Searching for Gold: Gambling Expansion in the New England States

Richard McGowan, S.J.
Boston College

Abstract

This paper analyzes the current controversy surrounding the possibility of expanding gambling in Massachusetts. The recession has left state budgets with tremendous deficits, in many cases the most on record. Many politicians and industry professionals contend that casino gambling promotes economic development. This argument is unfounded, leading many states to pursue the fastest and most effective revenue generating assets, slot machines. It will discuss the structure of and potential payoffs from the expanded gambling. Specifically, the paper will develop a model for revenue per slot machine to better perform valuation analysis on the proposal. Revenue per slot machine, when examined across various facilities, varies widely, and this paper attempts to understand the drivers of this variability.

I. Introduction

The economic recession has left state coffers drained and depleted. States will be struggling to find revenue to support public services for a number of years. As a result of the steep decline in state tax receipts, the largest on record, state budget gaps for FY 2010 and 2011 are forecasted to exceed $350 billion, according to the Center on Budget and Policy Priorities (McNichol, Johnson). The $178 billion shortfall faced in fiscal year 2010, which represents 26 percent of state budgets, is the largest gap on record (McNichol, Johnson). Included in the American Recovery and Reinvestment Act is $140 billion that will be allocated over the next two and a half years to help states maintain current activities. However, this only represents about 40% of the projected shortfall and will run out before budgetary problems abate.

What if states could find a revenue stream that could generate consistent revenues, in some cases exceeding $1 billion? Alas, state-sponsored gaming. The supply of gambling is controlled and regulated by each individual state in the United States. In October 2009, The Rockefeller Institute of Government, the public policy research arm of the State University of New York, published an article outlining the increased consideration states are giving to expanding public gaming. As of 2009, 10 states collected more than $1 billion in gambling-related revenue, while another seven collect more than $500 million annually (Perlee). This gambling-related revenue not only comes in the form of full-fledged resort casinos, as in Nevada and Atlantic City, but

through traditional lotteries, racinos, video-lottery terminals, and pari-mutuel betting at racetracks. The Rockefeller Institute cites that more than 60 percent of all monies legally wagered in the United States come from those latter forms of gambling.

The case in New England provides an interesting and compelling example of the above issues. Dating back to the 1960s and 1970s, lotteries began in New Hampshire, quickly followed by Massachusetts, New York, and Connecticut (McGowan). It reveals the competition among states for tax dollars, and the fiscal strain faced by New England states that has compelled them to consider expanding casino gambling. Just as it was decades ago, New England states have been motivated to expand casino gambling because of the success it has seen in neighboring states in addition to the need for revenue for ailing budgets.

The New England case that will be examined in this paper is that of Massachusetts. According to the Massachusetts Budget and Policy Center, the Commonwealth faces a FY 2010 budget gap of $3.1 billion (Massachusetts). Restructuring public gaming assets has been an active topic over the last several years, including outsourcing management of the state's lottery and plans by Governor Deval Patrick and former Treasurer Tim Cahill to expand casino gambling, albeit in different forms. The details of their proposals will be discussed later in this paper as a precursor to analyzing the Massachusetts situation.

While expanded casino gambling grows in support across states severely constrained by their budgets, the question arises as to what form this gambling will

take. Some politicians, including Deval Patrick, are supporters of full resort casino expansion, while others favor the licensing of slot machines or video lottery terminals (VLTs) to generate quick revenue for the state. The latter is the focus of Treasurer Tim Cahill's proposal. The argument for resort casinos is that it will promote economic development and job creation. The validity of this argument will be reviewed briefly in Section II of this paper.

The implementation of VLTs at Massachusetts's four racetracks is the more pressing and debated option, especially as it boasts a potential up-front payment of $3.35 billion to the Commonwealth. The methodology behind this valuation will be examined and tested in this paper. The several facilities that utilize VLTs in the Northeast generate widely different revenue per VLT, or Win Per Unit Per Day (WPUD). WPUD is calculated by dividing the gross slot handle (revenue to the casino after payouts to players) by the number of VLTs, divided by the amount of days per year that the machines operate. The factors that lead to such variability will be discussed and tested in Sections III and IV of this paper, in an attempt to generate a more accurate valuation model for the Commonwealth. The results of the econometric analysis, valuation analysis for Massachusetts as well as the conclusions will be presented in Section IV.

