Jul 27th, 2:00 PM - 3:00 PM

The Impact of Dining by Restaurant Type on Gaming Volumes of Casino Worth Segments

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Abstract

The current research examined the relationship between dining type (buffet, casual, and steakhouse) and daily slot coin-in produced by players in different customer worth segments (high, middle, low and untracked). Using data from a Midwestern metropolitan casino, this research found differences in the impact of restaurant type on slot volume for different player worth segments. The findings suggest that casino operators examine the indirect impact of different dining options on gaming when evaluating restaurant profitability. Marketing offers could be customized so that different worth segments receive complimentary meals for those restaurants most likely to influence gaming for that particular segment.

Key Words: casino marketing; casino management; restaurant management; operations analysis; customer segments

Introduction

Casinos use player reward programs as a marketing tool to attract and retain customers and provide incentives for gambling. Most reward programs have tier levels based on a customer's historical gaming behavior. For example, Harrah's Total Rewards® has Gold, Platinum, Diamond and Seven Stars, each of which is achieved by earning a specified number of points during a calendar year. There are certain benefits associated with each tier level. Internally, however, many casino operators evaluate customers according to their monetary worth, that is, the amount of money they expect to win from that customer. Player worth categories are used when deciding what offers and promotions to provide, and also to project how profitable those offers will be. "Average daily theoretical (ADT)" and "average trip theoretical (ATT)" are such measures, which reflect the individual player's historical play level per day or trip (Lucas & Kilby, 2008).

Most casinos offer dining options for their customers. At a minimum, a typical full service casino will have a buffet, 24-hour café or casual restaurant, and a steakhouse. In many cases, these restaurants are not profit makers themselves, but rather are used as a marketing tool for gamers and are expected to stimulate visitation and gaming. This is particularly the case for local and regional casinos, which generate little or no revenue from non-gaming sources. For example Ameristar, which operates primarily in local markets, generated net revenues of $1.22 billion and gaming revenues of $1.25 billion in 2009. Food and beverage generated $135 million, rooms produced $66 million, and other revenues amounted to $33 million. Promotional allowances (which include free meals and rooms) were $274 million, so the net contribution of non-gaming revenue sources was negative (Ameristar, 2010).

Thus, it becomes important for casino operators to examine their dining operations to determine their indirect impact on gaming. In particular, operators should be aware of how their dining options stimulate gaming among their different customer worth segments. Higher worth segments are more valuable and spend more in the casino, but does that mean that upscale dining options will appeal to them and be related to increased gaming? Lower worth segments are less valuable but make up a large proportion of the customer base. Therefore, it is desirable to provide them with dining options they find appealing, but at lower cost. In the current research, we examined the relationship of customer worth segment to dining segment (buffet, casual, and steakhouse). The

objective was to determine the indirect relationship of dining in each venue with the daily slot coin-in for players in different worth segments.

Literature Review

Given the importance of customer worth segments for casino marketing, there is surprisingly no published research that analyzes the attitudes or behaviors of different segments or reward tiers. However, there is a growing body of literature to suggest that restaurants are an indirect driver of gaming revenue. There are also a couple of studies to indicate that the relationship may be different depending on restaurant type. A survey of Las Vegas local casino patrons found that eating at a casino coffee shop or gourmet restaurant was related to greater self-reported gaming expenditures, whereas buffet dining was not (Roehl, 1996). In an analysis of daily casino data, dining at casual casino restaurants was a significant driver of low denomination (25 cents and under) slot coin-in (Tanford & Lucas, 2010). When analyzed in aggregate, significant relationships have been obtained between restaurant headcount and slot coin-in at a Las Vegas casino and two riverboats (Lucas and Santos, 2003). However, research by Lucas and Brewer (2001) did not obtain a significant relationship between restaurant covers and slot volume using data from a Las Vegas locals casino. Dining in casino restaurants has also been found to be related to likelihood to return to the casino and recommend it to others (Richard & Adrian, 1996; Yi & Busser, 2008).

