

How the Great Recession Affected Casino Staffing in Nevada Casinos

Toni Repetti

Introduction

Shareholder wealth maximization is the main goal of many firm managers in the United States (Fatemi, Ang, & Chua, 1983). Many companies, both public and private, have company mission statements in which they state shareholder wealth maximization as a main goal. Boyd Gaming's corporate mission states, "Through teamwork, we strive to maximize shareholder value, to be among the leading companies in our industry and to provide opportunities for all while we support and enhance our communities" (Boyd Gaming Corporation, 2016). In their vision they state the company philosophy of "long-term, sustainable growth for our shareholders." In MGM Resorts International's 2015 annual report (2016), in the opening letter to their shareholders, they state that all "...accomplishments reinforce management's commitment to deliberate financial improvement and position your Company for long-term sustainable growth" (p. 2). Jim Murren, Chairman and CEO of MGM at the time, notes that the company is recognized for building long-term growth for shareholders. These two examples show that maximizing or increasing shareholder value is true for many gaming companies.

Even though companies report that shareholder wealth maximization is a main concern of their firm, researchers and the public often question whether this is really happening. This led researchers to the study of expense preference behavior to determine if managers are more concerned with increasing their own utility than trying to increase the wealth of shareholders. Increasing their own utility can take the form of additional pay, increased staff, luxurious offices, travel, entertainment, etc. (Williamson, 1963). There are many public examples of management doing things that are for their personal benefit and at the expense of shareholders. Readers have to look no further than the Great Recession and the government bailouts of some of the top banks to find examples of this (Blodget, 2009; Ross & Shine, 2008). During this time Lehman Brothers' CEO was asking for a government bailout while disagreeing with a suggestion that all executives give up their bonuses (Ross & Gomstyn, 2008). The company was denied a bailout shortly afterwards and eventually went bankrupt. Many may call this corporate greed, but these actions of maximizing personal utility instead of that of the overall firm supports expense preference behavior.

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Managers believed to exhibit expense preference behavior most likely spend more in payroll related expenses (Carter & Stover, 1991; Edwards, 1977; Lewin, Derzon, & Margulies, 1981; Williamson, 1963). In 2015, Nevada casinos averaged 32.1% of gross revenue for payroll and benefits. The gaming division average was smaller at 16.3%, due to the large amount of revenue earned from slot machines, which are low in labor intensity. Even at 16.3% of revenue, payroll costs were over \$1.7 billion. Payroll expenses in hospitality are typically adjusted with changes in business volumes (Krakover, 2000; Repetti & Dalbor, 2014; Repetti et al., 2015) so when the Great Recession that started in 2007 happened, Nevada casinos almost immediately started adjusting employees and payroll. During the recession, Caesars Entertainment laid off 2,000 employees while MGM Resorts International cut over 1,000 full-time employees (Benston, 2008).

Gaming has historically been a high profit industry. For example in 2007, the height of the Nevada gaming industry in volume and visitors, Nevada casinos earned almost \$5.5 billion in earnings before interest, taxes, depreciation, and amortization (EBITDA). EBITDA is the most commonly used indicator of operating profit in the gaming industry. This equates to a 22.9% EBITDA margin, which was not uncommon up to that point. At this time the gaming division was operating at a profit margin of 48.4%. Once the Great Recession hit, these numbers started to tumble. Now, eight years later they are still not back to those levels. In 2015, the average EBITDA margin for Nevada casinos was 15.4%, a decrease of 7.5 percentage points and 32.8%. The gaming division profit margin took a hit with a 6.5 percentage point drop to 41.9%, the equivalent of a 13.4% decrease. These decreases have management and owners looking at ways to increase profits and since payroll is closely tied to revenue, it is highly scrutinized. Management is looking at changes in business volumes and labor efficiency before the recession.

This is not just occurring in gaming. All hospitality is feeling the push to adjust. Simon Hudspeth, a consultant specializing in hotel development, stated “hotel companies are making cost savings where possible, including staff redundancies” while Tim Walton, VP of development of Marriott, mentioned they were evaluating property level expenses and actively managing them to protect operating margins. David Herbert, co-owner of Phoenix Food & Beverage Ltd, stated restaurants have generally been poor at managing labor costs, particularly in fine dining which has higher margins, and the Great Recession caused this to be a main focus (Jones, 2009).

The purpose of this study is to evaluate Nevada gaming divisions and to assess if management may be maximizing their own utility over shareholder wealth maximization when it comes to payroll levels. By evaluating management’s adjustment to payroll during and after a recession, owners can understand if management is properly adjusting in addition to evaluating whether they were properly staffed pre-recession. This information is very important due to the significant dollar amounts that gaming companies spend in payroll. With payroll costs of \$1.7 billion a year, even overstaffing 1% equates to overspending \$17 million that could be used to maximize shareholder wealth. This is the first known research that evaluates the gaming division. In addition, this study is the first known study that evaluates the post-recession effects on payroll to analyze whether management made further changes, stayed with any changes they may have made during the recession, or went back to the way they were managing before the recession.

Literature Review

Expense Preference Behavior

Regardless of a firm's organizational structure, shareholders exist whether it's the owners of sole proprietorships or stockholders in corporations. All of them have the potential to profit if the firm does well, but they carry the risk of loss if the firm does poorly. An agency relationship is established when an owner hires a manager or a management team to work on their behalf, such as the case in corporations (Chatfield & Dalbor, 2005). In an agency relationship the manager (agent) is hired to act on behalf of the owner (principal) and do what is in the best interest of the owner by maximizing shareholder wealth. Conflicts in agency relationships may arise because managers want to maximize their utility with increased pay and benefits, but these increased costs come at the expense of the owners.

