Is Bigness Better in Casino Gaming? Evidence from the Atlantic City Market

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Abstract

A simple regression model is developed to test the relationship between casino floor space as an indicator for bigness and selected financial indicators. Based on data from the Atlantic City market the analysis suggests that scale economies can be experienced by bigger casinos when the total costs of the casino/hotel operation per square foot of gaming space are considered. In contrast, the regression evidence does not point to an advantage of bigness with regard to performance indicators of the casino department itself and, again, based on a per-square-foot analysis. Furthermore, it is shown that there exists a systematic tendency for complimentaries to lead to higher gaming revenues.

There was only one mega-casino in 1984 vis-à-vis eleven in 1994.

A casino executive recently said that his casino has to show revenues of $695,000 per day just to break even (personal interview with the president of an Atlantic City casino, June 12, 1995). This translates into an annual gaming revenue of $250 million in order to cover the costs of operating the property. A tall order and an indication that — contrary to common belief — a casino license is not exactly a license to print money. On the contrary, the pressure to generate the needed revenues in order to maintain a state-of-the-art casino/hotel resort and to experience sustained growth of such revenues is tremendous. Is size a key to success?

During the past ten years or so, a clear tendency towards the development of larger casinos has been observed. At the upper end of the scale, mega-casinos emerged with thousands of guest rooms, grand entertainment and leisure facilities, and casino floor spaces in excess of 100,000 square feet to accommodate upwards of 3,000 gaming machines and more than 100 gaming tables. This represents a truly gigantic potential to generate gaming revenues. However, one may wonder whether and to what extent large casinos are more efficient than smaller ones. In the production of goods, scale economies, which may be experienced at

Author's note:
I am indebted to James Sawler for his work on the regression analysis and the diagrams. Any remaining errors are mine.

greater plant sizes, can serve as a criterion of efficient production. Although this model cannot be directly related to the service economy in general, or to the world of a casino in particular, one may regard the relationships between gaming floor space in terms of casino square footage on the one hand and total costs and casino department revenue (gaming revenue), expenses, and income on the other hand as indicators to trace evidence of efficiency. In fact, financial analysts consider earnings per square foot of gaming space as one of the best indicators of how well a casino is being operated (*Casino Chronicle*, 1994b).

The present paper will employ a simple regression model to test the impact of casino square footage on the aforementioned financial variables. Furthermore, the relationship between promotional costs (complimentaries) and gaming revenue will be tested in order to find out whether higher expenditures on complimentaries do, in fact, lead to higher gaming revenues.

Casino Floor Space: The Evidence

In response to the rapidly growing acceptance of gaming as a legitimate and welcome source of entertainment, casino operators have increased the casino floor space in order to be able to provide more gaming devices. Consequently, the size of the average casino floor space rose by 37% in Nevada and by 49% in Atlantic City during the past ten years (Nevada State Gaming Control Board, 1985 and 1995; New Jersey Casino Control Commission, 1985 and 1995). This growth, albeit remarkable, nevertheless appears rather modest in comparison to the dramatic rise of gaming revenues of 119% and 86%, respectively (Nevada State

Table 1. The Ten Largest Casinos in the U.S. by Casino Floor Space, 1984 and 1994

1984		1994	
Casino	**Square Footage**	**Casino**	**Square Footage**
1. Bally's Reno	100,000	1. Foxwoods Casino, Ledyard	193,133
2. Harrah's Lake Tahoe	70,265	2. MGM Grand, Las Vegas	171,500
3. Harrah's Reno	61,994	3. Excalibur, Las Vegas	123,944
4. John Ascuaga's Nugget, Sparks	60,931	4. Taj Mahal, Atlantic City	120,000
5. Circus Circus, Las Vegas	60,452	5. Caesars Palace, Las Vegas	118,000
6. Bally's Las Vegas	60,000	6. Circus Circus, Las Vegas	110,979
6. Trump Plaza, Atlantic City	60,000	7. Las Vegas Hilton	105,500
8. Caesars Palace, Atlantic City	59,999	8. Riviera, Las Vegas	102,300
9. Resorts, Atlantic City	59,857	9. Reno Hilton	100,000
10. Bally's Park Place, Atlantic City	59,439	9. Luxor, Las Vegas	100,000
		9. Grand Casino Biloxi	100,000

Sources: State of Nevada Gaming Control Board, *Listing of Financial Statements Square Footage -Statewide*, 1984 and 1994 Data (Mimeo); New Jersey Casino Control Commission, ***Annual Reports***, 1984 and 1994; Ernst & Young LLP, *Compilation of Gaming Data*, Sep. 30, 1994; Communication from the Foxwoods Casino, May 6, 1995.

