

# **Pennsylvania Video Gaming Association**

## **Pennsylvania Video Gaming Market Study**

**June 2017**

**PRIVATE AND CONFIDENTIAL**



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## Introduction

Union Gaming Analytics has been engaged by the Pennsylvania Video Gaming Association (“PVGA”) to perform an independent and comprehensive gaming market study of the potential gross gaming revenue (“GGR”) opportunity that would result with the passage of HB1010 or related gaming bill that would legalize video gaming in the state of Pennsylvania.

## Methodology

In order to project the future Pennsylvania gaming market if both video game terminals (“VGTs”) and casinos were operating, we first looked to other VGT route markets in the US. We collected VGT data for the Montana, South Dakota, Louisiana, Nevada, West Virginia, Oregon, and Illinois markets and studied the number of establishments, machines, and machine revenue where available. We also looked at the development of these markets over time in order to analyze the potential growth of the Pennsylvania VGT market. In states with both commercial casino gaming and VGT gaming, we studied the way in which the markets coexist and compete with one another, in total machine count, machine location, and gaming revenue. This informed our analysis about how Pennsylvania VGTs may interact with the existing casino market. We studied the Illinois market in particular detail, as it was the most recent VGT market to open, and it was introduced into a stable and robust gaming market, and therefore served as the most appropriate comparison market.

We used our research to construct a model of the Pennsylvania market if VGTs were approved. We broke up the population on a zip code level according to their drive time distance to the closest casino, and used different assumptions for each drive time category due to the significance of proximity to existing gaming in consumer behavior regarding VGTs. We estimated the existing slot gaming revenue within each distance band based on an analysis of the existing gaming market, then projected the incremental slot gaming revenue due to VGTs, as well as the cannibalization of the existing casinos in each distance band. We used the same distance band analysis in the Illinois market, and used the results to guide our assumptions after making key adjustments to differentiate the two gaming markets. We used a similar distance band analysis to predict the number of establishments and VGTs on a county level based on each county’s distance to the nearest casino competition. We used the existing gaming tax code and the proposed VGT tax set forth in HB1010 to project the VGT impact on state gaming tax. After completing our projections on VGT supply, VGT GGR, cannibalization, and tax revenue, we studied our existing data on the ramp period for other VGT markets to project a 5 year period for all variables stated.

Note that this report is intended to forecast the impact of the introduction of VGTs to the Pennsylvania gaming market as it stands over a 5 year period and therefore the projections presented in this report do not reflect changes to the competitive gaming landscape over the next 5 years, either in Pennsylvania or in neighboring states.

## About Union Gaming

Union Gaming is a boutique investment bank and advisory firm focused exclusively on the global gaming industry, which we define as the \$400 billion-plus market to include land-based casinos, lottery, online, and pari-mutuel wagering. The company specializes, in global equity and high yield research, securities dealing, investment banking, and advisory. Through its Union Gaming Analytics subsidiary, the company conducts gaming, feasibility, and economic impact studies for government and corporate entities. The company also



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provides legislative and regulatory support for gaming related activities globally. Founded in 2009, the company is headquartered in Las Vegas, with offices in Hong Kong, Macau, and New York, NY.

Union's study is solely for the use and information of PVGA, and is only to be used in considering the matters to which this study relates. Such study may not be shared or disseminated outside of Milliron & Goodman LLC and PVGA without obtaining Union's written consent. Additionally, such study may not be relied upon by any other person, including, but not limited to, any security holder, employee or creditor of PVGA, and may not be used or relied upon for any other purpose without obtaining Union's written consent, with such consent not to be unreasonably withheld by Union.

In addition, PVGA agrees that any reference to Union in any release, communication, or other material is subject to Union's prior written approval, which may be given or withheld in its reasonable discretion, for each such reference.

Any questions regarding the contents of this report should be directed to Michael Greene, Vice President or Eric East, Analyst at (702) 866-0743.



# Executive Summary

## Stabilized Market Projections

We forecast a total gaming market size of \$4.4bn in Pennsylvania if the state introduced VGTs in accordance with the passage of HB1010 which would legalize video gaming in the state of Pennsylvania. We forecast a total VGT market size of \$1.24bn and a tax revenue gain to the state of \$290.0mm in the first full year of stabilized operations. The number of eligible establishments and lucrative nature of the businesses would result in a high number of establishments at 8,239 and VGTs at 36,418. We use 2020 as our first stabilized year of full VGT operation due to our forecasted 2 year ramp starting in 2018 resulting in year 3 being the first stabilized year (Figure 1).