Potential agency problems include information asymmetry, adverse selection, and moral hazard. This study is concerned with moral hazard on the part of managers, which occurs when one party takes a certain action and hides it from the other. The most common types of moral hazard are shirking and excessive consumption of perquisites (Chatfield & Dalbor, 2005). Shirking happens when employees do as little work as necessary without affecting their pay. This can occur at any level in the organization, including a CEO taking extra time off when paid a fixed salary, management hiring additional staff to do the work less staff can accomplish, or line employees taking extra breaks or doing their job at a slower pace than they are capable. Excessive consumption of perquisites ("perks") occurs when managers give themselves perks or other financial benefits above what is necessary. When managers engage in moral hazard by doing any of these, they are thought to be exhibiting expense preference behavior which occurs when managers maximize their own personal utility over maximizing the value of the firm and hence shareholder wealth (Williamson, 1963). Previous studies find there are certain factors that lead to a higher level of expense preference behavior.

Researchers find that expense preference behavior by managers occurs more commonly in industries that are highly regulated than those that are not (Gropper & Hudson, 2003; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996; Mixon & Upadhyaya, 1999). High regulation is tested numerous ways. Mixon and Upadhyaya (1996; 1999) show that in industries with more regulations managers engage in more expense preference behavior than those industries with fewer regulations. Gropper and Oswald (1996) and Gropper and Hudson (2003) evaluate the effect of deregulation on expenses and find that after deregulation, expenses significantly decrease indicating that during periods of high regulations, management spends more. Casinos are considered very highly regulated for various reasons including extensive licensing requirements which act as a high barrier to entry and having to report to multiple outside regulatory agencies, such as state gaming control boards, the IRS, the Financial Crimes Enforcement Network, etc. An example of a regulation specific to gaming that casinos must follow is the limit on how much revenue individual games can produce. According to Regulation 14.040 of the Nevada Gaming Statutes and Regulations, all gaming devices must pay out a minimum of 75%; the equivalent for a 25% maximum theoretical hold percentage for each gaming device. This limitation in revenue retention acts as a pricing regulation and limits what decisions management can make. Within this regulation there is a lot of room for variation across casinos, but due to the high level of competition most casinos' range of payouts is quite a bit smaller. As regulations limit what management can and cannot do, managers often look for other areas in which to express themselves.

Narrowing down highly regulated industries to factors that are commonly found under high regulations, researchers find that a lack of competition and/or a separation of ownership are what lead to expense preference behavior by management. Williamson (1963), known for his seminal work on expense preference behavior theory, analyzes the effect of competition on management behavior and finds that market concentration is significant and positively related to executive compensation. This indicates that firms with a higher market concentration, and hence lower competition, spend more on executive compensation. Managers in firms with a high market concentration (Arnould, 1985; Edwards, 1977; Hannan, 1979) exhibit expense preference behavior over those in markets with more competition. As competition increases, so does profitability because managers reduce costs to respond to the pressure of increased competition. In highly competitive markets, this variable becomes insignificant and other variables need to be evaluated as potential indicators for expense preference behavior (Hannan & Mavinga, 1980; Repetti & Dalbor, 2014; Repetti, Dalbor, Singh, & Bernhard, 2015; Verbrugge & Jahera, 1981).

Separation of ownership, which is thought to lead to a separation of control due to further ownership gap, is studied using a variety of indicators. The two main indicators of ownership separation are type of ownership structure and firm size. Ownership structure is the more studied of the two given that firms have a variety of ways to structure their firms. One way to compare ownership structure is by studying companies that are stock or mutual firms, such as savings and loans (S&L). Mutual S&L members do not have a residual claim on the firm, have no management responsibility, and have no chance for profit or loss on company earnings. Those managers are thought to have less pressure due to being unable to benefit from the firm profits. This may lead to higher expenses than those in stock S&Ls (Akella & Greenbaum, 1988). Across a variety of different expenses, including personnel costs, management in mutual S&Ls spend more than those in stock S&Ls (Akella & Greenbaum, 1988; Verbrugge & Goldstein, 1981; Verbrugge & Jahera, 1981). The most likely reason the managers exhibit expense preference behavior is that there is less monitoring and possibly control by owners in mutual S&Ls. Oswald, Gardiner, and Jahera (1994) and Carter, Massa, and Power (1997) evaluate not-for-profit and proprietary hospitals as another indicator of ownership structure and find that expense related dependent variables are higher in not-for-profit hospitals. They find that profit related dependent variables, such as return on assets and net income, are lower. Both of these findings are an indication of expense preference behavior in not-for-profit hospitals. It is important to note that when the Prospective Payment System (PPS) was fully implemented and established predetermined reimbursement amounts for Medicare patients, many of these significant differences in ownership structure disappears since all hospitals need to operate more efficiently due to the set reimbursement levels (Oswald et al., 1994). The PPS acts as an external shock to which management is required to adhere, like a rise in interest rates or a recession. Lower reimbursement levels mean less revenue so if management does not control expenses, this means lower profit than what they had been earning.

It is important to control for other firm differences besides the ones already discussed. Becker and Sloan (1985) and Fields (1988) find that after controlling for factors other than ownership, including firm size, ownership structure does not significantly affect expenses. Smirlock and Marshall (1983) find similar results that after taking into account firm size, market concentration is no longer significant. Blair and Placone (1988) find that when splitting their sample based on firm size, ownership structure and market concentration are not significant, although they do not test these variables with firm size as an independent variable. Firm size has been included to test if the other variables change once accounting for this and also as a stand-alone indicator of separation of ownership. An increase in firm size generally contributes to further separation and may be an indication of expense preference behavior due to this span in control. Smirlock and Marshall (1983) find that labor expenses significantly increase as total assets increase. Other researchers find similar results across personnel costs and other expenses (Carter et al., 1997; Fields, 1988; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996). The two studies done on Nevada casinos find similar results with an increase in occupied rooms and total revenue leading to significant increases in the number of employees and payroll costs (Repetti & Dalbor, 2014; Repetti et al., 2015). Smirlock and Marshall (1983) and Williamson (1973) believe organizational complexity increases as a firm gets larger. This results in more layers and diffused ownership and more layers lead to an increase in expense preference behavior throughout all layers of the firm. These studies support including firm size in studies concerning expense preference behavior.