II. Literature Review

The Economic Development Argument

The argument for casino gambling as a driver of economic development is an argument used by many politicians and casino industry professionals to help support and justify what is still a fairly controversial industry. For the states, they have been described as being caught in the Prisoner's Dilemma, where although society is better off without any gambling, there is a strong propensity to allow gambling and take advantage of other states that do not allow it (Grinols 1995). As revealed by states' renewed interest in public gaming assets and specifically casino gambling expansion, revenue is the focus. And in response to the argument for economic development and job creation, there is a divergence between the political and economic perspectives. The prevailing economic opinion on using resort casinos as a source of economic growth is that when combining all affected variables, including cannibalization of other gaming and entertainment assets, the expensive cost of regulation, the increased social costs including problem gambling and crime, among others, the casino does not generate any long term economic gain.

The potential benefits and costs associated with casino gambling are perhaps best described by William R. Eadington in his 1991 paper, *The Economics of Casino Gambling*. By no means are the following benefits and costs the only attributable

variables, however they provide a solid foundation for which one can begin to evaluate the true breadth of impact that casino gambling has on a community. Eadington lumps the gains into three categories. First, he notes the increased utility from the overall entertainment experience. Second, the ancillary economic benefits from having a casino such as job creation, investment stimulation, tourism development, and economic development are mentioned. Finally, the additional revenue source for the public sector is a benefit of legalized gambling. These benefits need to be matched with their associated costs, including: pathological or excessive gambling, increased crime, prostitution, loan sharking, drug dealing, political corruption, underage gambling, and infiltration of gambling operations by criminals, organized or otherwise (Eadington 1999). As mentioned earlier, the above represent some of the argued benefits and costs associated with legalized casino gambling.

The cases in support of and against economic development as a result of casinos are generally qualitative in nature, or provide weak support for the validity of the measurements. This characteristic itself represents the most overarching difficulty in actually analyzing the economic impact of a casino: identifying and quantifying all of the affected variables. Without consistent measures of quantification that allow researchers to compare and analyze their results, the arguments for and against casinos hold no significant weight. It is this inconsistency that has led many economists, including Douglas Walker, one of the most recognized researchers in the field, to discredit the economic development argument as unsupported and unverified. The inability to

properly account for the cannibalization of other tourism and entertainment activities, the increased social costs per person, and the proper way to measure "economic development" itself, all support that attempting to form a firm conclusion on the issue is a futile task. From a strictly qualitative perspective, some economists support that there is potential for economic development when the majority of gamblers are not from the local area.

If not Economic Development– why have additional gambling?

Revenue is the ultimate end of goal for states attempting to expand their casino gaming operations. The quickest and most effective way to generate revenue through expanded gaming operations is through slot machines or video lottery terminals (VLTs). The difference between the two is important as it has political and competitive implications. Legalizing slot machines forces the state government to negotiate with Indian reservations, which would serve to further increase the supply of gambling and cannibalize revenues (McGowan 2008). This has led to increased interest in VLTs, which face less political hurdles as they operate in a connected system like a lottery and are therefore regulated by the lottery commission of the given state (McGowan 2008).

Slot machines themselves are the major generator of casino revenues, generally accounting for more than 70% of total casino gambling revenue. Slot machine revenue has been found to increase with an increase in the number of slot machines, which supports flexibility when approaching diminishing returns (Thalheimer, Ali 2008).
As VLTs parallel slot machines, except for their political considerations, VLTs can

be recognized as the most probable form of gambling expansion in many states (Christiansen 1991). The technological advancement in gaming has also supported the shift towards more dynamic and innovative computer-based VLTs (Eadington 1999). Many states have already proposed licensing VLTs, including Ohio and New Hampshire, with Pennsylvania's recent licensing of 61,000 slot machines as the exception for the VLT trend as no Indian tribes in Pennsylvania are looking to pursue casino development (McGowan 2008).

Former Massachusetts Treasurer Tim Cahill proposed the licensing of 9,000 slot machines as well as privatizing the lottery in March, 2009 (Mason). These slot machines will most likely be in the form of VLTs to avoid any potential conflict with the Wampanoag tribe. Treasurer Cahill is much more direct about his motivations, stating that it is a "quick fix" by bringing money into the state quickly, as it is a "pretty sure revenue thing" (Herbst-Bayliss).

The proposal is an attempt to bring Massachusetts' gamblers back to the Commonwealth, as they have been travelling to bordering states to test their luck. This point substantiates the intense competition among the states for tax revenues from gambling. Table A is a table of patron origins provided by the Center for Policy Analysis at the University of Massachusetts Dartmouth in its New England Casino Gaming Update 2009.

