The Free-Play Tax Deduction Debate: How Academic Research Can Help

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Introduction

Free-play has become ubiquitous in casinos, with operators claiming its purpose ranges from extending play time (Gruetze, 2012), to lowering the house advantage on slot machines (Burns, 2010), to competing for market share (Murphy, 2016), to increasing customer loyalty (Armon, 2015), to growing net revenues (Armon, 2015; Belko, 2016; Burns, 2010; Gruetze, 2012), and more. As gaming proliferates across the globe, many operators have increased their reliance on free-play offers, to combat increased competition. For example, in one U.S. jurisdiction, it is not uncommon for an operator to redeem in excess of $50 million dollars of free-play per year (Belko, 2016). For others, free-play redemptions comprise 20% or more of a casino's total gaming revenues (Barker, 2015; Murphy, 2016).

This increased reliance on free-play has caused several U.S. jurisdictions to rethink the tax treatment of these incentives (Belko, 2016, Armon, 2015). Other tax authorities are interpreting existing and arguably vague regulations, with great consequence to gaming operators (Brunt, 2016). With many governments suffering revenue shortfalls, the free-play tax credit will likely remain a contentious issue.

In short, operators want to deduct the full face value of all free-play offers redeemed, but taxing authorities are questioning the assumptions that underlie the rationale for this tax treatment. The positions adopted by both sides are anchored in large part by claims, assumptions and questions related to the efficacy of free-play offers. In spite of this, we were unable to locate any references by either side to the academic research that has addressed this very issue, i.e., the efficacy of free-play offers. The primary aim of this work is to introduce the results of these research papers into the free-play tax treatment debate. Such results offer an alternative, objective and empirical means of evaluating key points that are central to both arguments. Going forward, the methodologies and results from these studies offer a means to spark new and meaningful discussions, reshape the free-play debate, and influence the formation of future tax policies.

This paper begins by describing the mechanics, evolution, critical issues and assumptions associated with free-play offers. Next, we address the basic structure of gross gaming revenue taxes, followed by a review of existing free-play tax policies, and the arguments for the different tax treatments associated with these offers. Finally, we demonstrate the extent to which each argument is supported by the empirical academic research, leading to recommendations for mutually beneficial policy revision.

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Free-play Offers

There are two types of free-play offers: discretionary (DFP) and earned (EFP). Both forms are essentially electronic currency which must be wagered before gamblers can claim any remaining/surviving credits from the face value of the original award (Fine, 2009; Lucas & Spilde, 2017). For example, a gambler redeeming an offer with a face value of $20 must place at least $20 dollars of wagers before she would be permitted to cash-out any surviving free-play credits from the original $20 award. That is, after placing $20 in wagers, she may have a credit balance ranging from zero to a potentially great sum. The upper limit of the surviving credit balance is defined in part by the top award of the game on which the offer is redeemed.

Background

In the mid-1990s, Las Vegas casinos catering to the local market initiated large-scale cash mail programs designed to create additional visits and increase spend-per-trip (Lucas & Kilby, 2008). These offers were a precursor to the modern free-play offers. Following the cash mail campaigns, many slot clubs offered members a popular benefit known as same-day cash back. This was a more immediate version of the same benefit. Both cash mail and same-day cash back were essentially partial refunds of the casino's theoretical win earned from each player. The former required a direct mail piece, whereas the latter utilized onsite redemption technology.

One common problem with both of these early rebate incentives was known as the walkout phenomenon. Lucas & Kilby (2008) described an observation study in which 45% of patrons redeeming cash mail coupons walked out of the subject casino without gambling. The mere fact that players could leave without gambling bothered many operators, which led to the development of technology that required the recipients of these play incentives to wager them at least once before cashing-out any surviving credits (Fine, 2009; Gruetze, 2012).

The disappointing results produced by early time series regression models designed to measure the impact of cash mail programs were likely explained away by the walkout phenomenon (Lucas & Kilby, 2008). Although the new free-play technology was touted as a cure for the walkout problem (Fine, 2009), questions remained regarding the original purposes of these incentives. Specifically, do they generate increased spend-per-trip, and if so, is it enough to cover the offer costs? Also, do they produce incremental gaming trips? In spite of the broad industry support for free-play, some gaming insiders question the unconditional efficacy of these offers (Fine, 2009; Gruetze, 2012; Lucas & Kilby, 2008; Murphy, 2016; Sortel, 2010).

Chief among these concerns is play time. For example, if operators are too generous with free-play awards and players have limits on the time allotted for gambling, it can take too long to lose the free-play credits. The issue here is that players do not access much of their own bankroll if any at all, because it takes too long to lose the free-play awards (Fine, 2009; Gruetze, 2012; Murphy, 2016; Sortel, 2010). What good is an extra trip, if it is only to redeem credits awarded by the casino? Additionally, how is spend-per-trip increased by wagers stemming primarily or solely from casino-issued credits? These are fair questions, given the severity of the recent uptick in free-play issues (Belko, 2016; Kollars & Otte, 2015; Murphy, 2016).

Recent campaigns have grown to unexpected levels (Belko, 2016; Kollars & Otte; 2015), creating an unanticipated yet pressing taxation issue. Further, some gaming regulations and revenue sharing agreements do not specifically, clearly or adequately address the tax treatment for free-play (Burns, 2010; Brunt, 2015), as it was not a critical issue at the time they were created.