Additionally, Williamson (1963) analyzes individual firms and finds that the number of employees can be drastically reduced, 32% - 88% depending on the department, following sharp decreases in profits while still maintaining the same level of production. These changes lead to increases in return on investment and labor efficiency and can be an indication of prior expense preference behavior when management is held more closely accountable to profit levels. Williamson states the most likely reason is that as profits drastically drop, expenses fall under more scrutiny, similar to what is occurring with the Great Recession (Jones, 2009). The reaction is similar to the PPS implementation in the Oswald et al. (1994) study.

Labor Flexibility

Having flexibility in employment allows companies to adjust payroll related expenses based on fluctuations in business volume. According to the National Economic Development Office (NEDO, 1986) labor flexibility can occur in a variety of areas: numerical flexibility, functional flexibility, distancing, and pay flexibility. The category of concern for this research is numerical flexibility. Numerical flexibility is the firm's ability to adjust labor based on business volume. The main ways this is achieved is by adjusting number of employees or hours worked per employee and hiring more part-time, seasonal, on-call workers, etc. Numerical flexibility becomes more important as: 1) business fluctuations "become larger, more frequent and more unpredictable" (NEDO, 1986, pg. 14), 2) competition increases, and 3) the costs associated with numerical flexibility decreases.

When evaluating employees in hotels, numerous studies find numerical flexibility occurring. For example, Krakover (2000) finds in tourist areas in Israel an increase in the number of bed-nights significantly increases the number of employees. In addition, Krakover finds that as occupancy increases, bed-nights per employee rise. There may be better efficiency at the higher demand levels causing this increase in productivity. It is also possible that at lower demand levels managers may keep a higher number of employees to not have to hire and train during high demand periods. This causes lower productivity numbers during the lower demand time. The author does note that by analyzing number of employees the reason is hard to account for and having information such as number of part-time workers and hours would assist in understanding the main reason.

When evaluating hotels in Nevada casinos, Repetti and Dalbor (2014) find that an increase in occupied rooms coincides with a significant increase in the number of employees. Repetti et al. (2015) evaluate Nevada casino properties as a whole and find similar results as those in hotels: that as total property revenue increases so does the number of employees. When evaluating payroll expenses, as occupied rooms and total revenue increases so does salaries and wages and total payroll in the corresponding areas (Repetti and Dalbor, 2014; Repetti et al., 2015). The results of both studies show the percentage increase in the number of employees changes less than that of either of the payroll dependent variables. These studies support the idea that more than the number of employees needs to be analyzed in industries that have a higher percentage of part-time employees. Looking at productivity at these higher levels, both studies show a higher productivity for the additional employees than was produced overall. This increase in productivity follows the results Krakover finds.

Evaluating various industries, Owen (1978) finds a positive correlation between demand fluctuations and the percentage of part-time employees indicating that the larger the fluctuations in demand, the higher the percentage of the company's employee base that will be part-time. This flexibility though can come with productivity issues. In Andalusian hotels, García-Pozo, Marchante-Mera, and Sánchez-Ollero (2014) find that as the percentage of part-time and temporary workers increases, productivity decreases, although since the cost of these employees is less than full-time employees the lower productivity may be offset by the lower cost. These results may appear to conflict with the previously discussed results, but those studies did not evaluate the percentage of part-time employees. Only additional demand was evaluated and it is unknown if the additional demand was handled with more full-time or part-time employees, or how hours changed for all employees during the higher demand period.

According to the Bureau of Labor Statistics (BLS, 2015) the median pay for gaming workers in 2015 was \$20,040, including reported tips. This is an average of all workers, full-time and part-time, and hourly and management positions. This compares to a national median wage of \$36,200 for workers in all industries. Since the median wages are based on all workers, employees who work part-time lower the median. The fact the gaming workers earn about 44% less than the national average is a combination of lower paying positions and a higher percentage of part-time employees in the gaming industry. Part-time and on-call employees allow gaming companies to fluctuate labor daily based on business volumes in an industry that is very seasonal. During recessions are no different. From 2008 to 2010 Harrah's New Orleans cut jobs from 2,431 employees to 2,320 and the percentage of employees that were full time dropped from 84% to 78% (White, 2011). This equates to 111, 4.6%, jobs lost and an additional 121 jobs that were converted to part-time or on-call from full-time. This is not an anomaly in New Orleans; casinos around the country did the same.

Recession

Based on the fact that many hospitality companies hire based on business volumes, it is not surprising that economic conditions are going to have an impact on the hiring and retention of employees. Generally the private sector service industry accounts for the majority of job growth. Prior to the 2007 – 2009 recession this sector was able to avoid large job losses during recessions (Goodman & Mance, 2011). During The Great Recession the services industry experienced a 3.4% decrease in employment over the 18 months. The leisure and hospitality subsector experienced a 2.2% annualized decrease over the same period (Davila, 2011). This decrease was over five times that seen in the 1990-1991 and 2001 recessions. Delving further into the leisure and hospitality sector, the arts, entertainment, and recreation sector experienced a 4.8% decrease with the subsector of amusement, gambling, and recreations accounting for 80% of that decrease. In terms of recovery, leisure and hospitality took a year and a half to recover to pre-recession levels in the previous two recessions but as of January 2011, 37 months after the end of the 2007 – 2009 recession, employment was still 3.5% less than that seen prior to the Great Recession, indicating this recession was different and as such should be studied.

