MARKET REPORT

Using Concentric Ring Analysis to Approximate Future Gaming Win at Native American Casinos: The Role

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In this article, the author discusses a technique for estimating future gaming revenue.

In 2002, the National Indian Gaming Commission estimated that its 330 gaming facilities had gross revenues of roughly $14.5 billion, compared to the $9.4 billion won by Nevada casinos, as reported by the Nevada Gaming Control Board. As recreational gaming grows both in popularity and acceptance in the US, and tribal casinos continue to flourish on reservations throughout the nation, it is important to use a reliable method to arrive at an estimate of future gaming win at Native American facilities. Due to the lack of information made available to the public regarding historical marketwide win-per-unit-per-day (WPUPD), traditional methods of assessing gaming win at Native American casinos (namely competitive positioning and penetration analysis) are insufficient, if not ineffectual. As such, new means of projecting gaming win at tribal casinos located in markets where historical WPUPD data is either nonexistent or unattainable is of interest to cities, states, developers, lenders, consultants, analysts, and appraisers; it is imperative that they be developed and embraced by the entire gaming community. This article discusses a distance-based demand model termed concentric ring analysis that can be very helpful in projecting gaming win at tribal casinos. Traditional methods of estimating gaming win are inherently deficient when applied to Native American gaming facilities. Unlike traditional economic models of supply and demand, the consumer largely determines the price variable associated with gaming. Gaming is an intangible product: the consumer is purchasing the "experience" and "excitement" casino gaming offers. The price that the consumer is willing to pay for this experience is known as the "win," and is quantified on a per-unit basis known as WPUPD. Research indicates that WPUPD, or the price a market can bear for gaming activity, is highly correlated to the level of available gaming inventory. The actual WPUPD attained by a market provides an indication of the marketwide demand for gaming devices and table games. Competitive positioning and penetration analysis require that the subject casino be positioned relative to an established market, one that is markedly defined by a finite number of facilities and for which historical marketwide WPUPD data is well documented. In this case, the analyst would approximate the subject's capture of total market win, based on its positioning relative to other competitors that compose the market. The process of determining this amount is difficult because it is largely dependent upon the availability of historical marketwide WPUPD data. However, in some cases, historical marketwide WPUPD information does not exist, or cannot be obtained. For example, the proposed subject casino may, in and of itself, constitute the gaming market. This is regularly the quandary that developers and analysts confront when charged with the task of evaluating Native American casinos;

financial data from comparable facilities is often not available. Competitive positioning and penetration analysis simply cannot be employed. How, then, can a Native American gaming facility be evaluated? How can a casino's gaming win be estimated when there is no WPUPD information? The solution lies in the study of supply and demand within concentric rings. Mathematically speaking, concentric rings are two or more circles with a common center. This well-established geometric principle may be used to forecast gaming win. The four-step process is delineated below.

1. *Stratifying the market.* The adult population in a given market area is stratified based on distance(s) from a certain point, typically the location of the subject property.
2. *Determining marketwide gamer visits.* The propensity and frequency within each stratified demand area are then estimated. Propensity (the proportion of the adult population within a market that is likely to participate in gaming) and frequency (the average number of times individuals with a propensity to game within a market will actually do so) are often estimated together as a participation rate, which is multiplied by the population to determine the number of marketwide gamer visits from each demand area.
3. *Calculating potential visits to the subject.* The numbers pertaining to gamer visits to a market from each stratified demand area are multiplied by chosen capture rates (the percentage of gamers from each demand area the subject can expect to frequent their establishment) to arrive at the potential number of subject visits from each demand area.
4. *Projecting marketwide and subject gaming revenue.* The total number of gamer (market and subject) visits is then multiplied by the estimated average win per visit (the average price of the gaming experience) to determine gaming win.