Gaming Control Board, 1984 and 1994; New Jersey Casino Control Commission, 1985 and 1995). However, a better perspective evolves when the growth of the *largest* casinos is examined.

Table 1 presents a synoptic overview of the largest casinos in 1984 and 1994. There was only one mega-casino in 1984 vis-à-vis eleven in 1994 when this term is reserved for casinos with a casino floor space of 100,000 square feet and over. Furthermore, ten years ago, the top four casinos were in Northern Nevada and *not* in Las Vegas or Atlantic City. Las Vegas was represented with only two casinos among the top ten. In 1994, seven of the top ten casinos were in Las Vegas, a reflection of the rapid growth of America's premier gaming market. The disproportionate growth of the largest casinos in Las Vegas vs. Atlantic City can be seen in Table 2: taking the national average as a benchmark, growth in Las Vegas was almost twice as high. In contrast, the growth in Atlantic City was only 40% of the national average.

Table 2. Average Casino Floor Space (Square Footage) of the Ten Largest Casinos, by Selected Locations, 1984 and 1994

Location \ Year	1984	1994	Change %
Nationwide	65,294	119,186	83
Nevada	63,980	111,882	75
Las Vegas Strip	45,365	108,667	140
Atlantic City	51,010	74,148	45

Sources: See Table 1.

Riverboat gaming started in 1991 in Iowa. All riverboat-gaming jurisdictions but one require riverboat casinos to make cruises of 2-3 hours duration. As a result, riverboat casinos do not make it into the league of mega-casinos. One jurisdiction provides a notable exception: in Mississippi, casinos must be on the water, but they do not have to make cruises. This has led to the establishment of dockside casinos where massive barges support the casino; the casino itself is linked to extensive buildings on land with a hotel, restaurants, and shops. This hybrid

Table 3. Average Casino Floor Space of the Largest Riverboats, 1994[a]

Mississippi (10)[b]	65,322
Illinois (9)	21,671
Louisiana (9)	25,544
Iowa (4)	12,250
Missouri (5)	29,644

[a]The number of largest riverboats is in parentheses, and it coincides with the number of all riverboats in all states except for Mississippi.
[b]The average casino floor space of all 33 casinos was 34,450 square feet.
Source: Ernst & Young LLP, *Compilation of Gaming Data*, Sep. 30, 1994.

between land-based and riverboat casinos makes for large casinos vis-à-vis other riverboat jurisdictions, as can be seen in Table 3. Although the average size of the top ten in Mississippi is far below its Nevada counterparts, it is only 12% less than the average of the top ten in Atlantic City.

This leaves Indian casinos. Indian gaming is not only mushrooming in terms of numbers of casinos, but it is also large-scale gaming. In fact, the largest casino in the U.S. and in the world is the Foxwoods Casino in Connecticut, with 193,133 square feet of casino floor space–more than 21,000 square feet larger than the MGM Grand. The next largest are the Grand Casino Hinckley and the Grand Casino Mille Lacs in Minnesota with casino floor spaces of about 90,000 square feet each.

Efficiency in Casino Gaming: Model Assumptions

In microeconomic theory, the concept of efficiency is linked to the notion of scale economies. Empirical studies have shown that the average total costs tend to decline fairly rapidly at low output levels, and they tend to remain virtually unchanged at high output levels. This means that substantial cost savings can be experienced initially, but they appear to be exhausted at higher output levels. In casino gaming, it can be safely assumed that there exists a close concordance between casino floor space and the number of gaming devices. Consequently, scale economies in this scenario can be measured by relating the average total cost, i.e., the total costs of the casino/hotel operation per square foot of casino floor space, to casino square footage. Borrowing the concept from the goods producing economy, the hypothesis to be tested is that the average total cost will decline with increasing casino floor space. This would mean that larger casinos are more efficient than smaller ones, other things being equal.

Bigness provides the flexibility to meet peak demand when needed.

Unlike their European cousins, American casinos usually include hotel, restaurant, and leisure-time facilities on premises; in fact, the immediate availability of accommodation and eateries next to the casino is an integral part of the "one-stop" marketing strategy of American casinos (Marfels, 1995). In spite of the importance of the hotel, food, beverages, and entertainment departments, there can be little doubt that they serve as feeders to the nucleus of the entire operation, viz. the casino department. Thus, it may provide useful insight to analyze the efficiency of the casino department as a separate entity. Since casino floor space is the suggested "capacity measure," this analysis will help with decisions about whether or not to enlarge this capacity in order to increase earnings and profitability.