**Figure 1: Pennsylvania Stabilized (2020) VGT Projections**

Stabilized Market Forecast (\$ in mm)	2020
Establishments	8,239
VGTs	36,418
VGT GGR	\$1,242.4
Tax Increase	\$290.0

Source: Union Gaming Analytics

## 5 Year Forecast

We forecast a 2 year ramp to reach the stabilized projected VGT gaming supply, which results in year 3 being the first year in which the VGT market will achieve our stabilized revenue projection. Our forecasted stabilized VGT market consists of 36,418 machines operating in 8,239 establishments. The VGT GGR will ramp slower than the unit count due to a ramp in the WPU, which is a trend we observed in other markets. We forecast a stabilized year 3 VGT GGR of \$1.24bn, which will come from \$894.8mm in market growth and \$347.6mm in cannibalization of existing casino GGR. The \$347.6mm of cannibalization is comprised of \$16.5mm which will come from share taken from out-of-state casinos which draw on patrons from Pennsylvania and the remaining \$331.0 million from Pennsylvania casinos. The cannibalization will result in a 9.5% loss in GGR for the Pennsylvania casinos based on a 2020 projection of casino GGR in which we forecasted the casino market growth if VGTs were not introduced. This projection assumes a 2.2% growth rate per year on casino GGR in the absence of VGTs based on the 2011-2016 compound annual growth rate (CAGR).

Though cannibalization to the existing casinos is unavoidable, the massive market growth associated with VGTs will far outweigh the loss of casino GGR and casino gaming tax. That has also been the result in Illinois where the slot market has grown from under \$1.4bn to over \$2.2bn since VGTs were introduced in 2012, therefore benefiting the state enormously. The combination of our VGT GGR and cannibalization estimates results in a year 3 tax revenue gain to the state of \$290.0mm and a cumulative tax increase over the 5 year span of \$1.27bn (Figure 2). The \$290.0mm of tax revenue gain to the state in year 3 is derived from \$472.1mm of VGT tax revenue offset by a decrease in the casino state tax revenue of \$182.1mm (Figure 3).

**Figure 2: Pennsylvania Projected 5 Year Ramp**

	2018	2019	2020	2021	2022
<b>Establishments</b>					
Year End	6,591	7,827	8,451	8,616	8,781
Annual Average	3,828	7,260	8,239	8,540	8,705
<b>Machines</b>					
Year End	29,135	34,598	37,358	38,086	38,814
Annual Average	16,919	32,094	36,418	37,752	38,480
<b>VGT GGR</b>	<b>\$507.8</b>	<b>\$1,040.5</b>	<b>\$1,242.4</b>	<b>\$1,304.3</b>	<b>\$1,342.7</b>
Market Growth	\$365.7	\$749.4	\$894.8	\$939.4	\$967.0
Cannibalization	\$142.1	\$291.1	\$347.6	\$364.9	\$375.6
In-State	\$135.3	\$277.3	\$331.0	\$347.6	\$357.8
Out of State	\$6.8	\$13.8	\$16.5	\$17.3	\$17.9
WPU	\$82	\$89	\$93	\$95	\$96
<b>Annual Tax Increase</b>	<b>\$118.5</b>	<b>\$242.9</b>	<b>\$290.0</b>	<b>\$304.5</b>	<b>\$313.4</b>
<b>Cumulative</b>	<b>\$118.5</b>	<b>\$361.4</b>	<b>\$651.5</b>	<b>\$956.0</b>	<b>\$1,269.4</b>

Source: Union Gaming Analytics

The tax revenue generated from VGTs in Pennsylvania, while smaller than the revenue generated by the casinos, will benefit many more counties. According to the current tax structure for the Pennsylvania casinos, the county hosting a licensed facility shall receive a local share assessment equal to 4 percent (4%) of the gaming tax. There are 12 casinos in the state and therefore only 12 counties benefit from the gaming tax revenue generated from the casinos. Conversely, our model assumes that as part of the local share assessment, the county where the VGTs are located will receive two percent (2%) of the VGT gaming revenue and in the first full year of stabilized operations (year 3) this results in \$24.8mm of VGT gaming tax revenue. Additionally, the municipality where the VGTs are located will also receive two percent of the VGT gaming revenue as part of the local share assessment. Our model also assumes that there will be VGTs in every county in Pennsylvania (67 counties) throughout the state and therefore all of the counties in the state of Pennsylvania will benefit from the introduction of VGTs. For a more detailed analysis of the benefit to each county, please see Figure 49.



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**Figure 3: 5 Year Tax Impact Detail**

	2018	2019	2020	2021	2022
Casino Slot GGR	2,447.2	2,501.1	2,556.1	2,612.3	2,669.8
Casino Table GGR	900.3	920.2	940.4	961.1	982.2
GGR (No VGT)	3,347.6	3,421.2	3,496.5	3,573.4	3,652.0
Slot Tax Rate	55%	55%	55%	55%	55%
Table Tax Rate	10%	10%	10%	10%	10%
Slot Tax	1,346.0	1,375.6	1,405.8	1,436.8	1,468.4
Table Tax	90.0	92.0	94.0	96.1	98.2
Total Tax (No VGT)	1,436.0	1,467.6	1,499.9	1,532.9	1,566.6
Total Cannibalization	142.1	291.1	347.6	364.9	375.6
In State	135.3	277.3	331.0	347.6	357.8
New Slot GGR	2,311.9	2,223.8	2,225.0	2,264.8	2,312.0
% Decline	5.5%	11.1%	13.0%	13.3%	13.4%
New Total Casino GGR	3,212.3	3,144.0	3,165.4	3,225.8	3,294.2
% Decline	4.2%	8.5%	9.9%	10.2%	10.3%
New Slot Tax	1,271.6	1,223.1	1,223.8	1,245.6	1,271.6
New Table Tax	90.0	92.0	94.0	96.1	98.2
New Total Casino Tax	1,361.6	1,315.1	1,317.8	1,341.7	1,369.8
Casino Tax Reduction	74.4	152.5	182.1	191.2	196.8
VGT GGR	507.8	1,040.5	1,242.4	1,304.3	1,342.7
VGT Tax Rate	38%	38%	38%	38%	38%
VGT Tax \$	193.0	395.4	472.1	495.7	510.2
<b>Casino + VGT Tax</b>	<b>1,554.5</b>	<b>1,710.5</b>	<b>1,789.9</b>	<b>1,837.4</b>	<b>1,880.0</b>
\$ Change	118.5	242.9	290.0	304.5	313.4
% Change	8.3%	16.6%	19.3%	19.9%	20.0%