Two distinct variables form the basis of this analysis: a) the number of people that visit (and gamble) at the subject, also known as those who "participate," and b) the amount of win generated for the subject by these individuals per visit. Concentric ring analysis addresses both of these variables by giving the analyst a solid understanding of how many individuals will participate at a casino (on an annualized basis) and how much these individuals will gamble (and lose) at this casino. To perform concentric ring analysis, bands of different radii are drawn around the address of the subject casino. The radii are measured in terms of distance from the subject. The number of rings and length of their radii is at the discretion of the analyst. These values are largely dependent upon the population density of the location in question. If the casino is located in Southern California, for example, many people live within a relatively short distance of a specific destination. In contrast, should the casino be situated in rural Montana, there may be very few individuals living within 50, 100, or even 200 miles of the subject. It should also be noted that the data presented by the rings must be both mutually exclusive and collectively exhaustive. This process is best illustrated with an example. In this example, the subject is an existing Native American casino located in Northern California. In defining the market, particular attention is paid to the pattern of highway transportation, terrain, population density, and competitive facilities. Based on research, discussions with casino management, and our knowledge of the area, the subject's demand may be expected to be generated by persons living within 200 miles of the subject casino; as such, this is our market. Information is requested from a demographic information service pertaining to the population (all ages) living within the areas encompassed by three concentric rings with radii of 50, 100, and 200 miles, respectively. Once the overall market is stratified by distance, the population of each ring is determined using demographic information. The rings and corresponding data are presented in the following tables. **Table 1 Concentric Rings**

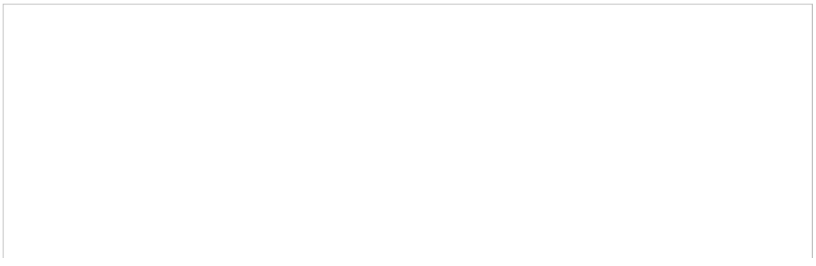

Table 2 Demographic Information

As shown, there is a substantial population base within 100 miles of the subject, and all three areas are expected to exhibit moderate, but steady population growth. In consideration of the age restriction on gaming activities, only the stratified adult population is of interest. We further assume that our first projection year begins on January 1, 2004; as such, we prefer to use population data relating to the end of 2003. Employing the historical population and the aforementioned projected growth rates, the year-end 2003 adult population may be extrapolated for each of the areas in question. The results are recorded in the table below. **Table 3 Year-End 2003 Projected Adult Population**

It is estimated that, by the end of 2003, roundly 500,000 adults will be living within 50 miles of the subject, 5.9 million within 100 miles, and 9.3 million within 200 miles. It should be remembered, however, that the data must be both mutually exclusive and collectively exhaustive. Consequently, data is rearranged as in Table 4, thus corresponding to the specific stratified demand area represented by each concentric ring. **Table 4 Redistributed Year-End 2003 Projected Population**

The above table shows that the majority of the area's adult population resides within 50 to 100 miles of the subject casino. As such, the Bay Area cities and towns located within this range are determined to constitute the primary feeder market for the subject, while those that fall within 50 and 100 to 200 miles of the subject are considered secondary or tertiary, but still significant, markets. These numbers will be utilized to project total gaming demand for the subject property, which will, in turn, be used to estimate future gaming win. Having established the relevant market, we then determine the degree of competition posed by other gaming facilities. Using various research tools, we conclude that there are six Native American facilities located within 50 miles of the subject casino, another seven within 100 miles, and another 10 within 200 miles, for a total of 24 Indian casinos (including the subject) competing for market share. It should be recognized that the Reno/Sparks, Carson, and South Lake Tahoe, Nevada gaming markets are also within 200 miles of the subject; the facilities located in these markets, while non-Native American, also compete to some degree with the subject (among several other California tribal casinos) for highly valued Bay Area business. It should also be noted that, occasionally, there are no comparable gaming facilities located within the distance(s) set forth by the selection of