The impact of casino floor space on casino department revenues, expenses, and income will be tested with the help of regression analysis. As was mentioned earlier, casino department revenue is the difference between gaming wins and losses; casino department expenses refer to the direct costs of operating the casino, and they include payroll and payroll related expenses, taxes, and licenses;

casino department income is the difference between casino department revenue and casino department expenses. If the premise of "bigness is better" holds true, then there should be a general tendency for (i) average casino department revenue, i.e. revenue per square foot of gaming floor space, to be higher in larger casinos, (ii) average casino department expenses to be lower, and (iii) casino department income to be higher.

The foregoing hypotheses will be tested with a simple regression model of the kind

$$Y = \beta_0 + \beta_1 (\ln X) + \mu$$

where Y is the dependent variable, X the independent variable (here: casino floor space), β_0 the Y-intercept of the regression line, and β_1 is the slope of the regression line; μ is a random term which reflects the influence of any other determinants of the dependent variable which have been omitted from the regression equation.

In order to preserve simplicity, the impact of casino size on the dependent variables will be tested individually in an "other things being equal" scenario. A synoptic overview of the variables used in the regression analyses is presented in Table 4.

Table 4. Variables Used in the Regression Analyses

-- Efficiency and Bigness	
S	Casino floor space (gaming space) in square feet -- Independent variable
TC_S	Total costs of casino/hotel operations per square foot of casino floor space (average total cost) -- Dependent variable
R_S	Casino department revenue per square foot of casino floor space (average revenue) -- Dependent variable
E_S	Casino department expenses per square foot of casino floor space (average expenses) -- Dependent variable
I_S	Casino department income per square foot of casino floor space (average income) -- Dependent variable
-- Complimentaries and Bigness	
C_S	Complimentaries per square foot of casino floor space -- Independent variable
R_S	Gaming revenues per square foot of casino floor space -- Dependent variable

Efficiency in Casino Gaming: The Data

The analysis of size and efficiency is only meaningful on an establishment basis. This requires financial data for individual casinos. Such information is only available in the New Jersey jurisdiction for the Atlantic City casino industry. As a

disclaimer it must be noted that the Atlantic City casino industry is not an ideal case to test the hypothesis of "bigness is better." First of all, the industry has an oligopolistic structure: there are only twelve casinos. More important, there are only large casinos (see Table 2). What is missing is the mix of casinos of all sizes as in the Nevada jurisdiction. Consequently, the present analysis must be regarded as a second-best approach only.

The analysis refers to the period from 1980 to 1993. Only full-year operations of the individual casinos were included. This is why the year 1980 was selected as the initial year since it was the first year of a full complement of three casinos. Financial data by casino were available in unusual detail because of the reporting requirement to the Casino Control Commission under the Casino Department Schedule (CCC 345) from 1983–1991. Data for casino square footage, total costs, and gaming revenues were available for 1980–1993, and data for casino department expenses and casino department income for 1983–1991. In order to eliminate price movements the financial data were deflated with the consumer price index (1982–1984=100).

Efficiency in Casino Gaming: The Regression Evidence

The results of the regression analysis are synoptically presented in Table 5. They are all significant at the 99% level with the exception of the casino department

Table 5. Regression Equation Results – Casino Size and Efficiency in the Atlantic City Gaming Industry, 1980–1993

Independent Variable: ln(S)

Dependent Variable	Number of Observations	Intercept $ß_0$	Coefficient $ß_1$	R^2	t	Level of Significance
TC_S	119	17499.33	-1303.52	0.243	-6.13	99%
		(530.326)	(212.737)			
R_S	114	17832.39	-1318.68	0.174	-4.86	99%
		(669.989)	(271.181)			
E_S	86	6692.75	-470.26	0.034	-1.72	95%
		(522.465)	(272.045)			
I_S	86	11260.95	-848.92	0.098	-3.02	99%
		(539.352)	(280.838)			

expenses relation, which is significant at the 95% level. The use of a simple regression model means that other potentially significant independent variables are omitted in an "other things being equal" scenario. This is why the coefficient of determination, R^2, is relatively low for the impact of S on TC_S, R_S, E_S, and I_S. In statistical analyses, low values of R^2 are usually associated with an inadequate explanatory power of the model. However, in the present context, the basic assumption is different. The important issue here is not the magnitude of the impact of casino square footage on the dependent variables; rather, the direction of the

change of the dependent variable upon a change in the independent variable is the salient point. This is where the model gains momentum and, indeed, offers some potentially powerful predictions. The important parameter is the slope of the regression line, $ß_1$. Because of the semi-logarithmic regression, this slope can be expressed as the ratio of the absolute change in Y and the relative change in X. A ready-to-use interpretation of $ß_1$ as the result of the regression equations is presented in Table 6.