Source: Pennsylvania Gaming Control Board, Union Gaming Analytics





# Pennsylvania HB 1010 Overview

Pennsylvania's HB 1010 is the bill that allows for video gaming terminals ("VGTs") at specific locations. The terms of HB 1010 are as follows:

## Licensing

- Each terminal operator licensee, manufacturer and establishment licensee must be licensed by the Pennsylvania Gaming Board
- Manufacturers, terminal operators, suppliers, and establishment licensee may only possess one type of license
- All terminal operator licensee applicants must provide:
  - The name, address and photograph of the applicant and of all directors and owners and key employees and their positions within the corporation or organization, as well as additional financial information required by the board
  - A current tax lien certificate issued by the department
  - The details of any gaming license applied for, granted to or denied to the applicant by another jurisdiction where the form of gaming is legal and the consent for the board to acquire copies of the application submitted or license issued in connection with the application
  - The details of any loan obtained from a financial institution or not obtained from a financial institution
  - The consent to conduct a background investigation by the board, the scope of which investigation shall be determined by the board in its discretion consistent with the provisions of this part, and a release signed by all persons subject to the investigation of all information required to complete the investigation
  - The details of the applicant's diversity plan to assure that all persons are accorded equality of opportunity in employment and contracting by the applicant, its contractors, subcontractors, assignees, lessees, agents, vendors and suppliers
  - Any other information determined to be appropriate by the board
- The license for a terminal operator shall be for a period of five years, and, if renewal is submitted at least six months prior to expiration, the board shall have discretion to renew the license for a period of up to five years
- All supplier licenses applicants must provide:
  - The name and business address of the applicant and the applicant's affiliates, intermediaries, subsidiaries and holding companies; the principals and key employees of each business; and a list of employees and their positions within each business, as well as financial information required by the board
  - A statement that the applicant and each affiliate, intermediary, subsidiary or holding company of the applicant are not terminal operator licensees
  - Proof that the applicant has or will establish a place of business in this Commonwealth. A supplier licensee shall maintain its place of business in this Commonwealth to remain eligible for licensure
  - The consent to a background investigation of the applicant, its principals and key employees or other persons required by the board and a release to obtain the information necessary for the completion of the background investigation



- The details of any supplier license issued by the board to the applicant under section 1317 (relating to supplier licenses), if applicable
- The details of any equivalent license granted or denied by other jurisdictions where gaming activities as authorized by this part are permitted
- The type of goods and services to be supplied and whether those goods and services will be provided through purchase, lease, contract or otherwise
- Other information determined by the board to be appropriate
- The license for a supplier shall be for a period of five years, and, if renewal is submitted at least six months prior to expiration, the board shall have discretion to renew the license for a period of up to five years
- All manufacturer licenses applicants must provide:
  - The name and business address of the applicant and the applicant's affiliates, intermediaries, subsidiaries and holding companies; the principals and key employees of each business; and a list of employees and their positions within each business, as well as financial information required by the board
  - A statement that the applicant and each affiliate, intermediary, subsidiary or holding company of the applicant are not terminal operator licensees
  - The consent to a background investigation of the applicant, its principals, its key employees, its intermediaries, its subsidiaries or other persons required by the board and a release to obtain the information necessary for the completion of the background investigation
  - The details of any equivalent license granted or denied by other jurisdictions where gaming activities as authorized by this part are permitted
  - The details of any manufacturer license issued by the board to the applicant under section 1317.1 (relating to manufacturer licenses), if applicable
  - The type of video gaming terminals, redemption terminals or associated equipment to be manufactured or repaired
  - Other information determined by the board to be appropriate
- The license for a manufacturer shall be for a period of five years, and, if renewal is submitted at least six months prior to expiration, the board shall have discretion to renew the license for a period of up to five years
- All establishment licenses must provide:
  - The name, address and photograph of the applicant and additional financial information required by the board
  - A description of the proposed surveillance and security measures to ensure the security of the proposed video gaming area
  - A current tax lien certificate issued by the department
  - The criminal history record of the applicant, principal and key employees and a consent for the Pennsylvania State Police to conduct a background investigation on the applicant, principals and key employees
  - If the applicant is a liquor establishment, documentation showing that the establishment's liquor or retail dispenser license is valid and is in good standing with the Pennsylvania Liquor Control Board
  - If the applicant is a liquor establishment, disclosure of conditional license agreements entered into under the act of April 12, 1951 (P.L.90, No.21), known as the Liquor Code