Table A

Estimated Patron Origins by State, 2009: Foxwoods, Mohegan Sun, Twin River, Newport Grand, & Hollywood Slots					
	Foxwoods	Mohegan	Twin River	Newport	Hollywood
Massachusetts	31.4%	16.6%	40.6%	38.9%	1.0%
Connecticut	35.9%	56.7%	2.4%	1.9%	0.0%
Rhode Island	13.2%	3.9%	54.5%	56.2%	0.0%
New Hampshire	3.2%	1.3%	0.9%	0.5%	1.0%
Maine	1.1%	0.4%	0.2%	0.0%	95.5%
Vermont	0.3%	0.3%	0.1%	0.0%	0.4%
New York	10.8%	15.9%	0.5%	1.1%	0.3%
New Jersey	2.1%	1.8%	0.1%	0.1%	0.3%
Other	2.0%	3.1%	0.7%	1.3%	1.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Center for Policy Analysis. **Note:** The statistical margin of error for the Foxwoods, Mohegan, Twin River, Newport, and Hollywood survey is +/- < 1%

With Massachusetts' lack of casino gambling, Commonwealth residents have been traveling to Connecticut or Rhode Island, as it is estimated that they make up over 30 percent of the patrons of Foxwoods, Twin River, and Newport, and are contributing significant amounts of money to the coffers of those respective state treasuries. The Center for Policy Analysis estimates that Massachusetts residents contributed $93.1 million to the Connecticut state treasury, and $117.4 million to the Rhode Island state treasury in CY 2008 (Barrow). An important consideration is Massachusetts' ability to draw in gamblers from these bordering states, so as not to essentially impose a regressive tax on its own residents. The point was discussed earlier in the context of job creation and the location of gamblers, but it is also applicable here as Massachusetts would essentially be garnering tax revenues at the expense of its residents unless it can draw in out-of-state gamblers.

Former Massachusetts Treasurer Tim Cahill projected a potential up-front payment of up to $3.35 billion to the Commonwealth, based on the implementation of 9,000 VLTs. It assumes a 27% tax rate in addition to a gross margin of 80%. The illustrative upfront value represents the net VLT operating cash flow multiplied by a 5x and 7x multiple range. This valuation model is presented below in Table B.

Table B

VLT Valuation Summary – 9,000 VLTs

Number of VLTs	9,000	
Estimated Average WPUD	$275	
Days of Operation	365	
Gross VLT Revenue	$903,375,000	
less: State Share @ 27%	($243,911,250)	
less: General Expenses @ 20%	($180,675,000)	
Net VLT Operating Cash Flow	$478,788,750	
Valuation Multiple Range	5.0x	7.0x
Implied Illustrative Upfront Value	**$2,393,943,750**	**$3,351,521,250**
Implied PV of Taxes @ 8 %	$2,394,756,607	$2,394,756,607
Implied PV to Commonwealth	**$4,788,700,357**	**$5,746,277,857**

Source: April 2009 presentation on expanded gaming by the Office of the Massachusetts State Treasurer

The above analysis assumes a 20-year concession for these VLT licenses. A multiple range is the only valuation methodology utilized. Since the concession is fixed at 20 years, one can easily generate a discounted cash flow model to provide a different valuation range and forecasted payout to the Commonwealth. It will provide effective sensitivity analysis for the required rate of return by investors who would potentially purchase the VLT licenses as well as for the tax rate and WPUD (Win Per Unit Per Day). This discounted cash flow model will be further discussed and presented in Sections III and IV of this paper. The "State Share" and "General Expenses" assumptions seem easily substantiated; however the estimated average WPUD of $275 warrants further examination. The WPUD is the net profit after a 90% pay-out to players. The WPUD is consistently tracked, and the analysis above looked at the four closest gambling facilities with VLTs: Mohegan Sun, Foxwoods, Twin River, and Newport Grand. The WPUD generated by these four venues varies widely. This breakdown of 2007/2008 VLT WPUD is found in Table C.