Table 6. Interpretation of the Regression Results[a]

For every 1% increase in S, there is a **$1303.52** decrease in TC_S.
For every 1% increase in S, there is a **$1318.68** decrease in R_S.
For every 1% increase in S, there is a **$470.26** decrease in E_S.
For every 1% increase in S, there is a **$848.92** decrease in I_S.

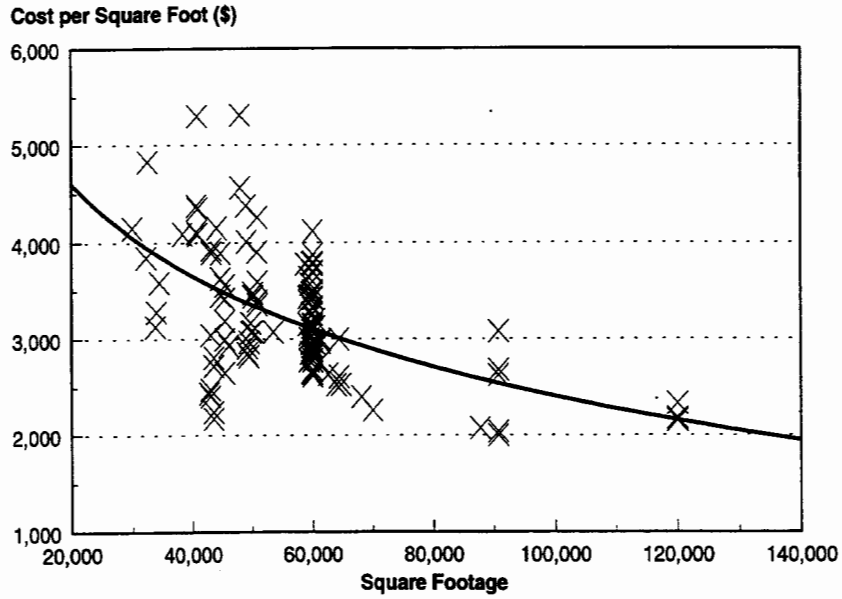
[a]All results are on an "other things being equal" basis.

The coefficient estimates in Table 5 were calculated using the transformed independent variable, ln(S). The fitted lines shown in Figures 1–4 were calculated using these same semi-log relationships. The curved lines result from the use of non-transformed scales for the independent variable, S.

According to Figure 1 a negative correlation between the average total costs

Figure 1

Scale Economies in the Atlantic City Gaming Industry, by Casino Floor Space and Deflated Total Costs of Casino-Hotel Operations (1982-84=100), 1980-1993

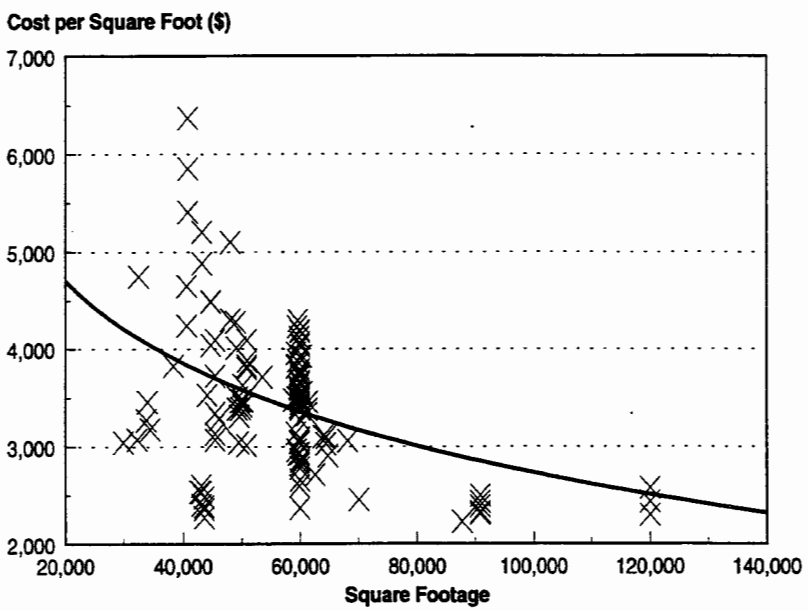


Sources: Annual Reports of the NewJersey Casino Control Commission; Statements of Income of Casino Hotels; Casino Chronicle.