During economic downturns, companies change the number of employees and jobs and additionally they adjust hours worked for the employees they do keep. The leisure and hospitality industry saw a decrease of 3.4% in employees during the recession and a 2.3% change in average weekly hours worked (Kroll, 2011). This equates to a 5.6% decrease in aggregate hours worked. The decreases appeared across varying positions with nonsupervisory employees seeing a 5.7% decrease. Once again these changes in aggregate hours worked were larger than the last two recessions. Since third quarter 2009, companies are giving employees more hours per week as opposed to hiring more employees (Kroll, 2011). This may be an indication that the employees had their hours decreased during the recession and companies are now giving back those additional hours. This indicates that the change in employees is most likely a smaller percentage than the change in payroll costs.

There have been a few studies on the effect of recessions on the gaming industry. The first by Eisendrath, Bernhard, Lucas and Murphy (2008) on the 2001 recession finds that while there was a significant decrease in gaming volume on the Las Vegas Strip, it was short-term, 5 months, and gaming volume quickly recovered. The authors believe that the layoff of thousands of casino employees was probably an overreaction. The next two known studies evaluate the longer 2007 – 2009 recession. Repetti and Dalbor (2014) test whether hotel managers within casino resorts experience a significant adjustment in their payroll related expenses due to a recession. They find that hotel managers did not and that after accounting for the change in business volumes, no further adjustments are made. Repetti et al. (2015) find that during the recession, Nevada casinos are able work with 35.5% fewer employees, 7.7% less salaries and wages, and 5.2% less total payroll after taking into account decreases that occur due to the decrease in business volumes. This study evaluates the entire resort including all revenue generating departments such as gaming, food, beverage, hotel, etc. and all supporting administrative departments. Since every department is managed differently and based on these conflicting results of one department compared to the entire property, evaluating other departments is important. Neither of these studies evaluates the effect of the post-recession to test if management adjusted further or converted back to pre-recession levels. Some of the changes in employment described are due to lower business volumes while some are due to better labor productivity.

Expense preference behavior occurs when managers maximize their personal utility over that of the shareholders. Past research shows more of this behavior occurs when companies are highly regulated (Gropper & Hudson, 2003; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996; Mixon & Upadhyaya, 1999) and larger in size, which leads to a separation of ownership (Carter et al., 1997; Fields, 1988; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996, Smirlock & Marshall, 1983, Williamson, 1973). The external shock of the Great Recession has caused companies to look internally at how they are operating. Evaluating costs and potential expense preference behavior by managers is critical to this, but the labor flexibility that occurs within casinos needs to be considered in the analysis. This study will add to the literature by including firm size as an indicator of labor flexibility instead of as an indicator of expense preference behavior by managers since numerical flexibility is required in service based industries with fluctuating business volumes (Krakover, 2000; NEDO, 1986; Repetti and Dalbor, 2014; Repetti et al., 2015). Due to the conflicting results on the effect of the recession (Repetti and Dalbor, 2014; Repetti et al., 2015), this study will further evaluate the external shock of the recession as an indicator of expense preference behavior during non-recessionary periods. Finally, this study will fill the gap in the literature of post-recession payroll management.

Hypotheses

Two hypotheses are proposed for this study based on previous research. Hypothesis one is concerned with the Nevada economic recession for gaming and states that after controlling for the change in business volume and the type of casino operation, during the recession casino management should not need to make any additional payroll adjustments. Hypothesis two is similar but evaluates the post recession compared to the pre-recession and states that when business volumes stop falling from the recession, managers should not make any other payroll adjustments and that the post recession period will not be significantly different than that in the pre-recession. The alternative hypotheses are stated below.

H1A: Number of gaming employees will decrease during an economic recession.

H1B: Gaming salaries and wages will decrease during an economic recession.

H1C: Total gaming payroll will decrease during an economic recession.

H2A: Number of gaming employees will continue to stay lower after an economic recession as compared to prior to the recession.

H2B: Gaming salaries and wages will continue to stay lower after an economic recession as compared to prior to the recession.

H2C: Total gaming payroll will continue to stay lower after an economic recession as compared to prior to the recession.

Methodology

Data collection

Annual gaming division data for 16 fiscal years ending June 30 of each year for 2000 to 2015 was obtained from the Nevada State Gaming Control Board's *Nevada Gaming Abstract* and was converted to 2015 real dollars. The gaming control board aggregates the data into groupings using geographical region and size. Each year there were 16 unique groupings for 256 data points, although the number of casinos in each grouping was not always consistent. Each aggregate group was modified to be the average for each casino in that grouping to account for the different number of casinos representative in the group. While each casino property chooses what departments they consider as part of their gaming division, the most common departments include all those that generate gaming revenue, cage, casino marketing, count rooms, player development, security, surveillance, and gaming administration. Data prior to 2000 was excluded because 2000 was approximately when ticket-in ticket-out started to be phased in at Nevada casinos. This new technology, which allows machines to pay out in vouchers and take in vouchers instead of coin, dramatically changed the landscape of payroll in the slot department. Casinos started to decrease the number of slot attendants needed and many eliminated soft count, which is responsible for counting all coins. Due to this change there is a possibility of decreased payroll due to technological advances and not management adjustments.