- Other information determined to be appropriate by the board
- The license for an establishment licensee shall be for a period of five years, and, if renewal is submitted at least three months prior to expiration, the board shall have discretion to renew the license for a period of up to five years

### **License Prohibitions**

- A person that has been convicted of a felony in any jurisdiction is prohibited from receiving a license
- A person convicted of and gambling offense in any jurisdiction is prohibited from receiving a license unless 15 years have elapsed from the date of conviction for the offense
- A liquor establishment whose liquor or retail dispenser license is not in good standing with the Pennsylvania Liquor Control Board

### **Video Gaming Limitations**

- For an establishment licensee that is a truck stop establishment, no more than 10 video gaming terminals
- For an establishment licensee that is a nonprimary location, no more than 10 video gaming terminals
- For an establishment licensee that is not a truck stop establishment or nonprimary location, no more than five video gaming terminals
- With the exception of tickets, video gaming machines may not dispense any coin, cash, token, or anything else of value
- Terminal placement agreements shall be valid for a minimum of 60-month term but shall not exceed a 120-month term
- No video gaming terminal may be placed in an area that is easily accessible to a minor
- The entrance to a the video gaming area shall be secure and easily seen and observed by the employees or management of the licensed Establishment
- No establishment licensee may provide an incentive

### **Additional Requirements and Allowances**

- All video gaming terminals must be linked to a central computer system under the control of the department and accessible by the board
- Video gaming terminals and redemption terminals that include hardware and software must be approved by the board
- Rules of play must be clearly displayed on the video gaming terminal face or screen as promulgated by the board
- The cost of credit shall be 1¢, 5¢, 10¢, 25¢, and the maximum wager shall not exceed \$5.00
- The maximum cash award for any individual game may not exceed \$1,000
- Each video gaming terminal shall pay out a minimum of 85% of the amount wagered
- Persons under the age of 21 shall not be permitted to play video gaming terminals

### **Distribution of Funds**

- Video gaming terminal tax and assessment:
  - 34% to the Commonwealth
  - 4% local share assessment



- Municipality – 2% of the gross terminal revenue of each video gaming terminal operating within the municipality
- County – 2% of the gross terminal revenue of each video gaming terminal operating within the county
- 27% to the establishment licensee
- 1.5% to the department of revenue to cover regulatory assessment costs or expenses

### **Application and Renewal Fees**

- All manufacturer or supplier license applicants must pay a nonrefundable application fee of \$50,000 as well as a \$10,000 annual fee
- All terminal operator license applicants must pay a nonrefundable application fee of \$25,000 as well as an annual fee of \$5,000
- All key employee or principal license applicants must pay a nonrefundable application fee of \$500 as well as an annual fee of \$500
- Establishment licensee must pay a nonrefundable application fee of \$100 and annual license fee of \$250 per each video gaming terminal in operation at the premises of the establishment licensee

### **Slot Machine Licensee**

There are three different categories of licenses in the state of Pennsylvania: Category 1 (racino), Category 2 (stand-alone casino), and Category 3 (resort casino). There are currently 6 category 1 licenses operating in the state with a total of 15,542 slot machines and 570 tables. There are currently 4 category 2 licenses operating in the state with a total of 9,695 slot machines and 568 tables and there are currently 2 category 3 licenses operating in the state with a total of 1,196 slot machines and 78 tables.

- Beginning July 1, 2017, the assessment rate shall not exceed an amount equal to 1.7% of slot machine licensee's gross terminal revenue. This applies to all three license categories.
- Beginning July 1, 2018, and each year thereafter, the assessment rate shall not exceed an amount equal to 1.5% of slot machine licensee's gross terminal revenue. This applies to all three license categories.
- Reduction in the number of Category 3 (resort casino) licensed facilities from three to two
- Delay in the acceptance and issuance of a Category 1 (racino) slot machine license through July 1, 2020