entire casino/hotel operation (ATC) and casino floor space can be noticed from the pronounced decline of the regression line. There is also a cluster effect of the observations in the 40,000 to 60,000 square feet range which reflects the character of the Atlantic City casino industry as an industry with large casinos only. Based on Atlantic City data, regression analysis would predict, for example, a 40,000 square feet casino to experience ATC of approximately $3,700; for an 80,000 square feet casino this number would decline to approximately $2,800. The decline of ATC of $900 is an indicator of scale economies or cost savings which can be experienced with a bigger casino operation. In a more general context, it can be stated that the evidence from the Atlantic City market indicates cost savings of $1,303.52 per square foot of casino floor space when the casino floor space is increased by 1% (see Table 6). Thus, it would appear that bigger casinos have an edge when it comes to scale economies. However, an analysis of revenues, expenses, and income of the casino department itself in Figures 2–4 appears to portray a different scenario. To begin with, Figure 2 shows a fairly sharp decline of the regression line which means that average gaming revenue diminishes with increasing casino floor space. Furthermore, it would appear that the lagging revenue performance of bigger casinos based on a square-foot analysis is not compensated by cost savings since the regression line of average casino department expenses and casino floor space runs basically flat and, thus, reflects only marginal correlation (Figure 3). As a disclaimer, it must also be noted that the wide scatter of observations in Figure 3 puts limitations on the predictive value of the regression in this case.

Figure 2

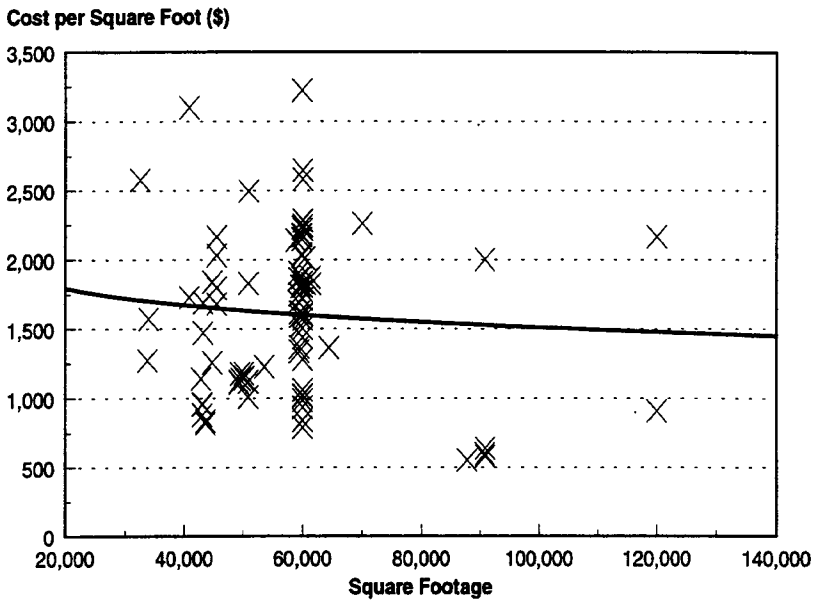
The Relationship Between Casino Floor Space and Deflated Casino Department Revenue (1982-84=100), 1980-1993



Sources: Annual Reports and Casino Department Schedules of the New Jersey Casino Control Commission.

Figure 3

Scale Economies in the Atlantic City Gaming Industry, by Casino Floor Space and Deflated Casino Department Expenses (1982-84=100), 1983-1991