Gross Gaming Revenue Taxes

There is no single definition for how gaming taxes are computed. There are differences across jurisdictions and computational variations/options within jurisdictions (Lucas & Kilby, 2012). For example, in Nevada, operators are permitted to pay monthly gaming taxes on either a cash basis or an accrual basis (Lucas & Kilby, 2012). These are essentially top-line or revenue taxes, similar to the basic notion of a sales tax. They are most often referred to as gross gaming revenue (GGR) taxes, or revenue sharing payments within the tribal gaming context. In general, casinos pay a GGR tax on the difference between (1) the dollar value of wagers won by the casino; and (2) the dollar-value of the payouts on wagers lost by the casino. Alternatively stated, the start position for GGR liability in most jurisdictions is the difference between the dollar-amount lost by losing players and the dollar-amount won by winning players. From this basic start position, items such as free-play redemptions are addressed. More specifically, in Nevada, for example, NRS 463.0161 provides the following base calculation for what is known as GGR:

> "Gross revenue" means the total of all:
>
> (a) Cash received as winnings;
>
> (b) Cash received in payment for credit extended by a licensee to a patron for purposes of gaming; and
>
> (c) Compensation received for conducting any game in which the licensee is not party to a wager, *less* the total of all cash paid out as losses to patrons, those amounts paid to fund periodic payments and any other items made deductible as losses by NRS 463.3715. For the purposes of this section, cash or the value of noncash prizes awarded to patrons in a contest or tournament are not losses, except that losses in a contest or tournament conducted in conjunction with an inter-casino linked system may be deducted to the extent of the compensation received for the right to participate in that contest or tournament.

In Nevada, gross gaming revenue does not include "Any portion of the face value of any chip, token or other representative of value won by a licensee from a patron for which the licensee can demonstrate that it or its affiliate has not received cash;" or "Cash provided by the licensee to a patron and subsequently won by the licensee, for which the licensee can demonstrate that it or its affiliate has not been reimbursed." (NRS.0161, Part 2, Subparts c & g). This language removes the face value of redeemed free-play offers from the monthly gross revenue calculation. Although beyond the scope of this paper, NRS.0161, Part 2 also excludes other items from the calculation of gross revenue.

Current Free-play Tax Policies

Policies and regulations related to the deductibility of free-play offers within the gaming tax and revenue sharing calculations are not consistent across jurisdictions. Some taxing authorities allow operators to reduce their taxable/sharable win by the face value of the free-play offer, while others limit or cap such deductions by a percentage of win or a flat dollar amount (Armon, 2015; Spectrum, 2014). Some do not allow any deductions for free-play (American Gaming Association, 2015), and others are considering new limitations (Belko, 2016; Armon, 2015). See Table 1 for an abridged schedule of free-play deductibility by U.S. jurisdiction.

Table 1

Sample of Free-play Tax Policies Among U.S. Jurisdictions: Commercial Casinos

Jurisdiction	Free-play Policy*
Delaware	Permitted to issue 20% of prior year's net terminal income on a tax free basis.
Florida	Value of free-play not treated as net win for slot machines.
Indiana	Value of free-play over $5 million at a single property is treated as revenue.
Louisiana	Free-play taxed as normal revenue.
Maine	Cash prizes, winnings or credits from promotional credits are considered gross slot machine income.
Maryland	20% of total VLT income from previous fiscal year may be used as tax free promotional play.
Massachusetts	Value of free-play not included in gross revenue calculations.
Michigan	Value of free-play treated as revenue.
Mississippi	Free-play only taxed if the promotional credits have a cash value.
Missouri	Value of free-play treated as revenue.
Nevada	Value of free-play not treated as revenue.
New Jersey	First $90 million of free-play taxed as gross revenue.
New Mexico	Value of the free-play treated as revenue (within racinos).
New York	Maximum of 15% of a facility's net win is excluded from revenue calculations.
Ohio	Free-play not treated as revenue.
Pennsylvania	Value of free-play not treated as revenue.
Rhode Island	10% of the previous year's Net Terminal Income plus $750,000 may be used as tax free promotional play.
West Virginia	Permitted tax free issues of between 2% and 3% of net revenue.

Note. Adapted from the American Gaming Association (2015)

* In some cases, free-play tax policies for tribal casinos vary from those applied to commercial casinos within the same jurisdiction.

Table 1 demonstrates stark differences in free-play tax polices even among jurisdictions that share a geo-political boundary. Such differences suggest (1) considerable uncertainty and difference of opinion regarding the incremental impact of free-play offers; and (2) a need for clarification of these effects. The next two sections of this review describe the rationale behind these considerably different policy positions.

Deductibility Arguments

Casino operators are the primary proponents of this argument, which rests on (1) the unfairness of disallowing free-play deductions; and (2) that free-play expands the tax base by generating incremental wagering activity (Belko, 2016; Burns, 2010; Murphy, 2016). The second of these two claims can be further unpacked in two parts. First, the tax base is expanded by increased spend-per-trip (Murphy, 2016). Second, the tax base is increased by creating incremental visits (Spectrum, 2014).

The phantom revenue concept underlies the argument for the unfairness of disallowing free-play deductions (Burns, 2010; Cantrell, n.d.). For example, let's assume a player (1) wagers $20 in free-play in a slot machine; (2) eventually loses all $20 to the game; and (3) the game receives no other wagers on that gaming day. Regardless of the precise dollar amounts, the coin-in for this game would be $20 greater than the coin-out, resulting in a casino "win" of $20. The operators would claim that this $20 is phantom revenue. Specifically, if they were to include the face value of the free-play coupon in coin-in, they would be paying taxes on $20 of win that they never collected.

Expanding on the previous example, let's assume that $500 of wagers (i.e., coin-in) were generated in the course of losing the $20 of free-play. This means that all forms of payouts on this game would equal $480, creating a casino win of $20 (i.e., $500 - $480). Alternatively, if operators were permitted to reduce the coin-in by the dollar amount of its face value (i.e., $20), then the tax liability would reflect the operator's true gain. For example, $500 - $20 - $480 = $0, which reflects the true change in the operator's cash position. All of this is based on a popular assumption among operators, holding that free-play redeemers wager their free-play credits until their award balance is zero (Fine, 2009).