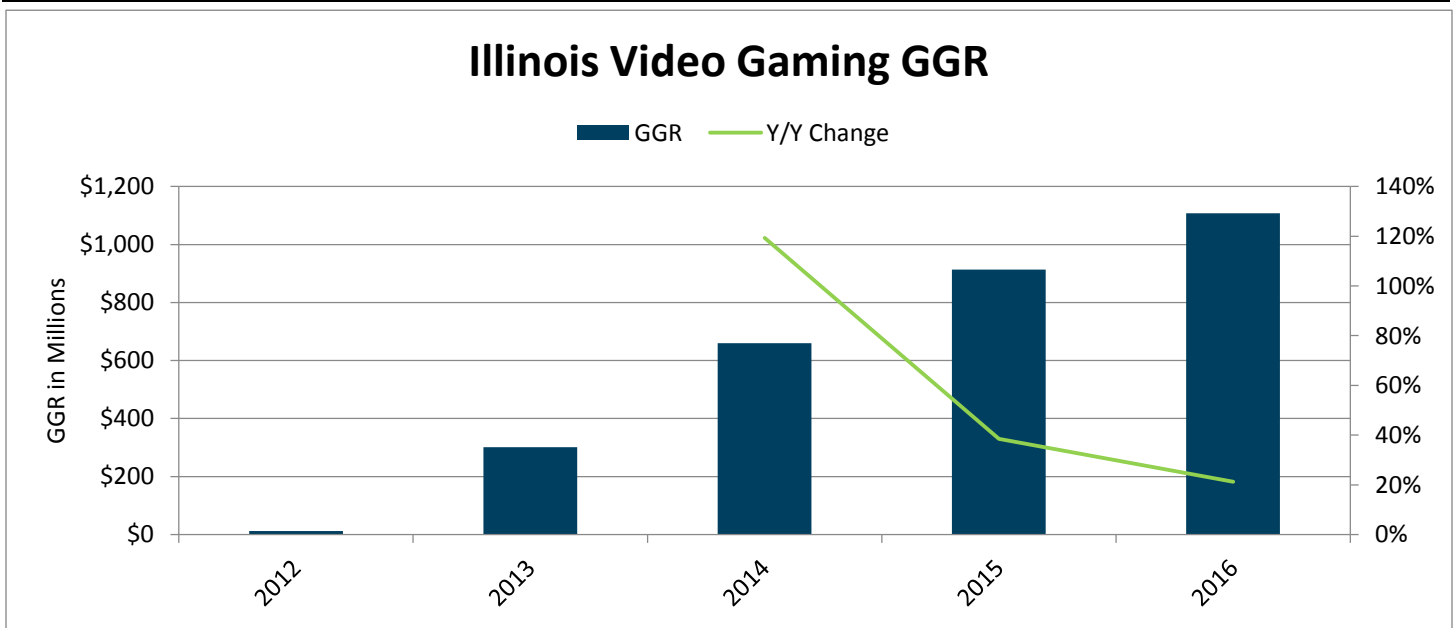
# Illinois Video Gaming Market Overview

## Video Gaming Market

Video Gaming in Illinois was legalized as a component of Public Act 96-0034, which was signed into law by Governor Quinn on July 13, 2009. The bill was designed to increase state revenue in order to complete new planned capital projects, and included several additional means of raising state revenue. The bill required that all VGT Manufacturers, Distributors, Suppliers, Terminal Operators, Technicians, Handlers, and Establishments be licensed by the Illinois Gaming Board. Other restrictions of the Bill include a maximum of 5 machines per licensed establishment, a maximum wager per hand not to exceed \$2, and maximum award not to exceed \$500. Despite the Bill’s signing in 2009, the first VGT machines weren’t implemented in Illinois until September of 2012.

GGR from the Illinois Video Gaming Market has grown from \$300.7mm in 2013 (first full year of operations) to \$1.1 billion in 2016. As seen in Figure 4, GGR has grown rapidly since 2012 but growth has started to slow. Since the implementation of VGT machines and through December 2016, the Illinois video gaming market has generated a cumulative \$2.9 billion in GGR.