concentric rings. In this case, the subject is the lone competitor and, thus, constitutes the entire market. In the case of our Northern California casino, however, the approximated marketwide supply of positions (gaming device and table game) may be used to arrive at an estimate of the subject's fair share. The seven Native American casinos within 50 miles of the subject represent 7,427 positions (gaming devices plus table games), the 14 Indian casinos within 100 miles represent 13,775 positions, and the 24 Native American facilities within 200 miles represent 19,893 positions. It is therefore determined that the subject's fair share of the 50-mile market, based on its pro-rata share of positions, is 22.8%, while its fair shares of the 100 and 200-mile markets are 12.3% and 8.5%, respectively. If the subject is the only competitor in the market, its fair share would, by definition, be 100%. Click Here for Table 5 - Calculation of Subject's Fair Share Once the subject's fair share of market demand has been established, the two aforementioned variables may be addressed. Reviewing, they are a) the total number of people (of legal age) that visit (and gamble) at the subject, also known as those who "participate", and b) the amount of win generated for the subject by these individuals per visit. The first variable is calculated using a market participation rate, which, as previously mentioned, takes into consideration both propensity and frequency. The second variable is simply the average amount of win generated by a casino from each visitor, which is a function of distance, income levels, inflation, and specific facility characteristics, among other factors. A number of sources provide certain data so that we can approximate both variables for our subject. First, various gaming publications and research reports generated by investment houses and gaming jurisdictions may be useful. More importantly, firms dedicated to providing specialized gaming services maintain established databases containing this valuable information. Based on the particular characteristics of our market, the participation rate is expected to be 2.8 for the 0-50-mile region around the subject, 3.2 for the 50-100-mile region, and 3.0 for the 100-200-mile region, which translate into a marketwide participation rate of 3.1. Research indicates that, depending on the composition and maturity of the market, participation rates generally range from 2.0 to 6.0. In addition, the average win per visit is estimated to be $60 for the 0-50-mile region around the subject, $55 for the 50-100-mile region, and $57 for the 100-200-mile region. Again, studies indicate that, in mature gaming markets in the U.S., win per visit typically ranges from $45 to $60. There is strong evidence that an inverse relationship exists between the participation rate and the average win per visit. Our findings support this assertion. Based on these figures, we can combine our forecasts of population, participation, and average win per visit to estimate both marketwide and subject gaming win in 2004, as depicted in the following table. **Table 6 Estimates of Gaming Win in 2004**

By multiplying the market participation rate by the adult population of each stratified demand area, the number of potential visits to the market by individuals residing in each region can be calculated. The market can be expected to receive nearly 28.8 million visits in 2004. Based on the subject's capture rate for each region, which is a function of the subject's fair share of a market (established earlier), coupled with its expected penetration of that market, our analysis shows that the subject will receive approximately 2.4 million visits, or 8.5% of all visits to the market area. The subject's capture rate considers, among other things, its location, amenities, and quality. By multiplying the estimated win per visit by the potential number of subject visits for each region, the subject gaming revenue for each region is determined. The subject win is expected to be roundly $137.5 million in 2004, which translates into a win per visit of $56.22. To determine WPUPD, total gaming revenue amongst gaming devices and table games is divided by the number of available units of each. In this case, about 92% of total revenue (roundly $126.5 million) is generated by gaming devices, while the remaining 8% (roundly $11.0 million) is generated by table games. With 1,600 devices and 16 tables, these figures translate into WPUPD numbers of $217 and $1,884, respectively. Once WPUPD for the first projection year has been established, future years' gaming revenue for the subject casino may be calculated based on anticipated rates of growth or decline in WPUPD for both gaming devices and table games. Concentric ring analysis, like other approximation tools, is not without its

drawbacks. Due to the paucity of historical information pertaining to markets containing Native American gaming facilities, much of the data utilized is either estimated or extrapolated and is largely dependent upon the experience and opinion of the analyst, thereby introducing an element of subjectivity into the analysis. Nevertheless, in the in the absence of historical marketwide WPUPD data, concentric ring analysis is recommended as a systematic and logical means of estimating future gaming win at tribal casinos. Results should still be validated by, for example, a WPUPD analysis in which the projected WPUPD statistics for the subject are compared to the subject's historical figures (if an existing facility) or those for comparable Native American gaming operations, or even certain markets, if available. This article presents an introduction to the concepts of concentric ring analysis. It is hoped that interest in this methodology will lead to further efforts to improve the analytical process so that it may gain credibility as a useful tool in forecasting gaming revenue.