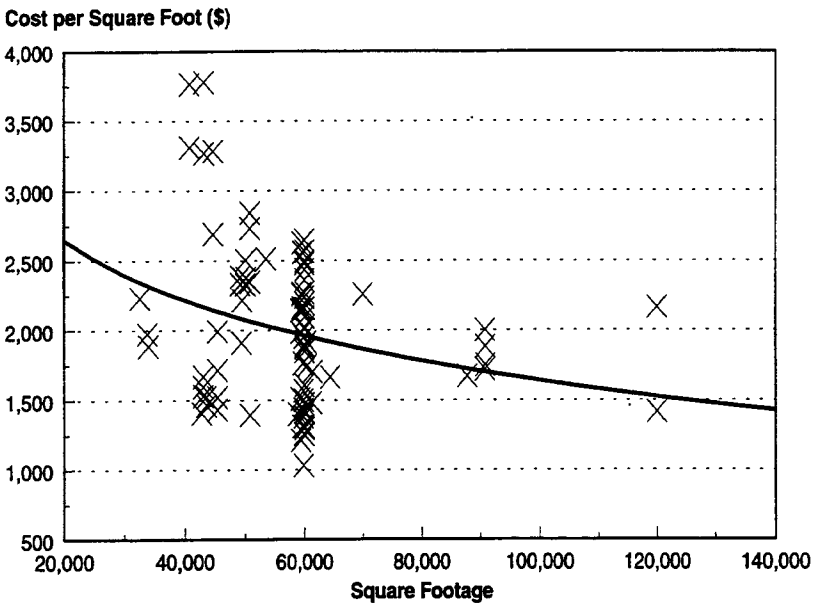


Sources: Annual Reports and Casino Department Schedules of the New Jersey Casino Control Commission.

Finally, average casino department income diminishes rapidly at larger casino floor spaces as can be seen from Figure 4. As a note of caution, it must be kept in mind that the shape and form of the regression line may be affected by extreme values or outliers. However, this influence can only occur whenever outliers above the curve are not counterbalanced by the ones below the curve, and vice versa. A glance at Figures 1 through 4 indicates that the observations at the upper end of the distribution are in perfect concordance with the regression line (Figures 1 & 2) or still lie within the standard-deviation band around the regression line (Figures 3 & 4). Typical outliers appear at the lower end of the distribution, viz. two such outliers in Figure 1, three in Figure 2, and five in Figure 4. Because of their small number vis-à-vis the number of observations those outliers will most likely have no material influence on the respective regression lines.

Figure 4

The Relationship Between Casino Floor Space and Deflated Casino Department Income (1982-84=100), 1983-1991



Sources: Annual Reports and Casino Department Schedules of the New Jersey Casino Control Commission.

An overall evaluation of the evidence from the regression analysis leads to the conclusion that the Atlantic City industry does not lend support to the notion that bigness is better in casino gaming when casino floor space is used as a benchmark for bigness. However, it must be noted that a per-square-foot analysis is only one aspect of measuring and evaluating the performance of casinos, albeit a very important one. Additionally, casino gaming is a service industry, and it shares with other service industries, such as airlines, electric power, and telecommunications, the common phenomenon that its "product" can only be provided for the customer on demand; it cannot be manufactured and stored until purchased. This is why most service industries maintain excess capacities most of the time in order to be able to meet and satisfy peak demand (Shepherd, 1990, pp. 491–500). To be sure, casino gaming does *not* face the regulatory requirement to meet peak demand at all times like electric power and telecommunications and it is *not* a capital-intensive industry like many other regulated industries. However, casino gaming *is* exposed to the same volatility of demand (Shepherd, 1990, pp. 500–501; Morrison, 1993). The highly competitive Atlantic City gaming market, where the monthly gaming-revenue potential is predicted by the number of weekend gaming days, is a prime example for this scenario. Bigness provides the flexibility to meet peak demand when needed, and the capacity to accommodate weekend crowds and the benefit from their higher level of play may very well overcompensate idle

capacities from the slow motion on weekdays. The likelihood to benefit from this weekday/weekend scenario is much greater for a 120,000 square feet casino than for a 55,000 square feet casino.

Complimentaries and Bigness

Casino floor space and the number of gaming devices refer to the capacity of a casino to generate gaming revenues. This is only one side of the coin. The other side refers to strategic measures to attract gaming patrons. Chief among those measures are promotional allowances and promotional expenses, better known as complimentaries, which are a unique feature of the gaming industry. In fact, there is no other industry in the goods producing or service economies which has developed this instrument to the degree of perfection as a marketing tool as the gaming industry (Marfels, 1995). If there is a systematic tendency for complimentaries to lead to higher gaming revenues this would present a strong case for bigness in gaming because only large casino operations have the financial resources to provide those generous "freebies" to gaming patrons.

The slope of the curve indicates that a $1.00 increase in complimentaries leads to a $2.59 increase in gaming revenues.

Promotional allowances include the provision of on-premise accommodation, food, beverages, and show tickets free of charge to qualifying patrons. Such qualification is based on level of play and play frequency at gaming machines and tables in the casino as recorded on the magnetic stripe of a membership card of the casino's players club. Promotional expenses refer to direct cash payments to qualifying players for coupon redemptions and payments on their behalf for off-premise services like travel to and from the casino.