**Figure 4: Illinois Video Gaming GGR**

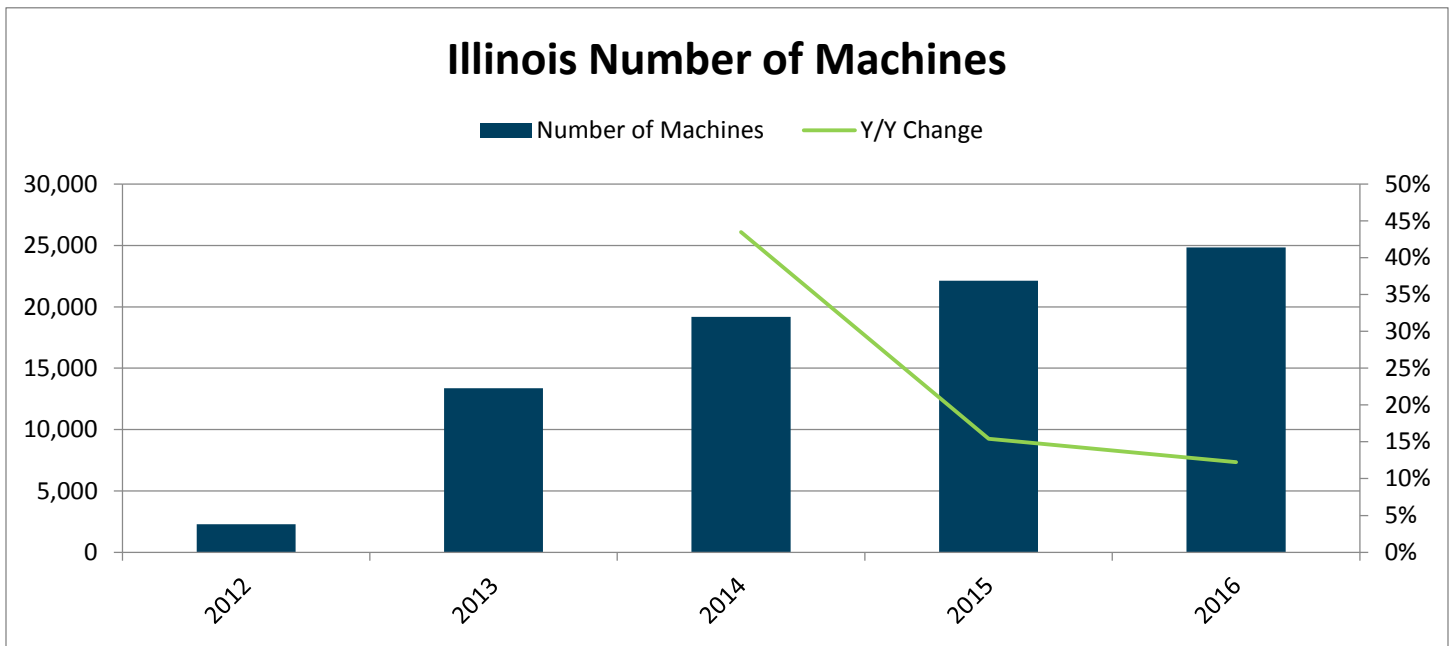


Source: Illinois Gaming Board, Union Gaming Analytics

The number of VGTs in the Illinois video gaming market was 24,840 as of December 2016. As seen in Figure 5, the number of machines in Illinois had been rapidly growing since their implementation in 2012. Growth has started to level off however, falling from over 300% in 2013 to just over 8% in 2016. Win per Unit per Day has grown steadily along with the rapid GGR growth, and has increased to \$128 in 2016 (Figure 6).