Hypotheses

In the current research, secondary data were analyzed to investigate whether the indirect relationship between dining and gaming would vary as a function of (1) player worth segment, and (2) type of dining outlet. Based on previous research, it was expected that overall, restaurant covers would be related to slot volume, leading to the first set of hypotheses.

H1: There will be a significant positive relationship between buffet covers and coin-in.
H2: There will be a significant positive relationship between casual grill covers and coin-in.
H3: There will be a significant positive relationship between steakhouse covers and coin-in.

Four models were used to compare the effects of dining on gaming among different customer worth segments. It might be expected that dining at an upscale restaurant (i.e., steakhouse) would be an indirect driver of slot volume for higher worth players, while dining at a casual restaurant or buffet would be an indirect driver of slot volume for low worth players. Players of intermediate worth levels might be impacted to an extent by casual and upscale dining. Therefore, differences were expected for the impact of restaurant type on slot volume for different worth segments. However, in the absence of prior segmented studies, specific predictions for each segment were not formulated.

H4: The pattern of significant predictors by restaurant type (buffet, casual grills, and steakhouse) will vary as a function of player worth segment.

Methodology

Data source

Data from a hotel casino were provided by the parent company, which wishes to remain anonymous. The casino is located in a Midwestern City that has a few casinos located in different parts of the city. The casino serves mostly local patrons and obtains over 90% of its gaming revenue from slot players. The property donated total daily slot gaming volumes generated by four different customer worth segments, classified according to their average daily worth to the casino. That is, daily worth was defined as the amount one would expect a player to lose per day on a visit to a casino based on historical play level and the average hold percentage of the segment selected. The slot gaming data covers a 182-day period from February 15, 2009 through August 15, 2009.

Model Design

Four models were built, one for each of the four worth levels, defined as the daily average dollar value in gaming revenue, or casino win, of a player (in other words, the player's daily value to the casino). Worth level is estimated by tracking players' gaming activity at the individual level via player tracking cards. The worth levels used for the current study's analysis were $400+, $100-$399, $0-$49, and untracked. The untracked category indicates the group of players that do not possess or use a slot player tracking card. The dependent variable was the daily *slot coin-in* (C.I.) defined as the amount of money wagered on gaming devices played by the players that fell into each of the four worth categories.

The key independent variables were the daily restaurant covers for three restaurants, the *steakhouse* (a higher end restaurant), the *buffet*, and the *grills*, which consisted of a quick service grill and a themed bar and grill. Data from the two grills were combined for analysis purposes after preliminary analyses revealed very similar results for both. In addition, control variables were included to incorporate the effect of factors that have been shown to be important in casino performance in prior gaming studies using a similar methodology (e.g., Lucas & Brewer, 2001; Lucas & Santos, 2003; Suh & Lucas, 2010; Tanford & Lucas, 2010). *Day of week* was coded using dummy variables, with 1 indicating the presence and 0 indicating the absence of each day. Monday was excluded and served as the reference point for all other days. *Holidays* included the Memorial Day and July 4 weekends, dummy-coded as 1 on the holiday and surrounding dates and 0 for all other dates. The *trend* variable was used to measure the effect of a linear trend across time, coded as 0 on the first date of the data and incremented by 1 for each subsequent date. Table 1 provides descriptive statistics for the primary dependent and independent variables.

Table 1
Descriptive Statistics for Study Variables

Variable	Mean	S.D.
Buffet Covers	1,173.56	356.789
Steakhouse Covers	135.70	59.938
Grill Covers	1,040.74	375.334
C.I., $400+ Players	$964,417.91	$596,949.925
C.I., $100-$399 Players	$2,024,199.58	$729,056.236
C.I., $0-$49 Players	$365,749.43	$107,461.975
C.I., Untracked (no player card)	$973,827.33	$316,868.467

C.I.: Coin-in

Analysis

Time series multiple regression analysis was conducted to test the effects of all model variables using Eviews version 6.0. The analysis allows the impact of the key variables (covers) to be tested while simultaneously considering the effects of the control variables. Autoregressive and moving average terms were included on an as-needed basis to test for and eliminate bias due to autocorrelation. After first including all variables in the model, control variables with non-significant t-values were eliminated to produce the final model. SPSS v. 18 was used to calculate Variance Inflation Factors (VIFs) in order to test for multicollinearity, as well as to produce descriptive statistics and correlations.