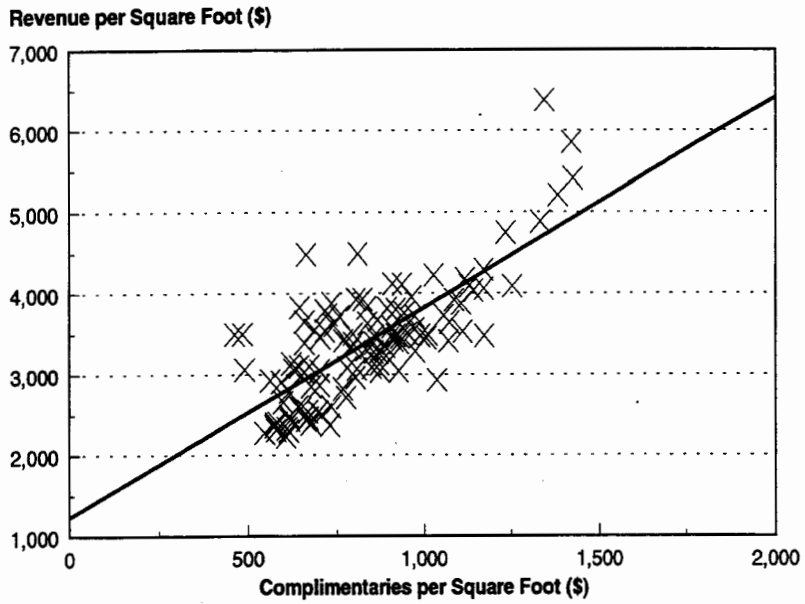
Data on complimentaries by casino were available for the Atlantic City casino industry for the period from 1983 to 1993. In order to eliminate price changes the data were deflated with the consumer price index (1982–1984=100). In order to test the hypothesis that higher expenditures on complimentaries do, in fact, lead to higher gaming revenues the following simple regression equation was employed:

$$R_S = \beta_0 + \beta_1 C_S + \mu$$

where R_S and C_S represent gaming revenues per square foot and complimentaries per square foot of casino floor space, respectively. In Figure 5, a pronounced positive relationship between R_S and C_S can be observed. This is confirmed by the regression results in Table 7.

Figure 5

The Relationship Between Deflated Casino Department Revenue per Square Foot of Casino Floor Space and Deflated Complimentaries per Square Foot of Casino Floor Space in the Atlantic City Gaming Industry, 1983-1993



Sources: Annual Reports of the New Jersey Casino Control Commission; Statements of Income of Casino Hotels; Casino Chronicle.

Table 7. Regression Equation Results - The Impact of Complimentaries on Casino Department Revenues in the Atlantic City Gaming Industry, 1980–1993

Dependent Variable: R_S

Independent Variable	Number of Observations	Intercept $ß_0$	Coefficient $ß_1$	R^2	t	Level of Significance
C_S	114	1235.905 (486.037)	2.5871 (0.2142)	0.565	12.07	99%

Interpretation of the Regression Results:
For every $1 increase in C_S, there is a $2.59 increase in R_S.

The coefficient of determination of 56% means that more than one-half of the total variation of gaming revenues is explained by the regression model–a

powerful explanation, indeed. The slope of the curve indicates that a $1.00 increase in complimentaries leads to a $2.59 increase in gaming revenues (see Table 7).

The foregoing analysis assumed a causality in the sense of complimentaries having an impact on gaming revenues. Could causality run in the opposite direction or even in both directions? The high positive correlation between complimentaries and gaming revenue does not indicate the direction of causality. However, it would appear that the "inner mechanism" of the Atlantic City market definitely points to complimentaries assuming the role of an action parameter to stimulate demand and, thus, gaming revenues. In a fiercely competitive market where growth of market share is measured to the second decimal and published in the Atlantic City Action Newsletter month after month, complimentaries are literally elevated to a make-or-break position. It would appear much more likely that funds for complimentaries will be increased in periods of slow growth or no growth. In contrast, when a period of sustained growth has been reached it is unlikely that complimentaries will be increased; rather, economic reasoning would suggest that funding for complimentaries remains unchanged. Consequently, the dynamics of the gaming market reveal that there is no inherent tendency or necessity for higher gaming revenues to lead to higher complimentaries.

Bigness may even provide benefits which go beyond the realm of gaming and into other forms of entertainment and recreation, a phenomenon which is generally referred to as economies of scope.