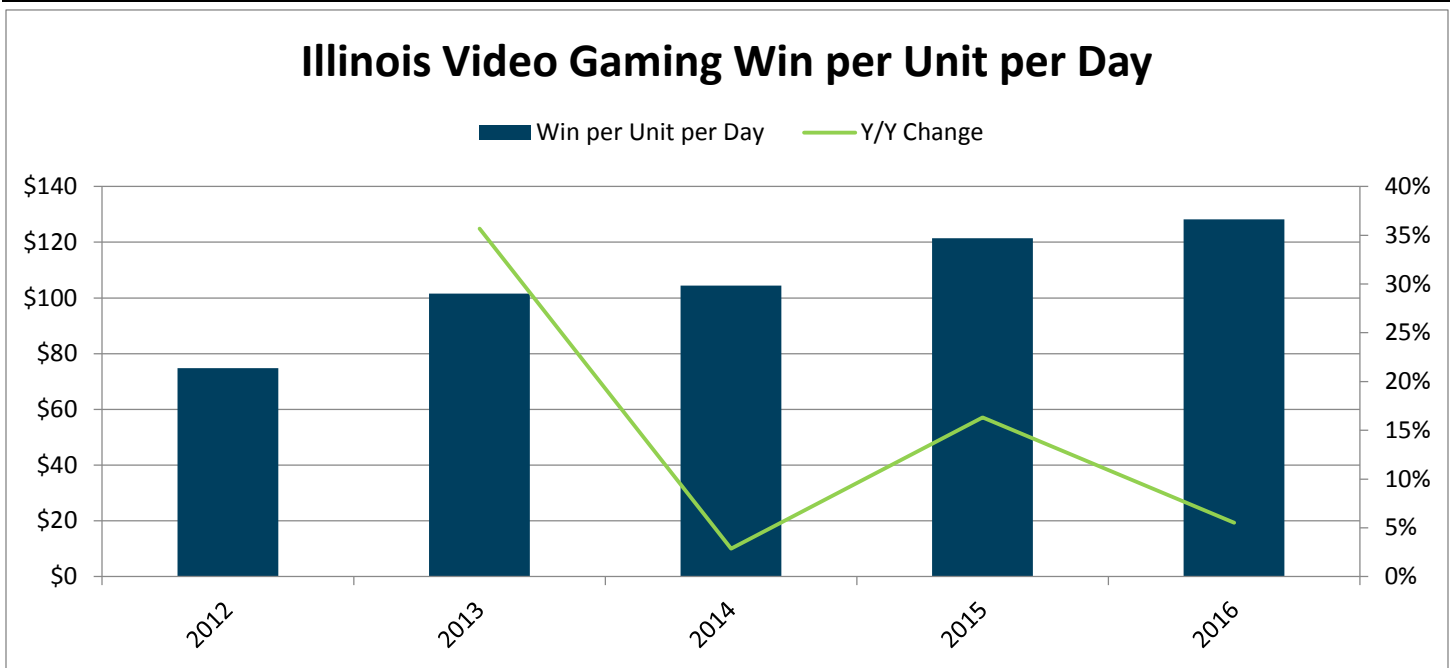


**Figure 5: Illinois Video Gaming Number of Machines**



Source: Illinois Gaming Board, Union Gaming Analytics

**Figure 6: Illinois Video Gaming Win per Unit per Day**

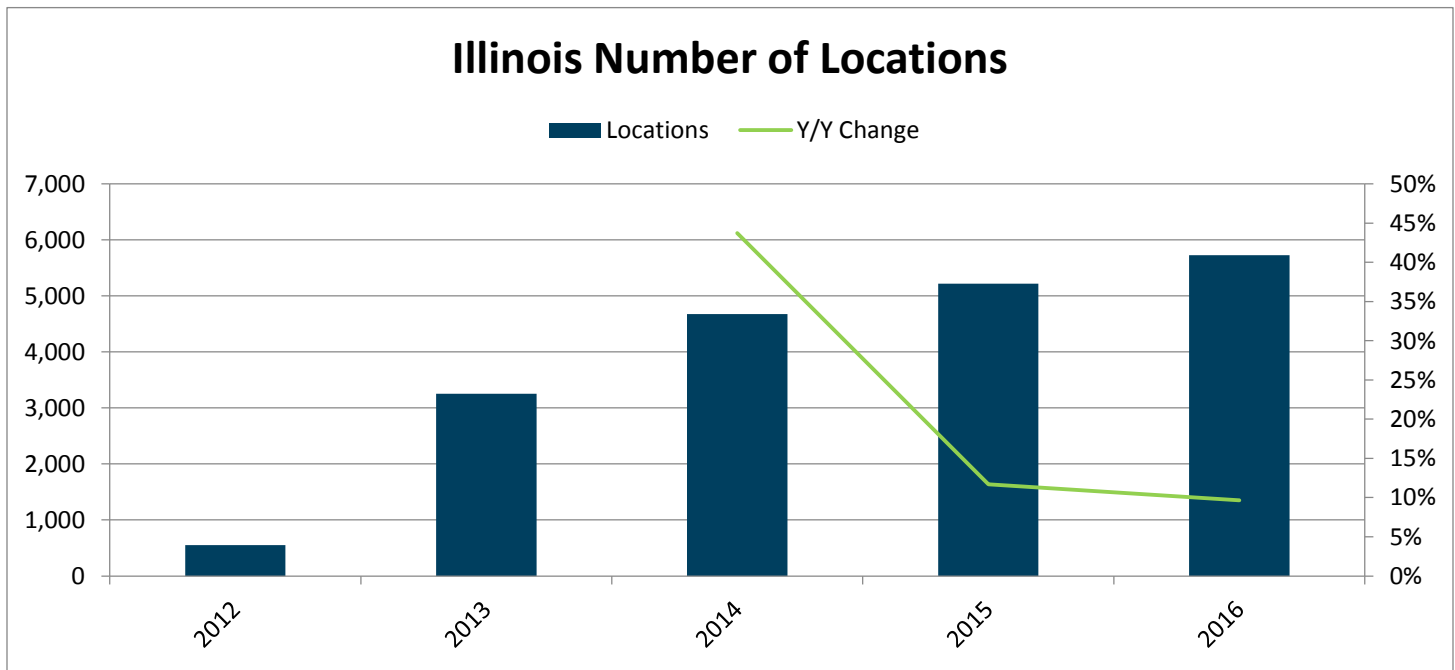


Source: Illinois Gaming Board, Union Gaming Analytics



The number of video gaming locations in Illinois has grown as a similar albeit slightly slower pace than the number of machines. As of December 2016, there were 5,726 establishments offering VGT in the state of Illinois. In Illinois' first full year of VGT operations (2013), there were 3,253 video gaming locations, that number grew 44% in 2014, 12% in 2015, and 10% in 2016 (Figure 7).

**Figure 7: Illinois Number of Video Gaming Locations (Year End)**



Source: Illinois Gaming Board, Union Gaming Analytics

The majority of VGT establishment owners have the maximum allowed number of machines, while fewer than 5% have one or two machines (Figure 8).

**Figure 8: Illinois VGT Count by Number of Machines**

Illinois	Establishments	
	#	%
5 machines	3,506	61.2%
4 machines	956	16.7%
3 machines	981	17.1%
2 machines	275	4.8%
1 machine	8	0.1%
Total	5,726	100.0%

Source: Illinois Gaming Board, Union Gaming Analytics

### Illinois VGT Participation Analysis

We analyzed the market on a municipal level and determined the participation rate for VGT installation among eligible establishments, which we then applied to the municipalities which have yet to opt-in. The type of establishment is impactful towards VGT participation, so we first break down existing Illinois VGT



establishment mix into the following categories: bars/taverns, fraternal and veteran’s associations, and truck stops (Figure 9). Note that the breakdown of licenses as provided by the state of Illinois includes all licenses, not just those that are currently operating VGTs, hence the discrepancy between the year-end 2016 figure of 5,726 compared to the total licenses of 6,261.

