Great Recession as compared to during the recession.

Methodology

Data Collection

The Nevada State Gaming Control Board requires all Nevada casinos that generate over \$1 million in gaming revenue to report annual financial information. This report separates food and beverage revenues, expenses, and number of employees separately from other departments. In 2018, 289 casinos reported data (NGCB, 2019). The food and beverage division includes all property owned outlets but does not include third party leases. For this study, data was limited to fiscal years ending 2000 to 2018 and converted to 2018 real dollars. Data was limited to 2000 and after because in November 1989, Las Vegas transitioned into the “mega-resort era” when the Mirage opened and between 1989 and 1999, 11 mega-resorts opened on the Las Vegas Strip and since then, almost 20 years later, only 4 mega-resorts have been added (Las Vegas Sun, 2019). The report aggregates data based on geographical region and casino revenue as to not publicly release any one casino’s data. For all years analyzed there were the same 16 groups, although the number of casinos varied overall in each group, and in each year. Each of the 16 groups was converted to the average for each casino property in that group.

Model

Ordinary least squares (OLS) regression was used to test the hypotheses. This follows the most common

method used in previous expense preference behavior research. Since the casinos included in each group varies every year due to new casinos, closures, and casinos moving between groups, panel data cannot be conducted as the same casinos are not being studied year after year in the same group.

Since food and beverage firms have a large percentage of part-time employees (BLS, 2019), payroll related expenses and number of employees should both be evaluated. Three models are evaluated with varying dependent variables: number of food and beverage employees, total salaries and wages for food and beverage employees, and food and beverage employees' total payroll, which includes salaries and wages and all payroll taxes and benefits.

The full model analyzed was:

$$Y_i = \beta_0 + \beta_1 \text{Size} + \beta_2 \text{Rec} + \beta_3 \text{PostRec} + \beta_4 \text{Strip} + \varepsilon_i \quad (1)$$

here

Y = Natural log of dependent variable

$Size$ = Natural log of food and beverage revenue

Rec = Dummy variable coded as "1" for recession years 2008–2010 and "0" otherwise

$PostRec$ = Dummy variable coded as "1" for postrecession years of 2011–2018 and "0" otherwise

$Strip$ = Dummy variable coded as "1" for Las Vegas Strip casinos and "0" otherwise

Two control variables were included to account for factors that can affect payroll. Past researchers found that firm size can be an indication of expense preference behavior (Blair & Placone, 1988; Carter et al., 1997; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996; Smirlock & Marshall, 1983) so to control for this and isolate that which was attributed to the recession, firm size was included as a control variable. Food and beverage revenue is used as a proxy for firm size. In addition to firm size, as casino firms get larger, they may experience economies of scale (Eadington, 1976; Gu, 2001; Marfels, 1995; O'Donnell, 2012). In 2018, the Las Vegas Strip properties accounted for 59.2% of all casino food and beverage revenue in the state but only accounted for 15.6% of all the properties; this indicates the size of these properties. Due to the larger size, a dummy variable, labeled Strip, was included to account for

potential payroll savings compared to other properties due to economies of scale.

The dates coded as an economic recession started with evaluating the NBER's (2010) recession dates, which were December 2007 to June 2009, and these months correspond to 2008 and 2009 in the dataset. Food and beverage revenue in the dataset was next evaluated and after incurring record high revenues of \$5.8 billion (in 2018 real dollars) in 2007, there was a downturn in 2008 and 2009, but 2010 continued to decrease so 2010 was also included in the Nevada recession period. The postrecession period was coded as 2011 to 2018. While food and beverage revenues finally recovered to prerecession levels in 2016, the entire period was coded postrecession as employment levels were not back to prerecession levels. Setting these periods also leads to balanced years before and after the recession.

Results

Descriptive Summary

Figure 1 shows the total food and beverage revenue, salaries and wages, total payroll, and number of employees for all Nevada resorts in the dataset. All dollars are shown in 2018 real dollars. As is indicated by the trend, salaries and wages and total payroll have increased over the years but not by a lot, and the gap between the two has not changed much over time. The percentage change from 2000 to 2018 was 6.9% in food and beverage salaries and wages and 5.3% in total payroll. Food and beverage revenue and number of employees show a different trend though. Revenues are increasing every year, besides the decreases seen during the Great Recession and have increased 30.1% over the 19 years. Number of employees generally showed an increase year over year until the Great Recession, and since then the number of employees has been relatively flat. The change in employees over the 19 years was a decrease of 12.3%. The increase in revenue but decrease in employees widens the gap between the two every year. Figure 2 shows the trend of food and beverage revenue per employee over the 19 years compared to the total number of food and beverage employees.