Results and Discussion

Table 2 presents the correlations between non-dichotomous study variables, while Tables 3-6 present the regression model results for each of the four worth segments. With the exception of restaurants, only significant predictors are shown. That is, the coefficients for all three restaurant categories were retained regardless of

significance, since they represent the primary test of the hypotheses. The two holiday periods included (Memorial Day and July 4) did not produce significant results in any of the models, and were therefore excluded.

Table 2
Correlations among Study Variables

	Buffet	Steakhouse	Grills	C.I. $400+	C.I. $100-$399	C.I. $0-$49	C.I. Untracked
Steakhouse Covers	0.46***	1.00					
Grill Covers	0.45***	0.85***	1.00				
C.I. $400+	0.40***	0.68***	0.71***	1.00			
C.I. $100-$399	0.55***	0.78***	0.89***	0.75***	1.00		
C.I. $0-$49	0.56***	0.77***	0.86***	0.58***	0.85***	1.00	
C.I. Untracked	0.44***	0.75***	0.84***	0.72***	0.84***	0.76***	1.00
Trend	-0.05	-0.24**	-0.13	0.13	-0.09	-0.33***	-0.07

**p< .001; ***p < .0001; C.I.: Coin-in

Looking first at the highest worth model ($400+), Table 3 shows that of the three dining types, only the coefficient for steakhouse covers was a significant predictor of slot coin-in. For every additional steakhouse cover, the casino generated $2,215.63 in incremental slot coin-in. Weekends (Friday-Sunday) were also significant predictors of slot volume.

Table 3
Regression Model to Predict Slot Coin-in for $400+ players

Variable	Coefficient	Std. Error	t-statistic	Prob.	VIF
Grill Covers	86.83	140.37	0.619	0.537	7.532
Buffet Covers	51.61	83.94	0.615	0.540	1.444
Steakhouse Covers	2,215.63	648.04	3.419	0.001	4.808
Fri	858,951. 10	84,563.84	10.157	0.000	3.064
Sat	709,340.80	120,402.70	5.891	0.000	4.338
Sun	353,492.40	74,178.03	4.765	0.000	1.558
Trend	2,566.71	645.91	3.974	0.000	1.232
AR (1)	0.70	0.077	9.066	0.000	
AR(2)	-0.23	0.083	-2.762	0.006	

R^2 = 0.798; Adjusted R^2 = 0.779

The model for intermediate worth players ($100-$399) shown in Table 4 indicates that dining covers in all 3 venues significantly predicted slot coin-in. The coefficients mean that each steakhouse cover represents an additional $1,891.97 in coin-in; each grill cover represents $763.43 and each buffet cover represents $255.65 in incremental coin-in. The fact that the indirect contribution appears to be in proportion to the cost of the meal could provide a compelling reason for supplying both high and low-end dining options. In addition to weekends, the results also indicated a significant increase in slot volume on Wednesdays for this segment.