Others have argued "unfairness" by way of examples from other industries, citing the absence of coupons and loyalty club benefits from the sales tax base in grocery stores (Armon, 2015; Burns, 2010). Additional examples include nontaxable benefits from hotel, airline, and rental car loyalty clubs, such as earned room nights, tickets, and upgrades/rentals. In all of these cases, the face value of the redeemed benefits is not included in the calculation of taxable sales. Deductibility proponents argue that based on precedent established in other industries, free-play should be afforded the same treatment.

Next, we will describe the rationale for expanding the tax base. From Rüdisser, Flepp and Franck (2015), European casino operators described the rationale for awarding free-play in terms of what Thaler and Johnson (1990) dubbed the house money effect. In general, Thaler and Johnson found that investors who experienced windfall gains were less risk averse in subsequent transactions, vis-à-vis those who did not experience windfall gains. Similarly, the casino operators held that staking gamblers with free-play would lead to riskier wagering behavior, which would then carry over into subsequent betting activity, once the free-play credits were exhausted. Ultimately, it is assumed that the casino's win will be increased by the free-play redemption process. In this context, the operators are assuming that free-play redemption will increase the spend-per-trip by way of wagers placed with the player's own bankroll (Burns, 2010; Gruetze, 2012; Sortel, 2010).

Another argument for expanding the tax base via free-play is that the offers generate incremental gaming trips (Spectrum, 2014). Of course, more trips equal more win, assuming the win per trip remains at a level sufficient to cover the free-play offer costs. The idea here is that the free-play offers create loyal customers who then visit the casino more often.

Finally, there are concerns that policy restrictions related to the deductibility of free-play offers could diminish the ability of operators to compete across jurisdictional boundaries (Belko, 2016). For example, if Pennsylvania were to enact regulations that discouraged free-play offers, then operators in that state would suffer a competitive disadvantage against casinos in neighboring states with presumably less restrictive free-play regulations. This argument appeals to the common concern for citizens in the home state spending money in a neighboring state (Armon, 2015; Kollars & Otte, 2015; Murphy, 2016). The political and economic effects of such behavior are unappealing to most state governments.

No-Deductibility Arguments

The phantom revenue argument is countered by challenging the critical assumption that the player continues to place wagers until all free-play credits are lost. Alternatively, the players could elect to pocket the credits that survive the compulsory/minimum wagering requirement (Fine, 2009), becoming a costly free rider (Cigliano, 2000). For example, let's assume a player redeemed $20 in free-play credits on a slot machine with a 10% casino advantage. On average, the player would have $18 in credits after satisfying the one-time compulsory play requirement (i.e., $20 – ($20 x 10%) = $18). At this point, the player could cash-out the $18 and leave the casino.

If this occurs, and the operator is permitted to reduce the coin-in by the face value of the free-play award, the taxable win would be under-reported. For example, $20 coin-in - $20 free-play - $18 payouts = $18 loss. In this case, the wagering activity associated with free-play redemption would produce a loss of $18 for gaming tax purposes. Taxing authorities argue that such a loss is created by operators reclassifying *promotional expenses* as *contra-revenue* items. Further, legislators have noted that the taxpayers should not have to foot the bill for casino promotions (Armon, 2015).

This argument has been expanded to address the nature and origin of free-play credits. Specifically, these credits/awards do not meet the definition of a prize (i.e., payout) that is directly related to a wager. They are referred to by many in the industry as a reinvestment expense (Barker, 2015; Fine, 2009). For example, slot players are not winning discretionary free-play awards as they would a programmed payout resulting from a winning combination of symbols. Free-play rewards are a conscious post hoc investment in players (i.e., a marketing expense), as opposed to a payout associated with a wager. Because of this difference, they should not be deducted from overall coin-in, for the purposes of computing taxable gaming win.

Slot accounting systems cannot differentiate between payouts resulting from free-play wagers and cash wagers (Lucas & Spilde, 2017; Robison, 2014). These systems were simply not designed to do this, and the appropriate technological adjustments/accommodations do not appear likely, for reasons beyond the scope of this paper. Because of this technological limitation, all payouts are deducted in the gaming tax formula, regardless of the source of the payout (i.e., a free-play or a cash wager). Some gaming regulators contend that if the payouts associated with free-play wagers are to be included, then it is only fair that the wagers that produced these payouts are also included (Brunt, 2015). Failure to do so would result in artificially low gaming win. As regulators watch free-play redemptions soar in jurisdictions with operator-friendly policies, limiting the deductibility of these play incentives appears increasingly lucrative to state governments (Armon, 2015; Belko, 2016).

Next, we examine the other side of the deductibility argument related to the omission of promotional sales from the sales tax calculation. This argument is countered by highlighting a critical difference in the free-play transactions. Specifically, free-play redemptions can result in decreased gaming win (i.e., taxable revenue), whereas coupon or promotional awards in the grocery, hotel, airline and rental car industries cannot decrease revenue that has already been collected. That is, these transactions cannot lower the existing revenue level. After all, regulators have a responsibility to protect the tax base, and all free-play payouts are funded from that shared till.

In both Macao and New Jersey, when casino operators issue credit to players and those players lose any dollar amount of the advanced funds, a gaming tax liability is created, regardless of whether this loss is collected by the casino operator. Even when no money is collected, the gaming tax is still owed. Such policies were designed to encourage operators to be careful, responsible and diligent when issuing credit. And taxpayers do not bear any part of the burden of unsuccessful collection efforts.

While credit-collection and free-play tax policies are not precisely equivalent issues, some have made the general argument that policy encourages practice (Belko, 2016). If restrictive credit policies prevent capricious credit granting practices, then restrictive free-play policies may prevent excessive free-play issues. Without robust empirical evidence that free-play is expanding the gaming tax base, should taxing authorities be expected to take operators at their word? After all, several academic studies have described failed casino marketing tactics associated with similar claims, most of which were afforded and/or encouraged by favorable gaming tax treatment (Lucas, Kilby & Santos, 2002; Lucas, 2004; Lucas & Bowen, 2002). The next section examines the academic literature to clarify what is known about the relationship between free-play redemption and incremental gaming activity.