Descriptive statistics of all food and beverage variables are shown in Table 1. Food and beverage revenue has a mean of \$19.1 million, while the

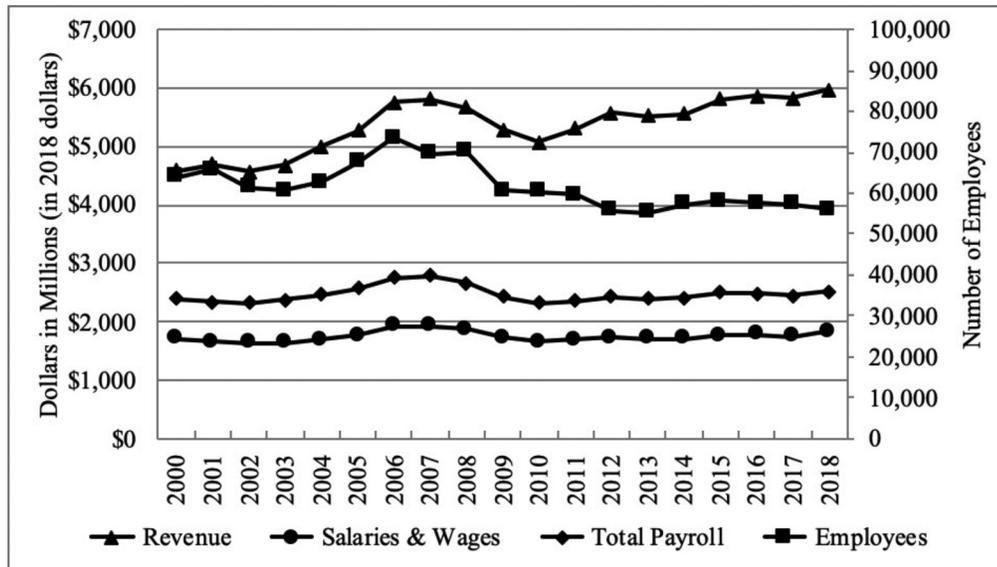


Figure 1. Nevada resorts food and beverage revenue, salaries and wages, payroll, and employees

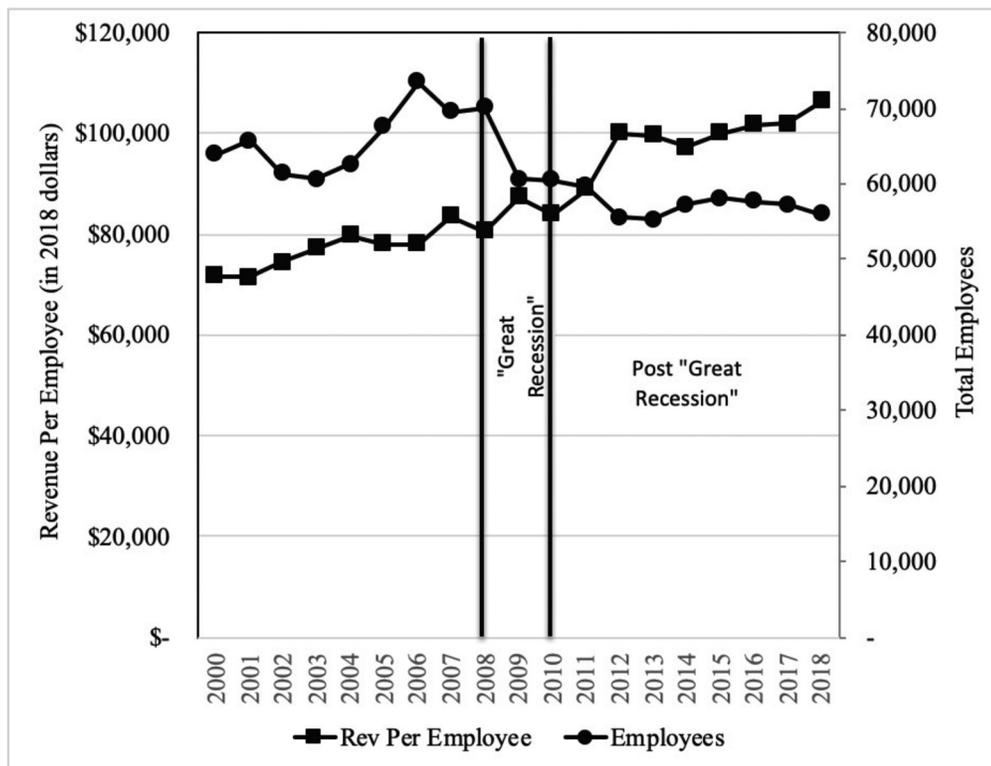


Figure 2. Nevada resorts food and beverage revenue per employee and total employees