Table 4
Regression Model to Predict Slot Coin-in for $100-$399 players

Variable	Coefficient	Std. Error	t-statistic	Prob.	VIF
Grill Covers	763.43	119.56	6.385	0.000	7.484
Buffet Covers	255.65	52.76	4.845	0.000	1.453
Steakhouse Covers	1,891.97	589.92	3.207	0.002	4.815
Wed	122,805.00	56,947.83	2.156	0.032	1.306
Fri	881,154.20	84,564.16	10.420	0.000	3.102
Sat	395,934.90	101,564.50	3.898	0.000	4.322
Sun	521,186.10	63,341.64	8.228	0.000	1.625
AR(2)	-0.19	0.076	-2.526	0.013	
Constant	399,083.30	89,573.96	4.455	0.000	

$R^2 = 0.906$; Adjusted $R^2 = 0.901$

The model for the low-end gamer ($0-$49) in Table 5 shows that the coefficients for the two casual grill restaurants and buffet were significant, but not the steakhouse. Each grill cover was associated with a $161.11 increase in coin-in, and each buffet cover was associated with an $84.09 increase. The coefficients for Saturday and Sunday, but not Friday, were significant for the low-end segment.

Table 5
Regression Model to Predict Slot Coin-in for $0-$49 players

Variable	Coefficient	Std. Error	t-statistic	Prob.	VIF
Grill Covers	161.11	18.392	7.329	0.000	5.011
Buffet Covers	84.09	11.54	7.287	0.000	1.414
Steakhouse Covers	110.84	106.54	1.040	0.300	4.784
Sat	43,250.52	10,907.22	3.965	0.000	2.014
Sun	50,896.26	9289.87	5.479	0.000	1.294
Trend	-479.68	100.32	-4.782	0.000	1.141
AR(1)	0.28	0.07	3.839	0.000	
MA (10)	0.29	0.08	3.871	0.000	
Constant	114,026.80	15,558.17	7.329	0.000	

$R^2 = 0.868$; Adjusted $R^2 = 0.862$

Finally, the results from the untracked player group are examined in Table 6. Untracked players are those who do not have a player card or are not using their card when they play. For this segment, only the grill covers were significantly related to coin-in, with each additional cover associated with a $375.48 increase. When interpreting this result, the meaning of the grill variable must be considered as the grills variable had the highest VIF values in the model, indicating potential multicollinearity. Further examination of the data indicated that the grills variable was more strongly associated with weekends, and particularly Saturdays, which were the other two significant variables in the untracked model. It could be that the grills are simply an indicator of casino occupancy rather than an independent driver of gaming activity.

Table 6.
Regression Model to Predict Slot Coin-in for Untracked Players (no player card group)

Variable	Coefficient	Std. Error	t-statistic	Prob.	VIF
Grill Covers	375.48	66.70	5.629	0.000	5.148
Buffet Covers	42.55	43.87	0.970	0.333	1.433
Steakhouse Covers	314.74	373.85	0.842	0.401	3.873
Fri	324,275.30	43,089.05	7.526	0.000	2.337
Sat	187,174.60	54,191.74	3.454	0.001	3.144
AR(1)	0.16	0.074	2.214	0.028	
AR(2)	0.292	0.074	3.932	0.000	
Constant	418,907.60	59,598.86	7.029	0.000	

R^2 = 0.793; Adjusted R^2 = 0.784

In all models presented herein, it is necessary to interpret the results with caution considering the VIF values of several study variables. VIF statistics were computed for each model in order to test for multicollinearity. Although guidelines for acceptable levels differ, some sources indicate that a value of 10 should be used as the maximum (Kutner, 2004), in which case all of the values used in these models would be considered acceptable.

Implications

The results supported all four research hypotheses. First, restaurant covers were significant predictors of slot coin-in, supporting Hypotheses 1-3, but each restaurant type predicted coin-in for only a subset of customer worth groups, supporting Hypothesis 4. The pattern of segment results is readily interpretable, and can be summarized as follows:

- High worth gamers are influenced by upscale dining
- Middle worth gamers are influenced by dining of all types
- Low worth gamers are influenced by low-end dining (buffet-casual)
- Untracked players are influenced by neither upscale nor low-end dining; rather, they tend to eat at casual restaurants while visiting the casino

Of course, there could be multiple explanations for these results. One of the most likely is that gaming customers are utilizing the comps and/or points that they have received. Since high worth players have more points, they can use them at higher end restaurants. Additionally, given their high gaming worth, the subject casino might have mainly offered steakhouse offers to them. Instead, low worth gamers may primarily receive free buffet offers, and this drives their visitation and gaming. The $100-$399 category includes a range of worth levels that may correspond to one behavior or the other, and/or may receive offers for a wider variety of dining options. Future research examining the impact of meals that are comped or paid for by each player segment could tease out this relationship.