Model

The hypotheses are tested using multiple ordinary least squares (OLS) regression, following the most common method of previous expense preference behavior research. Separate models for the different expenses are evaluated, following previous research and the fact that hospitality firms have a large percentage of part-time and on-call employees (Worland & Wilson, 1988) and the results for employees may be different than the results for payroll costs. The dependent variable in Model 1 is number of gaming employees, Model 2 is total salaries and wages for gaming employees, and Model 3 is gaming employees' total payroll. Total payroll includes salaries and wages in addition to payroll taxes and all benefits, such as health insurance, paid time off, retirement contributions, bonuses, etc.

The full model analyzed was:

$$Y_i = \beta_0 + \beta_1 \text{Rev} + \beta_2 \text{Rec} + \beta_3 \text{PostRec} + \beta_4 \text{HighPR} + \varepsilon_i$$

Where

Y = Natural log of dependent variable

β = Coefficients for each predictor variable

Rev = Natural log of gaming revenue

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

PostRec = Dummy variable coded as "1" for post recession years of 2011 - 2015 and "0" otherwise

HighPR = Dummy variable coded as "1" for regions that have a higher payroll percentage and "0" for those with a lower percentage

ε = Error term

These models include two control variables to account for additional factors that effect payroll. Gaming revenue is included as a proxy for firm size, since larger firms have more employees and spend more in payroll expenses due to the higher business volumes. While many past researchers have used firm size as an indication of expense preference behavior (Blair & Placone, 1988; Carter et al., 1997; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996; Smirlock & Marshall, 1983) it has been added to this model mainly as a control variable. It should be noted though that due to the increased firm size, there is a larger separation of ownership and the potential that firm size can be an indication of expense preference behavior. Gaming revenue is converted to the natural log to achieve normality of residuals and homoscedasticity, which were violated when using the actual values.

Payroll as a percentage of revenue can greatly vary depending on the type of casino property, the type of games offered, and the service level. Evaluating all regions in Nevada over the time period studied there is a clear break between those regions that have higher salaries and wages as a percentage of revenue and those with a lower percentage. The regions with a higher percentage include the Las Vegas Strip, Reno, Downtown Las Vegas, and South Lake Tahoe. Salaries and wages as a percentage of revenue during the period studied were 15.2% for these regions, while all other regions averaged 9.8%. Total payroll as a percentage of revenue was 20.3% compared to 13.1%. What most of these regions have in common is a higher amount of their revenue coming from table games, which requires a higher payroll percentage. Evaluating the last year of data, 2015, these high payroll regions averaged 40.8% of their gaming revenue from table games, ranging from 17% to 45%. All other regions in the state averaged approximately 10% of their gaming revenue from table games. Due to this difference it was determined that it was important to include a dummy variable to control for this.

The decision of what is an economic recession started with evaluating the same time periods as the National Bureau of Economic Research's recession dates, which were December 2007 to June 2009 (National Bureau of Economic Research, 2010). Since the data collected is fiscal information, these dates correspond to 2008 and 2009. Since the hospitality industry reached a peak in January 2008 and a trough in January 2010 and did not coincide with the national recession dates (Davila, 2011), it is important to look at slightly different dates. Nevada gaming revenue's year over year change was evaluated and it was found that fiscal year 2010 still had a significant decrease of over 7% from 2009 which was the same decrease as the first year of the recession. Since Nevada casinos were slower to recover, it was decided to include 2010 in the recession period so fiscal years ended June 30, 2008 - 2010 are coded as recessionary periods for this study. The dummy variable for post recession started in 2011 when Nevada casinos started to experience steady gaming revenue numbers. As of 2015, gaming revenue has still not fully rebounded to pre-recessions levels of the mid 2000s so 2011 – 2015 are coded as post recession.

Results

Descriptive summary

Descriptive statistics of all variables are shown in Table 1. Figure 1 shows the trend from 2000 to 2015 of all variables. Both are shown in 2015 real dollars. Gaming revenue has a mean of \$44.8 million and a standard deviation of \$58.1 million. As Figure 1 shows, gaming revenue for Nevada hit a record high in 2007 and started to decline since then but has stayed relatively steady since 2010 with 2011-2013 each having a decrease of less than 1% a year, a slight increase of 0.7% in 2014 and a negligible 0.3% decrease in 2015. The number of gaming employees has a mean value of 202 with a standard deviation of 226. Number of gaming employees was at the highest level in 2001 and while overall decreasing has had some fluctuations up and down. Since 2010 the number of gaming employees has stayed relatively stable with 1-3% decreases every year until 2015, when there was a slight increase of 0.7%. Salaries and wages for gaming employees has a mean value of \$5.6 million and a standard deviation of \$7.5 million. Gaming employees total payroll has a mean value of \$7.8 million and a standard deviation of \$10.9 million. Both salaries and wages and total payroll follow the same trend when evaluating Figure 1. The highest years for these expenses were 2000 and 2001 and each decreases almost every year until 2014 when they each have an increase of approximately 2%.

Table 1
Descriptive Statistics

	N	Min	Max	Mean	Std. Dev.
Gaming Employees	256	18.63	1,049.23	202.47	226.24
Gaming Revenue *	256	3,205.50	295,407.03	44,822.79	58,108.16
Gaming Salaries and Wages*	256	345.50	34,975.66	5,597.84	7,545.23
Total Gaming Payroll*	256	405.26	50,634.99	7,829.45	10,903.75