Table 1. Descriptive Statistics, Food and Beverage

	N	Min	Max	Mean	Std. Dev.
Employees	304	5.90	1,457.09	236.85	298.89
Revenue*	304	298.29	163,068.16	19,091.10	33,045.48
Salaries and Wages*	304	67.93	46,358.29	6,115.18	9,742.91
Total Payroll*	304	77.70	67,010.52	8,619.87	14,094.54
Salaries and Wages % of revenue	304	11.84	60.23	34.87	6.37
Total Payroll % of revenue	304	25.16	69.82	47.02	7.97

Note: * in thousands of dollars and in 2018 real dollars

number of food and beverage employees has a mean of 237. Salaries and wages has a mean value of \$6.1 million and total payroll has a mean value of \$8.6 million. Salaries and wages as a percentage of food and beverages revenue has a mean of 34.87% while total payroll is 47.02%. Food and beverage revenue per employee has a mean of \$64,570.

The Pearson correlation between all dependent variable and food and beverage revenue was .99, and all correlations are significant at the .01 level. To test for multicollinearity, VIFs were evaluated and no variable in any models had a VIF over 1.41.

Regression Results

The results of the food and beverage employee model, shown in Table 2, indicate the predictor variables and control variables account for 96.9% of

the variance in the natural log of food and beverage employees and is significant in explaining the variance, $F(4,299) = 2,932.102, p < .0005$.

Table 3 show the results of the food and beverage salaries and wages model. The independent variables in this model account for 97.7% of the variance in the natural log of food and beverage salaries and wages and is significant in explaining the variance, $F(4,299) = 2,988.611, p < .0005$.

The food and beverage total payroll model results, as shown in Table 4, indicate that 98.3% of the variance in the natural log of total payroll is accounted for by the predictor and control variables and is significant in explaining the variance, $F(4,299) = 4,185.079, p < .0005$.

All models were modified and rerun with the Great Recession as the baseline, and the independent dummy variables for the recession were

Table 2. Regression Coefficients for Food and Beverage Employees

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-8.876	.149		-59.766	.000*
Ln(Food and Beverage Revenue)	0.870	.009	1.009	93.058	.000*
Recession Dummy	-0.092	.029	-0.031	-3.200	.002**
Post-Recession Dummy	-0.128	.021	-0.059	-5.999	.000*
Strip Dummy	-0.175	.035	-0.054	-5.015	.000*

Note: Dependent variable is Ln(Food and Beverage Employees)

* $p < .0005$; ** $p < .005$

Table 3. Regression Coefficients for Food and Beverage Salaries and Wages

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.471	.167		-2.828	.005**
Ln(Food and Beverage Revenue)	0.964	.010	0.987	91.923	.000*
Recession Dummy	-0.029	.032	-0.009	-0.891	.374
Post-Recession Dummy	-0.045	.024	-0.018	-1.869	.063***
Strip Dummy	-0.007	.039	-0.002	-0.174	.862

Note: Dependent variable is Ln(Food and Beverage Salaries and Wages)

* $p < .0005$; ** $p < .005$; *** $p < .10$

Table 4. Regression Coefficients for Food and Beverage Total Payroll

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.697	.146		-4.769	.000*
Ln(Food and Beverage Revenue)	0.998	.009	0.988	108.460	.000*
Recession Dummy	-0.040	.028	-0.012	-1.405	.161
Postrecession Dummy	-0.091	.021	-0.036	-4.326	.000*
Strip Dummy	-0.001	.034	0.000	-0.017	.986

Note: Dependent variable is Ln(Total Food and Beverage Payroll)

* $p < .0005$

prerecession and postrecession. Since the models are identical besides the base recession period, the adjusted R squared, and the significance of the models is exactly the same. There are new VIFs though on the new independent recession variables, but no VIF was over 2.70. The only modified model that had a significant difference between the Great Recession and the post-recession period was total payroll and it was only significant at the .10 level, $p = .056$.

For all models, the control variable for firm size, food and beverage revenue, is significant and positive, indicating that food and beverage payroll related indicators increase and decrease in the same direction as revenue. As revenue changes 1%, number of employees changes 0.87%, salaries and wages change 0.96%, and total payroll changes 1.00% in the same direction. Economies of scale were controlled for by the Strip dummy variable, but it was only found to be significant in the employee model with Las Vegas Strip casinos having 17.5% less employees than other casinos, after controlling for revenue differences and the recession variables. Salaries and wages and total payroll had no significant difference after accounting for differences due to size or the recession variables.