Table C

VLT Comparison 2007/2008

	VLT Win	Average # of Units	WPUD
Mohegan Sun	$ 885.1	6,084	$ 399
Foxwoods	760.2	7,234	288
Twin River	406.5	4,615	241
Newport Grand	71.2	1,080	181
Total	$ 2,123.0	19,013	$ 306

Source: April 2009 presentation on expanded gaming by the Office of the Massachusetts State Treasurer

The $275 estimate for Massachusetts represents roughly the average of the four WPUD values presented in the table. However, one must wonder why there is so much variability in those figures. In addition, how applicable is the $275 WPUD for Massachusetts? Perhaps the WPUD for the four racetracks in the Commonwealth would be more in line with Mohegan Sun's $399, or closer to Newport Grand's $181, which would generate significantly higher or lower net present values, respectively. The factors that affect the WPUD and slot handle will be the focus of the statistical analysis presented in Sections III and IV.

III. Methodology

The most commonly used analysis technique for estimating visitations and revenues at resort casinos in the United States is a gravity model. This paper will utilize a variation of a gravity model, while maintaining its core focus. In an analysis of the market feasibility and economic impact for the development of a resort casino at Sagamore Crossing in New Hampshire, University of Massachusetts Dartmouth Center for Policy Analysis director Clyde Barrow, Ph.D. utilized a modified gravity model. The model itself is based on Sir Isaac Newton's Law of Gravitation, applied to the retail arena by William J. Reilly when he introduced Reilly's Law of Retail Gravitation. Reilly created a formula for calculating the point of geographical equilibrium between two nearby trade areas, arguing that people in a larger city will travel farther to shop than people in a smaller city (Rosenberg). The principles at the heart of Reilly's Law of Retail Gravitation are

applicable to the casino industry.

The framework presented above will be utilized to develop a model that can forecast WPUD. In addition, slot handle, or the total amount wagered, will be used as a dependent variable. The slot handle is one of the most important figures tracked by casinos, and can be used to calculate the WPUD figure needed for the valuation analysis. Mohegan Sun, Newport Grand, and Twin River will be examined to develop this model. These three casinos' WPUD are considerably different, ranging from $181 to $399 for Newport Grand and Mohegan Sun, respectively, presented in the 2007/2008 VLT Comparison in Table C. These facilities also provide detailed financial information on the performance of their VLTs, making them suitable casinos to examine.

Sphere Construction

The most crucial component of the gravity model that will be developed is the construction of demographic spheres rippling outward from each facility. This model describes that there is a clear relationship between functional distance and expenditures on gaming (Barrow). The Sagamore Crossing analysis utilizes estimated

drive times from the casino location to generate its spheres. For this paper, these outward bounds will be defined by counties rather than driving distance, as this represents a suitable proxy for drive times and allows county data to be incorporated in the statistical analysis.

Three spheres will be developed, with Sphere 0 representing the county in which the casino is located, Sphere 1 representing all of the counties bordering Sphere 0, and Sphere 2 representing all of the counties bordering Sphere 1. A visual diagram of the sphere structure is found below. The spheres constructed for Mohegan Sun, Newport Grand, and Twin River Grand are outlined in Table D.

County Sphere Diagram

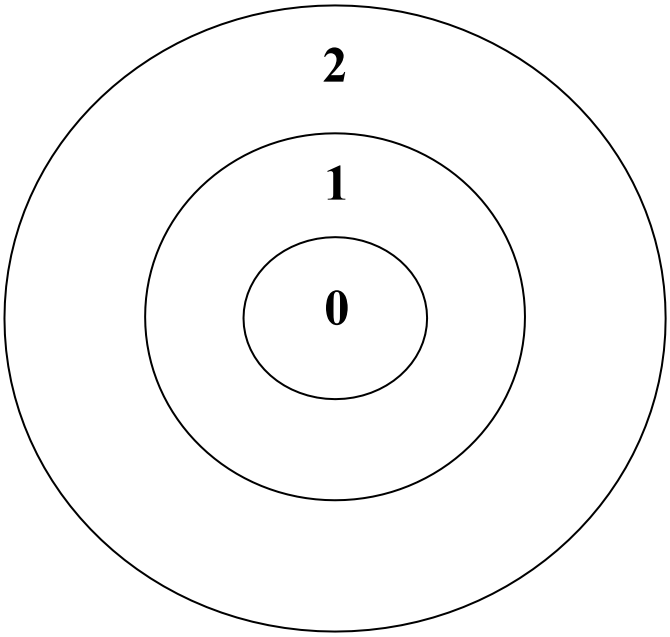


Table D

Mohegan Sun Spheres

Sphere 0	Sphere 2
New London County	Fairfield County
	New Haven County
Sphere 1	Litchfield County
Twin River	Berkshire County
Middlesex County (CT)	Hampden County
Hartford County	Hampshire County
Tolland County	Franklin County
Windham County	Worcester County
Providence County	Middlesex County (MA)
Kent County	Norfolk County
Washington County	Bristol County (MA)
New London County	Bristol County (RI)
Windham County	Plymouth County
Kent County	Newport County
Washington County	Westchester County
Newport County	Suffolk County (NY)
Bristol County (RI)	Rockingham County
Bristol County (MA)	Essex County
Norfolk County	Plymouth County
Middlesex County (MA)	Barnstable County
Worcester County	
Suffolk County (MA)	