Note. * in thousands of dollars and in 2015 real dollars

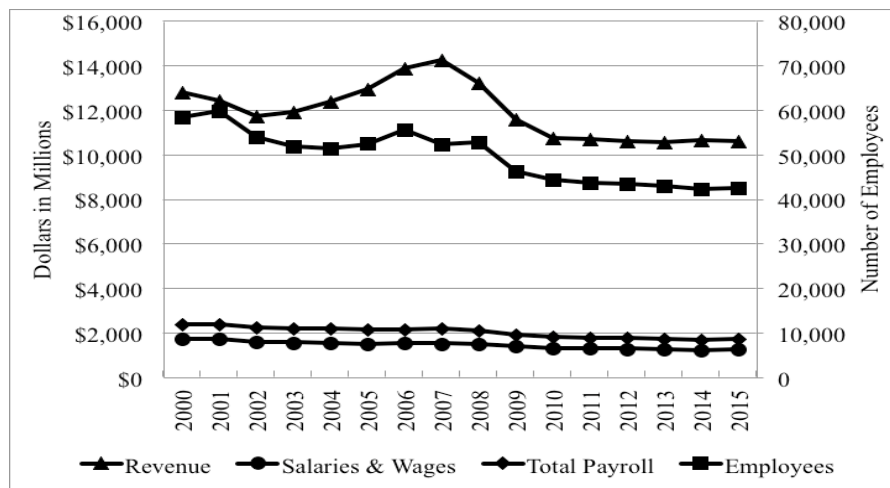


Figure 1. Mean gaming revenue, salaries and wages, payroll, and employees

The Pearson correlation between number of gaming employees and gaming revenue is .96. The Pearson correlation between 'gaming salaries and wages' and gaming revenue is .97 and between total gaming payroll and gaming revenue is .97. All correlations are significant at the .01 level and no VIFs are over 1.14 for any variables in any model.

Overall model results

In Model 1, the natural log of gaming revenue, the recession variables, and the high payroll dummy variable account for 97.1% of the variance in the natural log of gaming employees. This model is significant in explaining the variance, $F(4,251) = 2,116.035, p < .0005$. Table 2 presents the regression results of Model 1.

Table 2
Regression Coefficients for Model 1: Gaming Employees

	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	-8.866	.173		-51.330	.000*
Ln(Gaming Revenue)	0.795	.010	0.886	77.733	.000*
Recession Dummy	-0.116	.029	-0.045	-3.954	.000*
Post Recession Dummy	-0.152	.025	-0.070	-6.124	.000*
High Payroll Dummy	0.432	.023	0.214	18.965	.000*

* $p < .0005$

Evaluating Model 2, 98.1% of the variance in the natural log of gaming employees is accounted for by the natural log of gaming revenue, the recession variables, and the high payroll region dummy variable. Results of the ANOVA show this model is significant in explaining the variance, $F(4,251) = 2,345.763, p < .0005$. Table 3 presents the regression results of Model 2.

Table 3
Regression Coefficients for Model 2: Gaming Salaries and Wages

	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	-0.737	.157		-4.679	.000*
Ln(Gaming Revenue)	0.907	.009	0.893	97.177	.000*
Recession Dummy	-0.087	.027	-0.030	-3.242	.001**
Post Recession Dummy	-0.110	.023	-0.045	-4.835	.000*
High Payroll Dummy	0.498	.021	0.219	24.006	.000*

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

Model 3 shows 98.1% of the variance in the natural log of total payroll for gaming employees is accounted for by the natural log of gaming revenue, the recession variables, and the high payroll dummy variable. This model is significant in explaining the variance, $F(4,251) = 2,543.191, p < .0005$. The regression results of Model 3 are shown in Table 4.

Table 4
Regression Coefficients for Model 3: Total Gaming Payroll

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.175	.164		-7.149	.000*
Ln(Gaming Revenue)	0.951	.010	0.904	97.640	.000*
Recession Dummy	-0.088	.028	-0.029	-3.175	.002**
Post Recession Dummy	-0.127	.024	-0.050	-5.371	.000*
High Payroll Dummy	0.465	.022	0.197	21.441	.000*

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

In all three models all variables are significant. As gaming revenue increases all dependent variables increase. Table 2 indicates that for each 1% increase in gaming revenue, the number of employees increases 0.80%. Based on Table 3, for each 1% increase in gaming revenue, total salaries and wages of gaming employees increase 0.91%. Table 4 shows that for each 1% increase in gaming revenue, total gaming payroll increases 0.95%. In addition, by including a control variable for regions that have a higher payroll percentage, all models have a significant increase in adjusted R² of between 3.5 and 4.3 percentage points and the coefficients in the final models are less likely to pick up spurious effects that could have been attributed to this factor.

The recession and post recession dummy variables are significant in all models, which supports both hypotheses (A, B, and C) and implies that during and after the Great Recession, gaming divisions decrease the number of employees, salaries and wages, and total payroll after controlling for the change in gaming revenue experienced after 2008. During the recession, Nevada casinos decrease the number of gaming employees 11.6%, decrease gaming salaries and wages expense 8.7%, and decrease total gaming payroll expenses 8.8%. Similar results are found when evaluating the post recession period. Nevada casinos decrease the number of gaming employees 15.2%, gaming salaries and wages expense 11.0%, and total gaming payroll expenses 12.7%. The decreases post recession, are larger compared to during the recession but when the models are rerun with the control time period as the recession and dummy variables for pre-recession and post recession, there is no significant differences between the recession and post recession, while having the exact same pre-recession and recession results.

Discussion

The results of this study show that casino management may have been overstaffed prior to the Great Recession. Since casino management was able to cut employees and the associated payroll expenses beyond that due to business fluctuations during the recession, they may have had too many employees pre-recession. The fact that casino management was able to continue to decrease staffing even when revenue stopped falling further supports this overstaffing. Casino management appears to have adjusted some of their expense preference behavior from the pre-recession.