Hypothesis one was partially supported. The number of employees significantly decreased 9.2% during the Great Recession compared to the prerecession period, but salaries and wages and total payroll did not have a significant effect. When evaluating postrecession to prerecession, hypothesis two was supported. The number of employees significantly decreased 12.8% postrecession versus the level they were at prerecession, while salaries and wages decreased 4.5% and total payroll decreased 9.1%. Salaries and wages category was only significant at the .10 level though, but since this study is the first concerning payroll and the Great Recession, the .10 level was believed to be sufficient. Hypothesis three was also partially supported. There were no significant differences between the Great Recession and postrecession for food and beverage employees and salaries and wages. Total food and beverage payroll decreased 5.1% postrecession compared to the Great Recession

Discussion

While the concern of this paper was the effect of the Great Recession on staffing levels, it would be lacking

if the results overall and of the control variables were not discussed. Property owned food and beverage outlets in Nevada casinos generated a total of \$101.8 billion from 2000 to 2018. Over the 19 years, each year there was an average of 263 casinos with 234 employees. Each employee generated an average of \$86,809 in revenue every year and cost the casinos \$28,194 in salaries and wages and \$39,997 in total payroll. Salaries and wages as a percentage of revenue averaged 32.5% for the entire state over the time period sampled, while total payroll as a percentage of revenue average 46.1%.

Similar to prior research, this study shows that as food and beverage revenue increases, so does payroll related expenses (Groppe & Beard, 1995; Groppe & Oswald, 1996; Repetti, 2016; Repetti & Dalbor, 2014; Repetti et al., 2015). As shown in Table 1, based on the 302 groupings, each food and beverage employee generates \$80,604 in annual revenue and costs the casinos \$25,819 in salaries and wages and \$36,394 in total payroll. Results of this study indicate that when food and beverage revenue increases 1%, 0.87% more employees are hired, 0.96% more is spent in salaries and wages, and total payroll increases 1%. Since the sample's mean annual food and beverage revenue from Table 1 was \$19.1 million, a 1% increase in revenue equates to \$190,911. While generating this additional revenue, 2.1 more employees are hired that cost \$58,706 more in salaries and wages and \$86,169 in total payroll. On a per employee basis, each new employee generates \$92,648 in additional revenue and costs \$28,490 in salaries and wages and \$41,832 in total payroll. These additional employees generate 14.9% more per employee than on average, which is consistent with the results seen in previous studies (Repetti & Dalbor, 2014; Repetti et al., 2015). It should be noted that revenue per employee can increase in food and beverage due to more efficient employees but also due to price increases or better upselling and additional selling which does not have to do with payroll. Since this study was based on 289 casino properties with numerous food and beverage outlets in each property, it is more likely that these revenue per employee changes were due to employee efficiencies across the properties than price increases or better upselling techniques at all.

In addition to revenue changes affecting food and beverage payroll related indicators, economics of

scale also affects them. Prior research (Eadington, 1976; Gu, 2001; O'Donnell et al., 2012) has shown that larger operations, while spending more in general due to their size, do not spend proportionately more, since the larger operations benefit from economies of scale. Results of this study partially support this as the largest casinos in Nevada, those on the Las Vegas Strip, have 17.5% less employees than those that are not on the Las Vegas Strip. These fewer employees do not necessarily relate to fewer hours though as the Strip properties do not have significantly less salaries and wages or total payroll. This sample included employees employed through the year and not hours or full-time equivalents which may contribute to these results. Strip properties may employ less people, but each employee may have more hours or there may be a different percentage of full-time versus part-time employees with Strip properties having less part-time, including on-call employees. The smaller number of employees is significant though as each additional employee has a cost to the property even if they work no hours. It costs money to recruit, train, and retain additional employees.

Hypothesis one was partially supported after controlling for revenue changes and economies of scale. During the Great Recession, food and beverage management in Nevada casinos were able to significantly decrease employees 9.2% compared to prerecession levels but did not significantly change salaries and wages or total payroll. These results partially support findings from prior research (Repetti, 2016; Repetti et al., 2015), even though prior research also finds significant effects on the payroll variables. These conflicting results may be due to the different segment of the industry and management in food and beverage operating differently with payroll than casino management. This does further support Budros (2000; 2002) though who finds that different types of companies may operate differently. Food and beverage is generally considered one of the lowest profit margin sub-industries in hospitality, while the gaming department and casino properties overall are some of the highest, so food and beverage management may have had tighter control over payroll prior to the recession that these other departments which generated differing results.