Academic Research Results

There are only a few studies that have examined the impact of free-play offers on rated, slot wagering behavior. Further, none have attempted to measure the creation of additional trips spurred by free-play offers. It is important to remember that measuring the impact of free-play campaigns is difficult, as many concomitant sources of influence affect casino business volumes. The challenge is to estimate the unique effect of the free-play offers within this multidimensional space. Such estimates are critical, as they represent the foundation of the deductibility arguments. The following paragraphs describe the extant academic studies in chronological order.

Lucas, Dunn and Singh (2005) examined data gathered from 2000 through 2003 from an integrated resort on the Las Vegas Strip. This time period featured both the opening of the casino and the subsequent implementation of free-play offers, providing trip-level data before and after the free-play campaign. The design featured two groups: (1) slot players who made gaming trips without free-play incentives; and (2) the same players who made trips with $50 free-play incentives. The same design was repeated for players who received $100 free-play awards. Their study sought to measure the impact of the free-play offers by measuring the change in rated, trip-level, wagering volume across the two offer conditions (i.e., no-offer trips vs. trips with the free-play offer). Rated coin-in served as the criterion variable, as players activated free-play awards via their loyalty club cards.

Multiple regression analysis was employed to estimate the impact produced by the binary free-play variables. The effects of these variables were examined within a model that included several covariates identified as alternative sources of influence on trip-level wagering volume. In the $50 data set, the free-play variable produced a significant and negative effect ($B = -\$355.98$, $p < 0.05$). This result indicated that the

free-play trips were associated with a $355.98 decline in wagering volume from the level of the no-free-play trips. In the $100 data set, the free-play variable also generated a negative model effect, but it was not statistically significant (B = -236.78, p > 0.10).

The authors noted that the results were consistent with the idea of bankroll cannibalization. This observation was based on the finding that the free-play trips produced less wagering volume than the no-free-play trips. Given that the same players produced these trips, it appeared that they were possibly substituting the free-play awards for a portion of their own bankrolls. These results are consistent with the previously mentioned fears that players limit their gambling time. Specifically, the time required to lose all of the free-play credits cuts into the time the casino has to win a player's own bankroll.

Suh (2012) analyzed data gathered in 2007 from a major Las Vegas Strip hotel-casino resort. Her work consisted of a field experiment in which slot players from a common tier of the casino's data base were divided into two groups. Under normal circumstances, all of the subjects would have received a $50 free-play award; however, for the experiment, half of the participants received the normal $50 award and half received a $100 award. The objective was to determine whether the increased free-play award would lead to a greater spend-per-trip (i.e., rated coin-in per trip).

It was not surprising that the redemption rate for the $100 free-play awards was much greater. In fact, it was 45% greater than the redemption rate for the $50 awards. This led to a final sample comprised of 155 subjects from the $50 group and 225 subjects from the $100 group.

Multiple regression analysis was used to test a theoretical model similar to that advanced in Lucas et al. (2005). The results associated with the categorical free-play variable indicated that the increase in the free-play award value from $50 to $100 failed to significantly increase the rated, trip level, wagering volume of the subjects (B = $617.25, p > 0.05). Like Lucas et al. (2005), Suh (2012) discussed the possibility of bankroll cannibalization as it related to her result. She also echoed Lucas et al. (2005) with respect to potential entitlement effects stemming from protracted free-play campaigns. That is, players had grown accustomed to receiving free-play offers on a regular basis and began to feel entitled to these offers, with no obligation to behave any differently.

Suh, Dang and Alhaery (2014) analyzed data gathered in 2006 from a U.S. riverboat casino. They used time series regression analysis to test a theoretical model designed to explain the variation in daily rated coin-in. One of the predictor variables represented the daily dollar value of all redeemed free-play offers. The clientele of the casino was ideal for the analysis of free-play efficacy, as it was chiefly comprised of frequent visitors. With numerous opportunities for redemption, free-play offers are thought to be particularly attractive to frequent visitors (Lucas & Kilby, 2008).

The framework of the theoretical model employed by Suh et al. (2014) was well established; however, estimating the effects of free-play was not the primary purpose of their study. They simultaneously examined the effects of several forms of casino promotions. The covariates of their model included the following variables: Days of the week, holidays, special event days, and several other casino promotion variables. The model explained 94% of the variation in daily, rated coin-in (F = 220.20, df = 17 & 223, p < 0.0005), but the variance inflation factors ranged from 1.0 to 5.9. The authors were careful to note the cautionary level of multicollinearity, especially when interpreting the effects of individual predictor variables.

The free-play variable did produce a statistically significant effect (B = $10.90, p < 0.0005). For every one dollar of free-play redeemed, rated coin-in could be expected to increase by $10.90, ceteris paribus. But coin-in is not win. To compute the expected win (or revenue), coin-in must be multiplied by the casino's average advantage on all wagers. Although not provided by the authors, a reasonable estimate of this advantage would be 7.5%. In this case, for every one dollar of free-play redeemed, the casino could expect to win $0.82 (i.e., $10.90 x 7.5%). Under these assumed conditions, the results suggested that the free-play campaign did not expand the tax base.

The value of the free-play coefficient increased dramatically when the same model featured total coin-in as the criterion variable. A second riverboat model also produced a positive and significant free-play coefficient of even greater magnitude, with total coin-in serving as the criterion variable. However, total coin-in included wagers placed by patrons other than the slot club members (i.e., it included unrated play). Slot club cards must be inserted to redeem free-play rewards and future free-play awards are earned by allowing the casino to track a patron's play. For these reasons, rated coin-in is the preferred dependent variable when estimating the efficacy of free-play offers. Again, Suh et al. (2014) set out to examine the effects of many different forms of casino promotions, so total coin-in was an appropriate criterion variable for their models. Their primary concern was not limited to estimating the effects of free-play.