As a footnote, a Granger test was applied to measure the lagged response in either direction. However, the results were inconclusive. Most likely, this was caused by the length of the time periods between data points; availability of data on a monthly basis rather than an annual basis may have provided a different outcome.

To be sure, this is an "other things being equal" scenario. There are numerous other factors which influence gaming revenues, such as the hold percentages of the casino, location of the casino, marketing expenses, and the presence or absence of competition, just to name a few. Apart from the fact that some of these factors would be hard to quantify, it would be equally hard to imagine that any one of them will have the same strong impact as complimentaries. Furthermore, there can be no doubt that large-scale casino operations will have an edge here because of their greater financial resources. The operation of a players club alone requires substantial funds. When the costs of providing complimentaries are added up, magnitudes of tens of millions of dollars are reached. In 1993, Atlantic City casinos spent an average $66 million on promotional costs to attract and keep gaming patrons, and this average reached a new peak of $69 million in 1994 (*Casino Chronicle*, 1994a and 1995). All of this tilts the balance in favour of bigness in gaming, a finding which was first stated by William Eadington (1984, p. 26).

Outlook

U.S. gaming corporations have taken notice that bigness appears to be the best insurance in order to stay ahead in this competitive industry. Particularly in the traditional land-based markets, gaming corporations have increased casino floor space, have added hotel rooms, and they have built new properties. Beyond such internal growth, mergers and acquisitions have re-emerged as a favorite route of expansion after the heyday of the mid-1980s, when more than $2 billion of casino assets changed hands (Marfels, 1995). Recently, this menu of growth strategies has been enriched by partnerships and strategic alliances among gaming corporations in order to develop new casino venues according to the motto "Together, we are stronger." New York - New York (MGM Grand - Primadonna) and Project Victoria (Circus Circus - Mirage Resorts) are examples of recent casino development projects of enormous dimensions, where the partners apparently felt that joint risk-taking is only a 50% risk.

Against this backdrop, the aforementioned analysis can be regarded only as a first step in an ongoing study of casino bigness and efficiency. It must be remembered that scale economies refer to cost savings at higher outputs at the plant or establishment level. The next step is the analysis of added cost savings, if any, of multi-plant operations at the company level including all establishments under common control. Finally, inter-corporate relationships must be taken into account as the third step in order to assess the benefits of joint ventures between gaming corporations. In spite of the absence of data for individual casino operations outside the New Jersey jurisdiction, the evidence on the expansion of existing casino operations and the large scale of new operations indicates that the industry believes that, in fact, bigness is better.

Bigness may even provide benefits which go beyond the realm of gaming and into other forms of entertainment and recreation, a phenomenon which is generally referred to as economies of scope. As an integral part of their 'one-stop' marketing strategy, American casinos provide a breathtaking array of eateries, lounges, boutiques, and accommodation, convention, and recreational facilities and, yes, a casino; and all of this under one roof. Add to this impressive account theme parks and other sorts of family entertainment, and a casino operation becomes an entertainment 'mega-store.' Only large gaming corporations have the funds to do just that. As Robert Maxey, the former CEO of MGM Grand put it, competition is no longer casino to casino or riverboat to riverboat; rather competition for the gaming industry is video games, spectator sports, and other entertainment activities; all of this must be embraced if gaming wants to stay ahead (*Developing Scenarios*, 1995, p. 25).

Summary

In response to the growing reception and popularity of casino gaming as a welcome source of entertainment casino operators have increased casino floor space in order to be able to meet the demand for more gaming opportunities. Casino floor space can be regarded as a 'capacity measure' for an analysis of efficiency in casino gaming. This is in line with views of financial analysts who con-

sider earnings per square foot of gaming space as one of the best indicators of how well a casino is being operated. Consequently, a simple regression model was introduced which linked selected financial variables on a per-square-foot basis to casino floor space. Are large casinos more efficient than smaller ones? Based on data from the Atlantic City casino gaming industry the regression for total costs of the entire casino/hotel operation and casino floor space supported this notion and found cost savings to occur when casino floor space increased. In contrast, regression evidence did not point to an advantage of bigness with regard to revenues, expenses, and income of the casino department itself. A note of caution was offered in this respect by referring to the issue of meeting peak demand in service industries in general and in the casino gaming industry in particular. This is where bigness provides greater flexibility in the sense of accommodating weekend gaming activity, which, then, will most likely overcompensate slow activity during weekdays. The analysis was extended to complimentaries and their impact on gaming revenues. A strong positive relationship was observed from the regression line which would predict an overproportionate increase in gaming revenues in response to an increase in the spending on complimentaries.

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