Newport Grand Spheres

Sphere 0	Sphere 2
Newport County	Plymouth County
	Norfolk County
Sphere 1	Suffolk County (MA)
	Worcester County
Bristol County (RI)	Windham County
Providence County	New London County
Kent County	Middlesex County (MA)
Washington County	Barnstable County
Bristol County (MA)	

Variables

WPUD and slot handle will be tested as dependent variables using annual data from 2000 to 2008. The gravity model developed to analyze Sagamore Crossing includes population variables in addition to income variables for each driving time sphere. This model will adopt a similar approach. Total population will be included with data collected from the

U.S. Census Bureau. The U.S. Census Bureau does not provide annual percentage breakdowns of county population in order to get exact adult population figures. However, the American Community Survey, generated by the U. S. Census Bureau, generated a three year estimate of age demographics for 2006 to 2008. There is minimal variability in the percentage breakdown across counties, as the percentage of adult popula

In applying the gravity model to Sagamore Crossing, an income variable is also included. In this case, it is median household income, estimated annually by the U.S. Census Bureau. Since each sphere can only have one median household income figure, the data is weighted by population. It is anticipated that the closer the venue is to higher income spheres, the higher the WPUD. Mohegan Sun boasts the highest WPUD and is at the same time the closest to higher income counties in southwest Connecticut and New York City. These income figures were manually inflation adjusted to 2000 dollars using inflation figures from the Bureau of Labor Statistics Consumer Price Index – All Urban Consumers measurements.

Finally, the weighted average number of VLTs at each facility during each year is included, to incorporate the marginal impact of additional VLTs being placed into a facility. While increased VLTs allow for more overall gambling, it is expected that the slot handle faces diminishing marginal increases as additional machines enter the facility, and therefore WPUD will decline as the increase in machine count will outweigh the increase in slot handle.

Ultimately, the equation is as follows:

$$\text{WPUD / Slot Handle} = \beta_0 + \beta_1(\text{medinc0})_t + \beta_2(\text{medinc1})_t + \beta_3(\text{medinc2})_t + \beta_4(\text{pop0})_t + \beta_5(\text{pop1})_t + \beta_6(\text{pop2})_t + \beta_7(\text{vlts})_t + \varepsilon$$

Variable List

medinc0; *medinc1*; *medinc2* – median income in spheres 0, 1, 2, respectively

pop0; *pop1*; *pop2* – total population in spheres 0, 1, 2, respectively

vlts – weighted average number of VLTs in the facility over the course of the year

IV. Results

Statistical Analysis

The above equation was tested using both fixed effects and generalized least squares regression. The results of these regressions on WPUD can be found in Table E below.

Table E

Regression	Fixed Effects		GLS
Observations	27		27
medinc0	-0.0057245		-0.0030904
	(-1.71)		(-0.57)
medinc1	0.0153375		-0.0011633
	(3.07)***		(-0.16)
medinc2	0.0002841		0.0061028
	(0.07)		(1.02)
pop0	0.005751		-0.0001206
	(4.37)***		(-0.07)
pop1	0.0007362		0.000065
	(4.00)***		(0.24)
pop2	0.0001665		0.000057
	(2.08)***		(2.4)
vlts	-0.0699792		-0.039645
	(-10.51)***		(-5.53)***
constant	-5052.9		-242.8428
	(-7.53)		(-0.74)
R-sq: within	0.9311		-
between	0.1891		-
overall	0.1569		-
F-test (7,17)	32.83	Wald chi^2 (7)	461.35

Statistical significance at the 95% confidence level was found for *medinc1*, *pop0*, *pop1*, and *vlts* (pop2 significant at

94.7%). The income and population coefficients for the significant variables are positive, following the logic that as income and population increase for the spheres surrounding each facility, the WPUD will increase. Interestingly, *medinc0* and *medinc2* were both insignificant at the 95% level, with *medinc0*'s coefficient being negative. The coefficient on *vlts* is negative, revealing that the increased amount wagered at the additional VLT is outweighed by a higher number of VLTs in the formula calculating WPUD outlined earlier in this paper.