In support of prior research, as a gaming division produces more revenue, which is an indication of size, they have more payroll related expenses (Carter et al., 1997; Fields, 1988; Gropper & Oswald, 1996; Mixon & Upadhyaya, 1996; Smirlock & Marshall, 1983). Based on Table 1 each gaming employee generates \$221,400 in annual revenue and costs the casinos \$27,600 in salaries and wages and \$38,700 in total payroll. When gaming revenue increases 1%, the gaming division hires 0.80% more employees, spends 0.91% more in salaries and wages, and incurs 0.95% more in total payroll. During the period studied the mean annual gaming revenue from Table 1 was \$44.8 million, so a 1% increase in revenue equates to \$448,000. To generate \$448,000 in additional gaming revenue, 1.6 more gaming employees are hired, casinos spend \$50,900 more in salaries and wages, and total payroll increases \$74,400.

When analyzed on a per employee basis, each additional gaming employee cost the company \$31,800 in salaries and wages and \$46,500 in total payroll but generated \$280,000 in gaming revenue. When additional gaming revenue is generated, more employees are needed and hired, but each new hire produces \$58,600 more gaming revenue than the overall average of \$221,400, an increase of 26%. This increase in productivity for the additional employees is consistent with the results seen in previous studies (Krakover, 2000; Repetti & Dalbor, 2014; Repetti et al., 2015).

Some of the additional revenue generation when revenue increases 1% can be due to the additional play per customer, which does not require additional personnel. If the increase in revenue is attributable to additional customers, the additional employees needed are generally variable positions and not fixed positions. When there is not an increase in fixed positions, productivity per employee is higher since the fixed positions are added no matter how much additional revenue is generated but variable positions can be added in smaller revenue changes. The increase in productivity is most likely a combination of both of these scenarios. These additional employee though cost about 15% more than the overall average with casinos paying \$31,800 in salaries and wages compared to \$27,600 and \$46,500 in total payroll compared to \$38,700, an increase of 20%. The additional cost per employee may be attributed to more hours assigned to each employee and hence costing the company more on a per employee basis and not employees getting paid more. The additional increase in total payroll compared to salaries and wages is in line with the benefits average for the sample.

Smirlock and Marshall (1983) and Williamson (1973) believe that the larger the firm, the more layers of the organization, and the more separation between owners and managers so higher revenue may lead to more expense preference behavior by managers. The additional employees required as revenue increases are more productive, generating 26% more revenue per employee. This seems to signify that as casino revenue increases the employees are more productive, not less, which does not support expense preference behavior. This variable was significant though and important in the model to control

for revenue changes when evaluating the recession variables. In line with numerical flexibility (NEDO 1986), as casinos increase in size and generate more revenue, they require more employees similar to the results from other hospitality studies (Krakover, 2000; Repetti & Dalbor, 2014; Repetti et al., 2015).

Looking at revenue instead of volume may alter these results slightly since slot coin-in and table games drop are better indicators of how many employees are needed since employees are needed based on volume and not necessarily revenue. Win percentages were evaluated and there were small changes between pre-recession levels and the last year of the sample. For instance table games win percentage for fiscal year 2007 was 13.30% and for 2015 it was 12.44% and slot win percentage was 6.02% in 2007 compared to 6.46% in 2015. These consistent hold percentages indicate that revenue fluctuates are indicative of volume fluctuations and not due to varying hold percentages.

Including a control variable for regions that have a higher percentage of payroll related expenses brings some useful information even if this is not an indication of expense preference behavior or labor inefficiencies. Including this variable adds to the amount of variance explained while giving management a benchmark on how much additional payroll may be needed if the casino decides to have more table games revenue as compared to slot revenue. Casinos that generate more than 10% of their gaming revenue in table games will need more employees and hence have will have higher payroll expense. On average casinos will hire 43% more employees, have 50% more in salaries and wages, and 47% more total payroll. While the percentage increase in total payroll is less than that of salaries and wages, the dollar amount is larger. Evaluating these percentages off the means in Table 1, total payroll will increase approximately 31% more than salaries and wages, which is lower than the average increase of the entire sample of 40%. The lower increase is most likely due to a variety of factors: 1) the additional salaries and wages may be more hours per employee and total payroll does not increase as much when more hours are added as when new employees are added and 2) the additional employees being hired are not full time and do not get as many benefits.

After taking into account the changes in revenue and how that affects payroll, Nevada casinos decrease the number of employees and payroll related expenses during and after the recession as compared to the pre-recession. This supports hypotheses 1 and 2. During the recession, gaming divisions decrease their employees 11.6% and when comparing pre-recession to post recession there is a significant decrease of 15.2%. Gaming salaries and wages decrease 8.7% during the recession and 11% in post recession compared to pre-recession. Total gaming payroll has similar decreases with a significant decrease of 8.8% during the recession and 12.7% during the post recession period. These results are summarized in Table 5. During the recession, these equate to 23 fewer employees, \$487,000 less in salaries and wages and \$689,000 less in total payroll. The post recession has a larger effect of 31 fewer employees, \$615,800 less in salaries and wages, and \$994,300 less in total payroll. Recessions are external shocks to organizations that management cannot generally control, but must respond. This is a similar effect as the PPS implementation in hospitals (Oswald et al., 1994).

Table 5
*Effects of Recession on Number of Employees, Salaries and Wages,
and Total Payroll*

Dependent Variable	Mean	Recession		Post Recession	
		% Change	Change	% Change	Change
Number of Employees	202.47	-11.6%	-23.49	-15.2%	-30.78
Salaries and Wages*	\$5,597.84	-8.7%	-\$487.01	-11.0%	-\$615.76
Total Payroll*	\$7,829.45	-8.8%	-\$688.99	-12.7%	-\$994.34

Note. * in thousands of dollars and in 2015 real dollars

Although the post-recession decreases are not significantly different than the recession decreases, it is important to note that the percentage change was lower than that seen during the recession. This is an indication that management is continuing to make changes. Gaming management decreased the number of employees an additional 3.6 percentage points, which is 7 more employees. Salaries and wages were further cut 2.3 percentage points for \$128,750 and total gaming payroll was reduced 3.9 percentage points and \$305,350. As employees get more efficient it is not uncommon for management to expect more and that may be what is occurring in the post-recession as management and employees know the productivity level at which employees can work.