Rüdisser et al. (2015) analyzed data from a 2015 field experiment conducted in a Swiss casino. Their experiment was designed to measure the gambling behavior associated with free-play awards, with specific attention to the level of risk aversion demonstrated by redeemers. Unlike free-play distributed within an ongoing campaign, participants arrived at the casino unaware of their chance to win free-play awards. Upon arrival, patrons were randomly selected to spin a prize wheel with random outcomes. The result of the spin determined the value of the free-play awards, which included zero.

Based on the outcomes from the prize wheel, a control group was established with patrons who received no free-play offer, while the treatment group was populated by those who won free-play awards. These treatment group awards ranged from CHF 5 to CHF 50 in value, as all monetary data were expressed in terms of Swiss Francs (i.e., CHF). At the time of their study, Swiss Francs were very nearly equivalent to U.S. dollars.

Although the authors made several comparisons of outcomes produced by the control and treatment group members, the general conclusion was that those who received free-play awards recorded smaller average losses than those who did not. The casino's average win-per-visit from gamblers in the treatment group was CHF 153, while the same for the control group was CHF 263. Similarly, the casino's average theoretical win was CHF 105 for members of the treatment group and CHF 207 for members of the control group. All outcomes were measured by way of tracking cards, i.e., rated play.

The authors concluded that casino operators should not issue free-play offers, as they were both costly in terms of face value and they were associated with smaller average losses per gambler. The authors also noted that the findings supported a phenomenon known as loss aversion, from behavioral economics (Tversky & Kahneman, 1991, 1992). In general, loss aversion contends that people suffer losses to a greater extent than they enjoy gains of the same magnitude. In Rüdisser et al (2015), the free-play award served as an endowment, or basis for loss. Once endowed, these patrons demonstrated greater risk aversion than the control group in terms of wagering behavior. Further support for this theory was provided by the difference between the average bet for the treatment group (CHF 7.71) and the control group (CHF 18.57). The authors noted that the lower average bet for the treatment group was evidence of risk/loss aversion at work.

As previously mentioned, the casino marketers were assuming that the free-play offers would illicit the house money effect, as described in Thaler and Johnson (1990). To the contrary, the results failed to support this critical assumption. Given the abundant claims of tax base expansion, this is a particularly noteworthy result.

Lucas and Spilde (2017) examined free-play redemptions and rated coin-in data gathered from two tribal casinos referred to as Resort A and Resort B. Their data sets were gathered in 2014 and were each comprised of 365 sequentially ordered daily observations. The primary goal of their research was to estimate the impact of discretionary free-play redemptions on rated coin-in levels. This question is closely related to the ability of free-play to expand the tax base.

The two resorts differed importantly in terms of their scale of operation and free-play campaigns. Resort A's annual rated slot win was estimated at $133 million, while the same for Resort B was $14 million. Resort A redeemed $16 million in discretionary free-play offers over the course of the 365-day sample period, while Resort B redeemed only $1.3 million in discretionary free-play over the same time period.

Their findings were mixed in that Resort A's results were not consistent with the idea of expanding the tax base, while Resort B's results supported the notion of expanding the tax base via free-play. The time series models produced significant and positive free-play coefficients for both resorts, but the criterion variables did not represent win. For Resort A, a one dollar increase in the free-play variable produced an $11.75 increase in rated coin-in ($p < 0.0005$), while a one dollar increase in Resort B's free-play variable generated a $24.27 increase in rated coin-in ($p < 0.0005$).

These coefficients had to be converted into incremental win estimates to address issues such as tax base expansion. This was achieved by multiplying the coefficients by each resort's expected win percentage on slot machine wagers. Ultimately, Resort A was redeeming one dollar of free-play in exchange for $0.88 of incremental win, suggesting the creation of a negative cash flow. Resort B fared better, swapping a dollar of free-play for $1.64 of incremental win. Even after the associated variable costs of issuing and redeeming the offers, Resort B looked to reap considerable benefits from its free-play campaign, while simultaneously expanding the tax base. Unfortunately, Resort B is the only property to post this kind of result. The bulk of the previously reviewed results suggest the contrary, with respect to rated play (Lucas et al., 2005; Rüdisser et al., 2015; Suh, 2012; Suh et al., 2014).

Related Casino Marketing Tactics

As casino gambling is comparably new to most jurisdictions outside of Nevada, it is natural to look to Nevada for regulatory guidance. This approach can be problematic, in spite of Nevada's considerable regulatory experience and success. Nevada's regulatory and economic perspectives are somewhat different from those of many other jurisdictions. Nevada sought to build an economy around the gambling industry, as opposed to allowing limited exposure to it (Kilby, Fox & Lucas, 2004). Many states seem to have legalized gambling to avoid raising taxes, stem short-term budget shortfalls and prevent citizens from fueling the economy of neighboring states (Barker, 2015; Belko, 2016; Murphy, 2016). This may be why Nevada has one of the lowest gaming tax rates of any major jurisdiction (Pollack, 2010; American Gaming Association, 2015). It does not seek to restrict the number of potential licensees and/or limit the growth of the industry.

How does all of this relate to the issue at hand? Nevada's low tax rate and favorable tax treatment of marketing incentives may both stem from the strategy of creating a growth-friendly regulatory environment. For example, unlike New Jersey and Macao, Nevada operators do not pay taxes on uncollectible gaming debts (*Inside Asian*

Gaming, 2011; NRS, 1997b; The Analyst, 2016; Thompson, 2015). Additionally, they receive tax breaks on match-play incentives, free-play redemptions, promotional chips, and discounts on loss (NRS, 1997b). For jurisdictions that do restrict the number of licensees and seek to limit the growth of the gaming industry, this may not be the ideal tax treatment for these incentives. For that matter, it may not be the ideal treatment for Nevada. The following paragraphs make a case for questioning the efficacy of several popular play incentives and gaming promotions.