Although the results for the above analysis were insightful, a modified Wald test for groupwise heteroskedasticity generated a chi^2 of 12.74. To resolve this problem, a generalized least squares model was used, correcting for heteroskedasticity. The results are also presented in Table E above. Nearly all variables except *pop2* and *vlts* are highly insignificant, with the argument for the negative coefficient on the significant variable, vlts, as the only valuable contribution of this model. This comes from the difficulty in using WPUD as the dependent variable, as it in and of itself is a function of the slot handle and the amount of machines in the facility. Therefore, it is more applicable to test slot handle.

The results for the fixed effects and generalized least squares regression on slot handle are found below in Table F.

Table F

Regression	Fixed Effects		GLS
Observations	27		27
medinc0	-0.2043216		-0.1404146
	(-3.68)***		(-2.33)**
medinc1	0.2614455		0.0689888
	(3.16)***		(0.96)
medinc2	0.0381637		0.0977276
	(0.58)		(1.26)
pop0	0.1103965		0.0739961
	(5.06)***		(3.88)***
pop1	-0.014832		-0.0125567
	(-4.87)***		(-3.89)***
pop2	0.005798		-0.0000514
	(4.37)***		(-0.16)
vlts	0.6274191		0.8855628
	(5.70)***		(7.18)***
constant	-30454.67		10689.22
	(-3.28)		(2.52)
R-sq: within	0.9565		-
between	0.9333		-
overall	0.9097		-
F-test (7,17)	53.43	Wald chi^2 (7)	3412.03
chi^2 (3)	11.64		

The fixed effects regression generated nearly all significant variables at the 95% confidence level, except for *medinc2*. Its insignificance is consistent with the result in the regression on WPUD, which supports that the economic characteristics of sphere 2 are less impactful on the gambling figures than in closer spheres. Once again, the coefficient on *vlts* supports that the increased slot handle from the additional machine is not proportional to

Heteroskedasticity i neralized least squares regression results in Table F. Interestingly, the coefficient of *medinc0*, which is significant, is negative, noting that as median household income increases in sphere 0, slot handle will decline. Although insignificant, the positive coefficients of *medinc1* and *medinc2* are consistent with the rationale presented earlier that facilities closer to higher income spheres will generate a higher slot handle. The significance and positive coefficient on *pop0* supports that a more densely populated sphere 0 will generate a higher slot handle.

Massachusetts Valuation

The generalized least squares model provides the best interpretive value and application to forecast slot handle VLT licensing in Massachusetts. The analysis will be

performed using Suffolk County as sphere 0, as a majority of the dialogue for gambling expansion at race tracks in Massachusetts has centered on Suffolk Downs. The sphere breakdown for Suffolk County can be found below in Table G.

Table G

Massachusetts Spheres (Suffolk)

Sphere 0	Sphere 2
Suffolk County (MA)	Rockingham County
Sphere 1	Hillsborough County
	Worcester County
	Windham County
Essex County	Kent County
Middlesex County (MA)	Bristol County (RI)
Norfolk County	Barnstable County
Plymouth County	Washington County (RI)
Bristol County (MA)	Newport County
Providence County	

When plugging in the demographic and income variables into the above model, as well as the estimated 9,000 VLTs that will be licensed, the model forecasts slot handle of $10,690 million. Inputting a 90% payout rate, consistent with the Massachusetts Treasurer's Office valuation model, and 9,000 VLTs, the forecasted WPUD is $325. This estimate is $50 higher than the average WPUD figure utilized in the state's original model. This change has fairly significant effects on the potential payoffs to the Commonwealth.

Payoffs – Valuation Multiples

The original valuation multiples analysis presented in Table B is revised below in Table H

VLT Valuation Summary - 9,000 VLTs

after inputting the $325 WPUD.

Table H

The potential upfront value from the licensing of 9,000 VLTs has increased at the 5.0x multiple from $2,394 million to $2,832 million, and at the 7.0x multiple from $ 3,352 million to $3,966 million. The implied present value of the taxes has also increased as the state looks to generate higher annual tax revenues as a result of the increased WPUD. This increases the implied total present value to between $5,667 and $6,800 million.