Over both the recession and post recession the decrease in salaries and wages equates to approximately \$20,000 per employee and total payroll was approximately \$31,000. The per employee amount may appear low but it is in line with the national average for gaming workers (BLS, 2015). In the overall hospitality industry, many jobs are hourly and part-time (Worland & Wilson, 1988). The gaming industry is the same, which allows management the flexibility to schedule based on business volume (White, 2011). Since part-time workers have lower levels of payroll related expenses, decreasing employees would have a smaller effect on expenses. The results of this study show the percentage of employees cut during the recession and maintained afterwards is larger than the decrease in payroll related expenses so it may be an indication that more part-time employees are cut.

Since table games departments are more labor intensive than any other revenue generating departments in that division, as stated above, the revenue being generated from table games was analyzed to see if a change in that possibly contributed to the changes in employment. If table games revenue as a percentage of total revenue decreased during and/or after the recession, the effect would be a decrease in payroll costs since that department required more labor. This may accidentally be captured in the recession variables. This is opposite of what actually happened though. Table games revenue as a percentage of total revenue in fiscal year 2007 was 32.5% and increased to 36.0% for fiscal year 2015, which was lower than the 38.0% in 2014. Since table games revenue as a percentage of total revenue increased and hold percentages did not change it can be assumed that volume on table games increased, which should require an increase in staffing if casinos were accurately staffed to begin with. The fact that the recession variables had significant negative results in light of the increased table games revenue may indicate an even bigger recession effect than accounted for here.

The business fluctuations that occur in casinos requires management to employ labor flexibility to deliver the appropriate level and quality of service that their customers demand. If the base level of employment is inefficient, when management makes changes, the changes may not be the correct amount. After the decreases gaming management made starting in 2008 due to volume, they were able to decrease the number

of employees and other payroll related expenses further during the Great Recession and maintain that decrease for another four years afterwards. David Herbert states (Jones, 2009) that when profit margins are high less attention is paid to controlling costs since the margins are already good. Nevada casinos prior to the Great Recession were earning high EBITDA margins of almost 23% and may have ignored the higher payroll costs or the overstaffing, i.e. expense preference behavior, but once they were faced with a decrease of almost 33% less operating profit margin they had to reevaluate to try and maintain profit which supports Williamson (1963).

If casino management had been staffing at efficient levels pre-recession, they would have only adjusted staffing downward due to the business volume changes. Since management was able to decrease payroll even further than this level, this may be an indication that they managed inefficiently pre-recession. It is possible management required more efficient levels once the recession started and when they realized employees could maintain those labor standards, they stayed at the new levels. The question then becomes why did management not demand these efficiency standards beforehand? Whether this supports intentional expense preference behavior by managers or simply a lack of efficient labor standards pre-recession does not matter. Management now knows the level at which they can staff and still be within the service standards that the company requires.

During the recession there was between 256 and 270 casinos included in the *Nevada Gaming Abstract*. Assuming an average of 263 casinos and the mean values, casino management cut 6,178 employees during the recession across Nevada. Since the data set does not distinguish between full and part time workers it is unknown how many of these employees went to unemployment or had to find another job and how many lost a part time job. Evaluating total payroll, Nevada casinos paid \$181 million less in payroll related expenses attributable to the recession and not just a decrease based on lower business volumes. Coming out of the recession, casinos started to open again and in fiscal year 2015 there were 271 casinos, the same average casinos post-recession as during the recession. Post-recession, Nevada casinos cut an additional 1,917 employees and saved \$80 million more in payroll related expenses compared to the changes they made during the recession. These payroll savings can be applied to other areas such as company growth, dividends, or paying down debt, all of which maximize shareholder wealth more than overspending in payroll.

Limitations and Suggested Future Research

This study is not without limitations and the main limitations center around the data. First, individual casino property information is not publicly available in Nevada. If individual properties are staffing differently than the average in each region, the differences may be hidden in using aggregate data. Even with this limitation, the high level of competition in Nevada generally leads companies to operate similarly otherwise efficiencies become apparent. The aggregate data is a start to the conversation. In addition, different companies may have different service standards and hence staffing levels which would not be seen in aggregate data. Another limitation with the data is that number of employees was the only variable available for staffing levels. Number of employees is not an indication of how much work is being done in an industry that does not employ all full-time employees. A better indication would be full-time equivalents (FTEs) or hours worked. Full-time equivalents converts all hours worked to a 40 hour work week so even if two employees each worked 20 hours, they would be one FTE and not two employees which may alter the results of the employee model to be more in line with the payroll cost models. Casinos track both of these additional variables. The data set include gaming payroll overall and not by each department within the casino. Individual properties have data by each revenue-generating department, so slots and table games could be analyzed separately. One additional limitation with the data worth pointing out is that this study uses revenue and while hold percentages did not change much on average, volume is a better indicator of staffing needs.

Future research with individual casino properties could alleviate these limitations. In addition to addressing these limitations, the results may be more generalizable to companies based on type of offering such as luxury property, local properties, properties with more table games, etc. instead of to the entire Nevada gaming market. Having individual property data would allow the evaluation of more specific variables such as: the effect of collective bargaining agreements, the mix between full time and part time employees, technological changes, customer satisfaction scores and changes due to productivity changes, or company goals or business plans adjustments. Additionally future research could be conducted on the effect to the employee and their level of satisfaction with the new productivity levels.

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