Lucas (2004) estimated the impact of match-play redemptions on the cash drop of blackjack table games in a Las Vegas Strip casino. The stated purpose of the match-play campaign was to bring new players to the blackjack games. Alternatively stated, the purpose was to grow blackjack revenues by way of a match-play incentive. The results of his time series regression analysis indicated that a one dollar increase in match-play redemptions resulted in an $8.99 decrease in blackjack cash drop. Similar to Lucas et al. (2005) and Suh (2012), the author cited potential bankroll cannibalization as a possible explanation for the unfavorable result. This result does not support the arguments made for the preferential tax treatment of match-play coupons (Barker, 2015; Burns, 2010).

Binkley (2001) and Lucas et al. (2002) chronicled the monumental damage to overall table game profitability caused by discounts on loss, also known as rebates on loss. Additionally, Lucas & Bowen (2002) highlight the disappointing results associated with the ubiquitous lottery promotions conducted by casino marketers. Specifically, the estimated incremental revenue gains fell well short of the incremental costs for three large-scale lottery promotions. The stated goal of the lottery promotions was to drive short-term profitability in the casino via increased slot play.

Additionally, many casino marketers now offer at least a portion of the guaranteed prizes in the form of free-play, as opposed to cash (Stations Casinos, 2017; Seminole Hard Rock, 2017). The guaranteed prize structure of a major lottery promotion can reach levels of $500,000 or more, over longer events (e.g., 2 to 5 weeks), and exceed $100,000 for a single-day event (Casino Arizona, 2017; SCA Promotions, 2017; Stations Casinos, 2017; Seminole Hard Rock, 2017).

Just because Nevada regulations allow for liberal tax treatment of gaming incentives, or operators claim that promotions are creating incremental profits, does not mean that either of these positions is valid. To the contrary, there is an abundance of empirical evidence that suggests casino marketers are missing the mark with certain play incentives and promotions. It is therefore reasonable for taxing authorities in newer jurisdictions to question the tax treatment of incentives such as free-play. Maybe policies and regulations should not encourage or subsidize practices that have been found to decrease cash revenues and/or operating profits. To expand on Gu (2003), when it comes to free-play, maybe operators are buying revenues at the expense of profits.

Discussion

The results from the bulk of the reviewed academic research failed to support the casino operators' argument that free-play expands the gaming tax base (Lucas, 2004; Lucas et al., 2005; Rüdisser et al., 2015; Suh, 2012; Suh et al. 2014). Further, several studies suggested that redeemers often cash-out at least some of the free-play credits that survive the compulsory play requirement (Lucas & Spilde, 2017; Rüdisser et al., 2015; Suh et al., 2014). These findings are consistent with concerns related to the time it takes for the casino to win excessive free-play awards (Fine, 2009; Gruetze, 2012; Murphy, 2016; Sortel, 2010), and the existence of costly free riders among the redeemers (Cigliano, 2000). Several other studies support the idea

of bankroll cannibalization (Lucas, 2004; Lucas et al., 2005; Suh 2012). Finally, only Lucas and Spilde (2017) offered partial support for Taylor and Johnson's house money effect, while the findings from multiple studies at least partially supported Tversky and Kahneman's notion of loss aversion (Lucas et al., 2005; Lucas & Spilde, 2017; Rüdisser et al., 2015). Given these results, it may be difficult for taxing authorities to take operators and industry pundits at their word, regarding the net revenue contributions of free-play. Of course, these alleged contributions are critical to the argument for full face-value tax deductions. Overall, the results failed to support the claim that the face value of free-play awards is fully recovered by the casino. By extension, it would be difficult to argue that the results provided compelling evidence of tax base expansion.

Recommendations

Because slot accounting systems cannot identify the origin of payouts, estimating or measuring the impact of free-play offers is critical in crafting an effective tax treatment policy. This policy decision seems to rest on the evidence of tax base expansion. The following paragraphs describe how existing academic models can help examine the extent to which the tax base is expanded, if at all.

Table 2 illustrates the possible outcomes and potential policy correlates. Notice that no scenario would result in the complete elimination of a tax deduction, as redeemers are at least required to wager the free-play awards once before leaving the casino with any surviving balance.

Table 2

Potential Free-play Redemption Outcomes and Tax Policy Correlates

Redemption Outcome	Policy Correlate
1. FP credits are lost and play is terminated.	1. Allow deduction at face value of FP redeemed.
2. FP credits are partially lost and player walks with the surviving balance.	2. Limit FP deduction accordingly.
3. FP credits are lost and additional funds from the player's own bankroll are lost.	3. Allow deduction at face value of FP redeemed.

All of the redemption outcomes referred to in Table 2 would be determined from the results of daily coin-in models designed to measure the campaign-level impact of free-play redemptions. Lucas and Spilde (2017) and Suh et al. (2014) offer models well suited to this task. Specific attention should be paid to the following hypothesis: $B_{DFP} > 1/WAFP$, where B_{DFP} is the regression coefficient for the daily dollar value of discretionary free-play redemptions and WAFP represents the weighted-average floor par, or average house advantage. A failure to reject this hypothesis would support a full recovery of redeemed free-play offers, indicating that a full face-value tax deduction would be appropriate. If this hypothesis were rejected, then the magnitude of the coefficient would be used to determine the appropriate tax deduction.

From Table 2, the first and third redemption outcomes describe scenarios in which face-value deductions should be permitted. Failure to allow such deductions would result in the taxation of phantom revenue, as previously described. Moreover, the third redemption outcome indicates evidence of tax base expansion, so taxing

authorities would not want to discourage these free-play campaigns. In the case of the second redemption outcome, the model results would determine the extent of the gaming tax deduction. For example, if the model results indicated that the operator recovered only 80% of the free-play dollars redeemed, then the tax deduction would be limited to 80% of the free-play dollars redeemed.

The recommendation for jointly conducted research may seem challenging, but operators are basing their argument for preferential tax treatment on mere claims of an expanded tax base. Notwithstanding the amount of empirical evidence that would suggest otherwise, the onus of proof should fall on the operators. To date, the bulk of academic findings would suggest that taxpayers may be at least partially subsidizing free-play offers. Legislators have an obligation to protect and manage the state's tax base. After all, the payouts emanating from free-play wagers do come from a shared till.