Payoffs – Discounted Cash Flow

A discounted cash flow analysis was performed on the VLT licensing scenario. Assumptions were consistent with those in the multiples valuation, including a 20 year concession period, 20% general expenses, 27% tax rate, and 9,000 VLTs. The discount rate sensitivity used was from 20% to 30%. These discount rates were not meant to be consistent with the risk of the cash flows so much as they represent the internal rate of return thresholds demanded by private equity and hedge fund investors. These types of investors demand high rates of return in their calculations to approximate a maximum purchase price, which is what the discounted cash flow model is attempting to reveal. Table I below provides the condensed discounted cash flow output for the potential purchase price of the 9,000 VLT licenses.

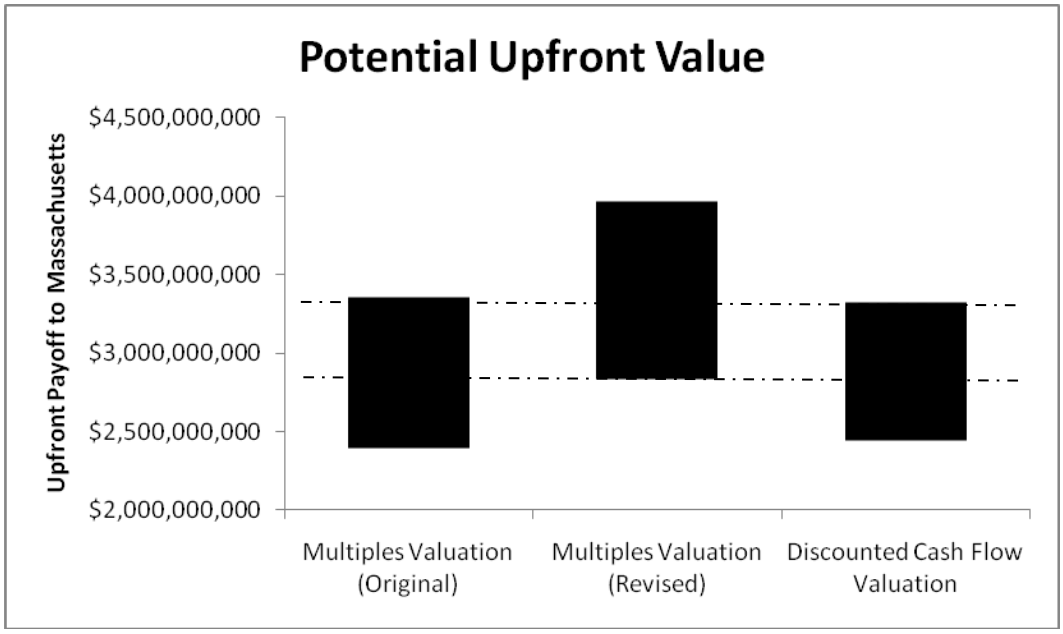
Table I

	0 2010	1 2011	2 2012	19 2029	20 2030
Number of VLTS	9000	9000	9000	9000	9000
Estimated WPUD	$325	$325	$325	$325	$325
VLT Revenue	1,069,005,127	1,069,005,127	1,069,005,127	1,069,005,127	1,069,005,127
State Share	$288,631,384	$288,631,384	$288,631,384	$288,631,384	$288,631,384
General Expenses	213,801,025	213,801,025	213,801,025	213,801,025	213,801,025
Total Cash Outflow	502,432,410	502,432,410	502,432,410	502,432,410	502,432,410
Net Operating Cash Flow	$566,572,717	$566,572,717	$566,572,717	$566,572,717	$566,572,717

NPV	
20%	$3,325,543,739
25%	$2,806,735,032
30%	$2,445,211,166

The potential payoffs calculated in the discount cash flow model range from $2,445 million to $3,326 million, which are fairly consistent with those generated from the multiples valuation and provide additional support for the accuracy of this range.

The valuation chart below presents the three valuation methodologies' (original multiples valuation; revised multiples valuation; discounted cash flow) potential up-front payoffs to Massachusetts.



The significant overlap of the three valuations, designated by the dashed lines on the chart above, supports the likelihood that this is an accurate valuation range.

Table J below presents the discounted cash flow analysis incorporating the taxes to the state. It ultimately reveals the total present value to the Commonwealth. The taxes were discounted at 8%, consistent with the multiples valuation provided by the state and more reflective of the risk of the cash flows.