Hypothesis two was fully supported since all payroll indicators significantly decreased postrecession

as compared to prior. These results expand prior studies since Repetti (2016) is the only known study that evaluates the postrecession. Employees decreased 12.8%, salaries and wages decreased 4.5%, and total decreased 9.1%. The Great Recession period lasted two years (three in Nevada), which was eight times longer than the effects from 9/11 and longer than any other economic effect to hit the Nevada gaming industry. Management may have been slow to make changes during the Great Recession, if they were unsure how long it would last, but the effects of the post-Great Recession have been longer-term. While employment for prior recessions recovered within 18 months (Davila, 2011), the rebound of the Great Recession took 46 months (BLS, n.d.), showing the longer-term effect. The results of this study indicate though that employment did not recover in food and beverage within casinos, indicating that they may have been overstaffed to begin with.

Since salaries and wages and total payroll both significantly decreased, management not only decreased number of employees but decreased total hours or full-time equivalents overall. This also increased revenue per employee significantly (Figure 2) since employees, salaries and wages, and total payroll were decreasing at a time when food and beverage revenue was increasing. This may be an indication of expense preference behavior prior as there were no other significant effects in the industry during this time, such as massive technological changes to operations, that should have caused the efficiency and productivity of employees to change.

Table 5 is a summary of the three independent variable and the effect of the changes during and after the Great Recession as compared to prerecession. During the Great Recession, Nevada casinos decreased the number of food and beverage employees by almost 24 employees. When evaluating how management changed food and beverage payroll variables after the Great Recession as compared to prior, they decreased 33 employees, \$275,000 in salaries and wages, and \$775,000 in total payroll.

Hypothesis three was also partially supported but only for total payroll. While the number of employees was significantly lower for the Great Recession and postrecession compared to the prerecession period, there was no significant effect postrecession as compared to the Great Recession. This indicates that the majority of the decrease in employees

Table 5. Recession Effects on Prerecession Food and Beverage Employees, Salaries and Wages, and Total Payroll

Dependent Variable	Prerecession	Great Recession vs. Prerecession		Postrecession vs. Prerecession	
		% Change	Change	% Change	Change
Employees	257.97	-9.2%	-23.73	-12.8%	-33.02
Salaries and Wages*	6,112.78	n.s.		-4.5%	-275.08
Total Payroll*	8,517.19	n.s.		-9.1%	-775.06

Note: * in thousands of dollars and in 2018 real dollars; n.s. = not significant

occurred during the Great Recession, and while there was a further decrease post, it was not significant. The effects on employees happened in the short-term and were maintained.

Salaries and wages and total payroll showed different short-term effects than employees but similar long-term effects. Salaries and wages only showed a significant change postrecession compared to prerecession. Evaluating one time period at a time, there are no significant changes from one to the next, but in the long-term, salaries and wages did decrease. The small insignificant decreases period after period, combine into a significant decrease postrecession. Total payroll, while also not indicating a significant short-term effect, also indicated a long-term effect. Not only was there a decrease in total payroll postrecession as compared to prior, but there was also a significant decrease postrecession as compared to the Great Recession.

These long-term results indicate that food and beverage management was overstaffed prior to the Great Recession since they were able to decrease employees and payroll in the long run while at the same time increasing revenues. These inefficient staffing levels prior to the Great Recession cost the properties money and profit and ultimately did not maximize shareholder's wealth. Evaluating payroll in the short run can lead to different results since management may make reactive approaches to save profit in the short run, but in the long run these decreased payroll indicators cannot not sustain while maintaining revenues. Having these long-run results are now an indicator to management of a better level of staffing although if they are still overstaffed now it is unknown.

Limitations and Suggested Future Research

The main limitation of this study has to do with the data that was available. First, in Nevada, gaming property information is not publicly available

for individual casinos. By using aggregate group data by size and location, individual property information may be masked. Given this limitation, this study is still considered valid as understanding how the entire industry performs on average is very important especially in the Nevada gaming market, which is highly competitive and as such management across properties generally performs more in line with competitors because of the high amount of competition. Future research could be conducted on individual properties to see if a single management team is exhibiting expense preference behavior. Additionally, with property data, individual departments could be analyzed and compared against each other since they all operate under the same competitive and ownership structure, so the main difference would be an individual manager.

Another data limitation is that only number of employees was available as an indicator of staffing levels. In hospitality, due to the large number of part-time and on-call employees, number of employees is not the best representation of staffing. Two better indicators would be hours worked or full-time equivalents both of which can be calculated from payroll records of individual properties. This limitation could be a reason for some of the inconsistent results between number of employees and payroll variables, and future research using one of these better staffing indicators could clarify these results.

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