Moreover, the knowledge gained from the results of repeated analyses would lead to more profitable free-play programs, which would benefit both operators and taxing authorities. An outcome of increased operating profits and tax base expansion would certainly represent a win-win scenario. The academic approaches discussed herein are intended to align the interests of the regulators and the operators. A free-play program that is not working benefits neither side. Such failures result in decreased profits for operators and GGR deductions with no tax base expansion for taxing authorities. Only the recipients of the free-play rewards would benefit from overly generous campaigns.

Although it's clearly not without its challenges, the benefits of this approach should far outweigh the costs. Ultimately, the data should play at least some role in shaping the tax policy, especially with regard to tax breaks for operators. Mere claims and assumptions cannot comprise the sole basis for important tax policy decisions.

Competitive Challenges

As is the general case in markets saturated with loyalty programs, no operator wants to be the first to terminate theirs, or even roll back benefits (Cigliano, 2000; Uncles et al., 2003). This is true for free-play offers as well, as they are the core of casino loyalty programs (Lucas & Spilde, 2017; Klebanow, n.d.). The same condition holds for free-play tax policy at the jurisdictional level. For example, on the east coast of the U.S. many jurisdictions exist within close proximity of one another. Many have argued that restrictive free-play tax policies could impair operators from competing against adjacent and less restricted jurisdictions (Armon, 2015; Belko, 2016; Klebanow, n.d.; Murphy, 2016). Philander (2013) makes a similar argument with regard to disparate ad valorem gaming tax rates, as applied to casinos operating on opposite sides of a jurisdictional border.

At the regional level, free-play tax policies could evolve into something of a prisoner's dilemma. Specifically, legislators may feel pressure to offer policies that match those in neighboring jurisdictions to prevent customers from traveling across jurisdictional boundaries. Academic research can be particularly helpful in such conditions. For example, studies can estimate difficult-to-measure impacts associated with free-play campaigns, rather than discussing the issue solely in terms of alleged abilities of internal resorts to compete against other jurisdictions.

Countries such as Australia, China, and South Korea have limited the effect of these border issues by instituting omnibus constraints on external gaming-related offers such as discretionary free-play. While such policies serve to limit the swelling of cost curves, they are more difficult to institute in less cooperative spaces. For example, in the United States, multiple adjacent jurisdictions reside within a common national space. A similar issue exists for European operators, given the close proximity of their jurisdictional boundaries.

Future Research

A longitudinal study related to the ability of free-play campaigns to generate a greater number of trips would also provide critical insight into the debate on tax base expansion. Spectrum (2014) references such a study by New York regulators, but the description revealed serious design problems related to self selection bias and wholesale omission of key covariates. Any future study would need to randomly assign subjects to control and experiment groups and track their behavior over time. Even then, there would be design challenges related to the exposure of the control group to free-play offers from competitors and cross-talk among study participants. Any sponsor of such a study would have to be committed to the cause, as collateral damage to customer relations is possible.

This issue could be further investigated by way of a more formal tax theory paper. Such a paper would include a framework for evaluating a specified set of tax policy outcomes. These outcomes would be evaluated from perspectives such as social welfare, the casinos, and the patrons of the casinos. This would provide a broader examination of any potential tax policy implications.

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References

American Gaming Association (AGA). (2015). *By the Book Database, Taxation and Revenue Sharing*. Retrieved from http://www.gettoknowgaming.org/by-the-book

Armon, R. (2015, April 13). Ohio lawmaker wants casinos, racinos to pay taxes on promotional credits. *Beacon Journal*. Retrieved from http://www.ohio.com/news/local/ohio-lawmaker-wants-casinos-racinos-to-pay-taxes-on-promotional-credits-1.583121

Barker, J. (2015, April 24). In varying amounts, casinos dole out millions on 'free play'. *The Baltimore Sun*. Retrieved from http://touch.baltimoresun.com/#section/-1/article/p2p-83382228/

Belko, M. (2016, April 5). Pennsylvania casinos could face new tax under governor's proposal. *Pittsburgh Post-Gazette*. Retrieved from http://www.post-gazette.com/business/development/2016/04/05/Pennsylvania-casinos-could-face-new-tax-under-governor-s-proposal/stories/201604050061

Binkley, C. (2001, September 7). Reversal of fortune. *Wall Street Journal*, A1, A8.

Burns, R. (2010). Revenue sharing and free play. *Indian Gaming, 20*(4), 56-57.

Brunt, C.D. (2015, June 17). Racino 'free-play' tax issue left up to courts. *Albuquerque Journal*. Retrieved from http://www.abqjournal.com/599739/racino-free-play-tax-issue-left-up-to-courts.html

Cantrell, J. (n.d.). Freeplay accounting. Retrieved from http://gamingandleisuremagazine.com/gl_articles/freeplay-accounting/

Casino Arizona. (2017). Retrieved from https://webcache.googleusercontent.com/search?q=cache:5-lGSub3lX0J:https://www.casinoarizona.com/promotions/500k-guaranteed-cash-giveaway/+&cd=1&hl=en&ct=clnk&gl=us

Cigliano, J., Georgiadis, M., Pleasance, D. & Whalley, S. (2000). The price of loyalty. *McKinsey Quarterly*, No. 4, 68-77.

Fine, R. A. (2009). Free play isn't free. *Casino Enterprise Management*, June, 60-61.

The Analyst, (2016, July 26). *Gaming Today*. Vegas could hit surprising baccarat record. Retrieved from https://www.gamingtoday.com/industry/article/61719-Vegas_could_hit_surprising_baccarat_record

Gruetze, M. (2012, April 12). Slot fans, casinos in midst of 'golden age of free play'. *TribLIVE*. Retrieved from http://triblive.com/x/pittsburghtrib/ae/gambling/s_790232.html#axzz3h8gj4BFZ

Gu, Z. (2003). Casino marketing and promotion: Raising the efficiency. *Casino Enterprise Management, 1*(11), 46-47.