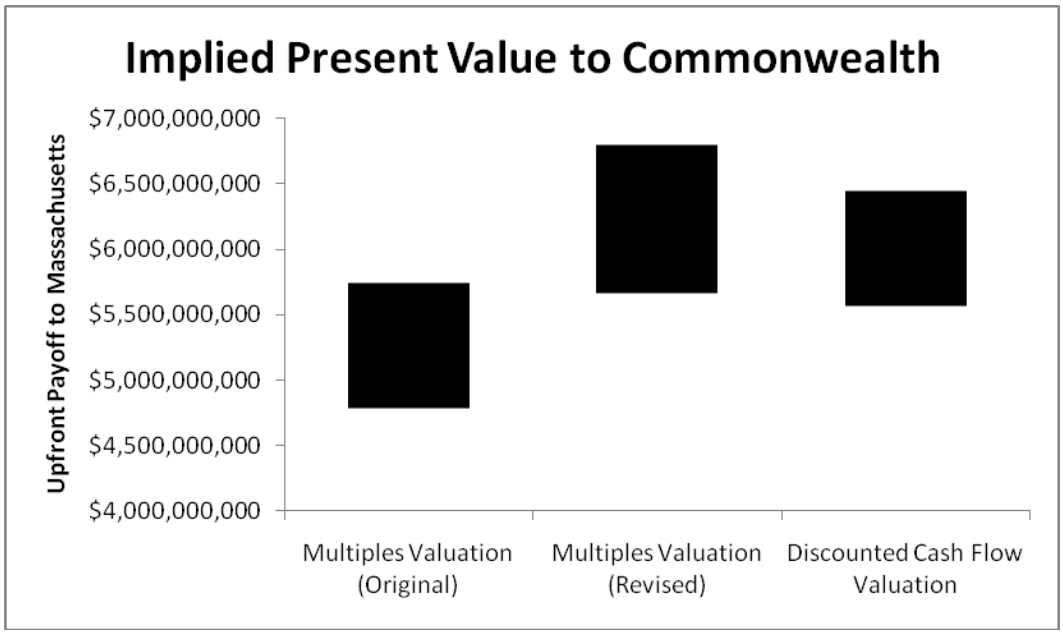
Table J

	0 2010	1 2011	2 2012	19 2029	20 2030
Initial Licensing					
20%	$3,325,543,739				
25%	2,806,735,032				
30%	2,445,211,166				
Annual State Share					
Tax Rate of 27.0%	$288,631,384	$288,631,384	$288,631,384	$288,631,384	$288,631,384
Total Cash Flow to MA					
	$3,614,175,124	$288,631,384	$288,631,384	$288,631,384	$288,631,384
	3,095,366,416	288,631,384	288,631,384	288,631,384	288,631,384
	2,733,842,550	288,631,384	288,631,384	288,631,384	288,631,384
Discounted FCF (Taxes @ 8%)					
8%	$3,614,175,124	$267,251,282	$247,454,891	$66,879,374	$61,925,346
	3,095,366,416	267,251,282	247,454,891	66,879,374	61,925,346
	2,733,842,550	267,251,282	247,454,891	66,879,374	61,925,346
NPV					
High	$6,448,000,601				
Medium	$5,929,191,894				
Low	$5,567,668,028				

The total present value to the Commonwealth ranges from $5,568 million to $6,448 million, again consistent with both the original and revised multiples valuations in Tables B and H, respectively.

The total present value to Massachusetts from the three valuation methods (original multiples valuation; revised multiples valuation; discounted cash flow) is

summarized by the chart below.



There is significant overlap along the high end of the original valuation provided by the Massachusetts Treasurer's Office, which provides additional support for a potential total present value between $5.5 and $6 billion.

V. Conclusion

From a purely revenue and economic perspective, Massachusetts should move forward with the proposal to license 9,000 slot machines in the state. The expansion of VLTs provides additional revenue to the fiscally ailing state more quickly than full resort casino expansion. In addition, the support for resort casinos based on the hopes for economic development, although enticing with the current job market environment, are unsubstantiated and overoptimistic. Of course, gambling expansion involves other complex and social issues that could outweigh any need for additional revenue for the state.

The main driver of the valuation provided by the Massachusetts Treasurer's Office required further investigation. The model tested in this paper resulted in a WPUD of $325 for a Suffolk County based facility operating 9,000 VLTs. By implementing this value into the multiples valuation, as well as in a discounted cash flow analysis, Massachusetts should be confident that it can yield an upfront payoff of between $2.75 and $3.25 billion for the licenses. In addition, the total present value of the VLT expansion to the Commonwealth should fall between $5.5 and $6 billion.

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