When analyzing the managerial implications of the findings, the casino win percentages and operating margins must be considered to determine the profitability of dining operations. Although we did not have access to operating statistics, we did have average slot hold percentages that could be used to evaluate casino win. Table 7 summarizes those results for all dining and player worth segments.

Table 7
Indirect Casino Revenue by Dining and Worth Segment

	Grills	Buffet	Steakhouse	Total
$400+ daily worth				
Coefficient	not sig.	not sig.	2,215.63	
Hold %			8.35%	
Win per Cover			$184.96	
Avg. daily covers			135.7	
Days in study period			182	
Total win			$4,568,051	$4,568,051
$100-$300 daily worth				
Coefficient	763.43	255.65	1,891.97	
Hold %	8.35%	8.35%	8.35%	
Win per Cover	$63.73	$21.34	$157.94	
Avg. daily covers	1,040.74	1,173.56	135.70	
Days in study period	182	182	182	
Total win	$12,071,613	$4,558,321	$3,900,748	$20,530,682
$0-$49 daily worth				
Coefficient	161.11	82.20	not sig.	
Hold %	8.35%	8.35%		
Win per Cover	$13.48	$6.86		
Avg. daily covers	1,040.74	1,173.56		
Days in study period	182	182		
Total win	$2,553,355	$1,466,003		$4,019,358
Untracked				
Coefficient	375.48	not sig.	not sig.	
Hold %	8.35%			
Win per Cover	$31.35			
Avg. daily covers	1,040.74			
Days in study period	182			
Total win	$5,938,639			$5,938,639

To illustrate, we will use the steakhouse calculations for the $400+ segment. The regression coefficient indicates that a one-unit increase in steakhouse covers yields $2,215.63 in slot coin-in. The average slot hold percentage for the time period analyzed was 8.35%. Multiplying 8.35% times the coefficient yields an average of $184.95 in gaming win per cover. The steakhouse averaged 135.7 covers per day. Multiplying this by the win per cover yields $25,099 win per day (not shown), which, when multiplied by the 182 days in the sample period produces $4,568,051 in gaming revenue.

Comparing the different worth segments, it is clear that the greatest contribution of dining to gaming comes from the mid-worth ($100-$399) player, who is impacted by all dining types. Although the high end players

generate the most win per cover, they are only influenced by steakhouse dining, which has relatively low business volume. Low worth players, on the other hand, generate only $13.48 and $6.86 per cover from the grills and buffet respectively. After taking into account the cost of operations, this business may not be profitable.

The findings have implications for marketers who use dining offers as incentives for players to visit and gamble at the casinos. These offers may be particularly effective for a player who is prepared to lose between $100 and $400 per day. This category of gambler can be highly profitable to the casino, and may appreciate upscale amenities and services. Offering a high end dining experience to mid-level players could be an effective way to increase their gaming expenditures, as the coefficient for the steakhouse variable was several magnitudes higher than the other dining variables. The findings further suggest that even low-end dining comps may not be profitable for low worth players, as their coefficients were significant but small. Offering 2 for 1 buffets or opportunities to "earn" a buffet by acquiring a certain amount of points may be a better approach. For high worth players, buffet/casual dining experiences may be taken for granted, and not provide an incentive for gaming. Other upscale offers such as VIP treatment and room upgrades are likely to be more appealing to this segment, which values high end experiences such as steakhouse dining. Finally, the findings suggest that a steakhouse could be a good investment for the operators at the subject casino. Its indirect gaming value per cover was substantially larger than other dining venues, which could justify the higher cost associated with operating such an establishment.

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