Inside Asian Gaming (2011, January 22). VIP credit risk, a micro, not so much macro, issue in Macau. Retrieved from http://www.asgam.com/index.php/news/item/1020-vip-credit-risk-a-micro-not-so-much-macro-issue-in-macau

Kilby, J., Fox, J. & Lucas, A.F. (2004). *Casino Operations Management, 2nd ed*. Hoboken, NJ: Wiley.

Kollars, B. & Otte, J. (2015, March 31). Gambling bill calls for taxing 'free play.' *Dayton Daily News*. Retrieved from http://www.daytondailynews.com/news/news/gambling-bill-calls-for-taxing-free-play/nkjhQ/

Klebanow, A. (n.d.). Emerging issues in the use of free play. *Urbino.net*. http://www.urbino.net/articles.cfm?specificArticle=Emerging%20Issues%20in%20the%20Use%20of%20Free%20Play

Lucas, A.F. (2004). Estimating the impact of match-play promotional offers on the blackjack business volume of a Las Vegas hotel casino. *Journal of Travel & Tourism Marketing, 17*(4), 23-33.

Lucas, A.F. & Bowen, J.T. (2002). Measuring the effectiveness of casino promotions. *International Journal of Hospitality Management, 21(2), 189-202.*

Lucas, A.F., Dunn, W.T. & Singh, A.K. (2005). Estimating the short-term effect of free-play offers in a Las Vegas hotel casino. *Journal of Travel & Tourism Marketing, 18*(2), 53-68.

Lucas, A.F. & Kilby, J. (2012). *Introduction to Casino Management*. San Diego: Gamma.

Lucas, A.F. & Kilby, J. (2008). *Principles of Casino Marketing*. San Diego: Gamma.

Lucas, A.F., Kilby, J. & Santos, J. (2002). Assessing the profitability of the premium player segment. *Cornell Hotel & Restaurant Administration Quarterly*, *43*(4), 65-78.

Lucas, A.F. & Spilde, K.A. (2017). Estimating the effect of casino loyalty program offers on slot machine play. *Cornell Hospitality Quarterly*. Advance online publication. doi: 10.1177/1938965516686113

Murphy, S. (2016, April 4). Plainridge's recent revenue surge may be a mirage. *Boston Globe.* Retrieved from https://www.bostonglobe.com/metro/2016/04/03/plainridge-boosts-revenue-with-generous-offers-free-play/PimOmAO9YoX2UCfTVoNtoM/story.html

Nevada Revised Statutes (1997a), Chapter 463, Section 0161, Part 1(a-c). Retrieved from https://leg.state.nv.us/nrs/NRS-463.html#NRS463Sec0161

Nevada Revised Statutes (1997b), Chapter 463, Section 0161, Part 2(c, g). Retrieved from https://leg.state.nv.us/nrs/NRS-463.html#NRS463Sec0161

Philander, K. (2013). A normative analysis of gambling tax policy. *UNLV Gaming Research & Review Journal, 17*(2), 17-26.

Pollack, M. (2010, November). *Casino Tax policy: Identifying the issues that will determine the optimal rate*. Paper presented at the 103rd Annual Conference on Taxation, Chicago, IL. Retrieved from http://www.spectrumgaming.com/dl/spectrumnationaltaxassociation.pdf

Robison, J. (2014, January 29). Ask the slot expert: Should I play from a ticket or cash? *Casino City Times*. Retrieved from http://robison.casinocitytimes.com/article/ask-the-slot-expert-should-i-play-from-a-ticket-or-cash-62923

Rüdisser, M., Flepp, R. & Franck, E. (2015). Do casinos pay their customers to become risk averse? Revising the house money effect in a natural experiment. Working paper, Department of Business Administration, University of Zurich, Zurich, Switzerland. Retrieved from http://www.business.uzh.ch/en/forschung/wps.html.

SCA Promotions. (2017). Luxor gives away more than $500,000 in big money basketball promotion. Retrieved from http://www.scapromotions.com/press-releases/luxor-gives-away-500000-big-money-basketball-promotion/

Seminole Hard Rock. (2017). April fool's day sweepstakes and beat the taxman sweepstakes. Retrieved from https://www.seminolehardrocktampa.com/casino-events.htm

Sortel, N. (2010). "Casinos balance free play as part of their marketing strategy,"

SunSentinel, 12 November, available at http://articles.sun-sentinel.com/2010-11-12/business/fl-casino-free-play-20101112_1_american-casino-guide-magic-city-casino-steve-bourie

Spectrum Gaming Group (2014, August 18). *Responding to competition, new challenges: Regulatory, tax reform in Indiana*. Linwood, New Jersey: Spectrum Gaming Group.

Suh, E. (2012). Estimating the impact of free-play coupon value on players' slot gaming volumes. *Cornell Hospitality Quarterly*, *52*(2), 134-143.

Suh, E., Dang, T. & Alhaery, M. (2014). Examining the effects of various promotion types on slot gaming revenues. *International Journal of Hospitality Management, 37*, 68-79.

Stations Casinos. (2017). Pedal to the money. Retrieved from https://www.sclv.com/Promotions/Gaming-Promotions.aspx

Thaler, R.H. & Johnson, E.J. (1990). Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science, 36*(6), 643-660.

Thompson, W.N. (2015). *Gambling in America* (2nd ed.). Santa Barbara, CA: ABC-CLIO, 74.

Tversky, A. & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics, 106*(4), 1,039-1,061.

Tversky, A. & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk & Uncertainty, 5*(4), 297-323.

Uncles, M.D., Dowling, G.R. & Hammond, K. (2003). Customer loyalty and customer loyalty programs. *Journal of Consumer Marketing*, *20*(4), 294-316.