**Figure 9: Illinois VGT Establishment Mix**

Category	Establishments (Feb 2017)
Bars/Taverns	5,574
Fraternal and Veteran's Associations	463
Truck Stops	224
<b>Total</b>	<b>6,261</b>

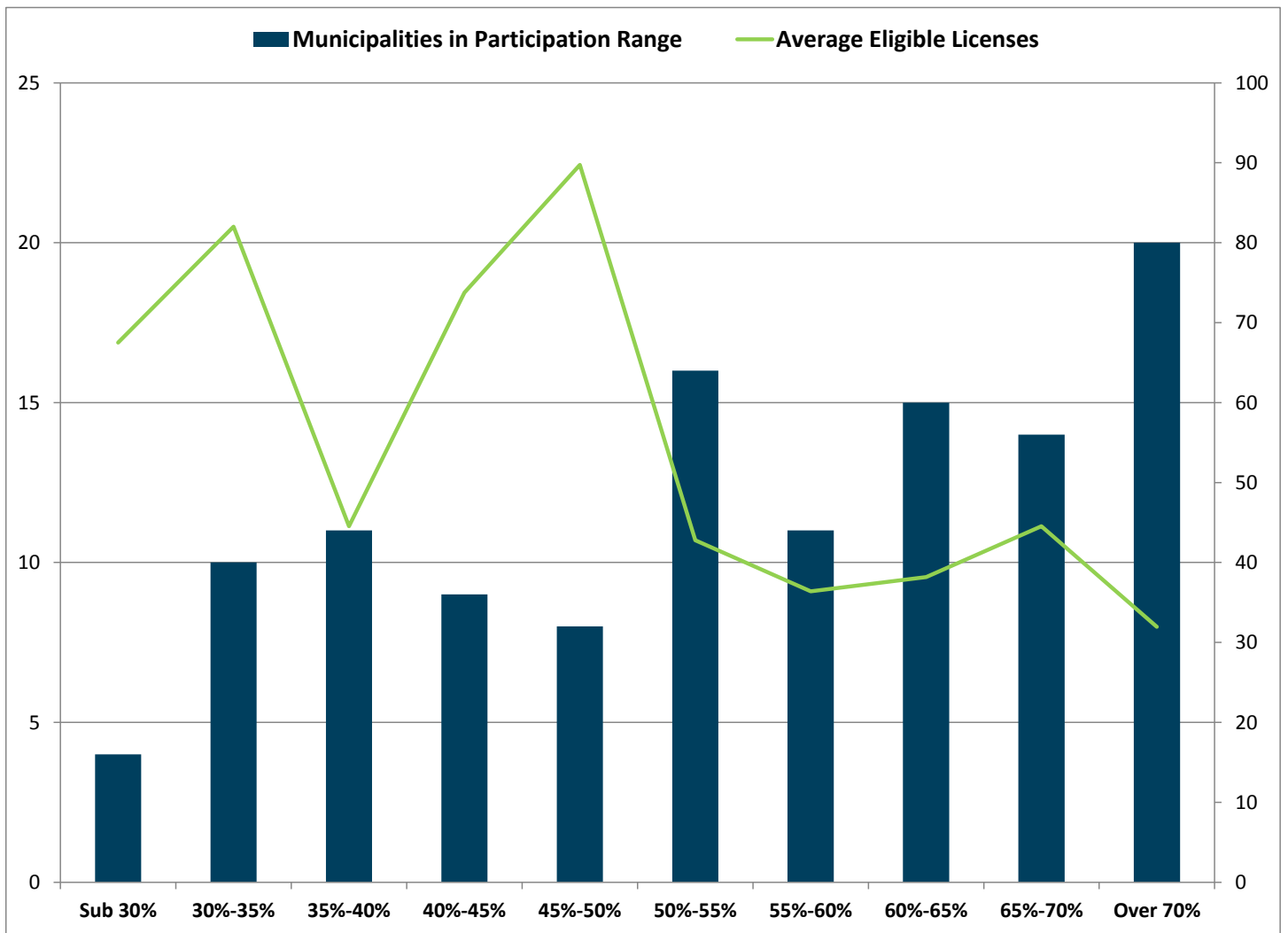
Source: Illinois Gaming Board, Union Gaming Analytics

We compared the number of VGT establishments in each municipality to the number of eligible establishments using the list of on premises liquor consumption licenses from the Illinois Liquor Control Board. We limited our sample to municipalities with at least 20 eligible liquor license holders to ensure that each municipality had sufficient sample size to avoid extreme data points. We then categorized the set of municipalities by according to the VGT participation rate, presented as a histogram in Figure 10. The following chart also shows the average number of eligible liquor licenses among municipalities with participation rates within each range, shown on the right axis.





**Figure 10: Illinois VGT Participation Rate Histogram**



Source: Illinois Gaming Board, Union Gaming Analytics

What we found in our analysis is that average participation rate tends to skew over 50% on the municipal level. However, the average size of the municipalities with participation rate of over 50% is considerably lower. The larger municipalities are not as common but have more eligible licenses and tend to have fewer establishment owners installing VGTs, while the more numerous smaller municipalities tend to have higher participation rates among establishment owners. These two trends counteract each other; the overall ratio of VGT establishments to eligible liquor licenses in this dataset is 51%.

We believe that there are a couple reasons for the disparity in participation between larger and smaller municipalities. Larger municipalities are likely to have a wider variety of liquor license holders, many of whom would rather not install VGTs, including national chain establishments and restaurants for which VGTs may cost them customers, whereas a smaller municipality is likely to have more locally owned bars and taverns relative to the total number of on premises liquor consumption licenses. Also, the smaller municipalities tend to be more rural and more frequently in the southern part of the state where they are less likely to face competition from nearby casinos and therefore may feel that VGTs are a better opportunity.



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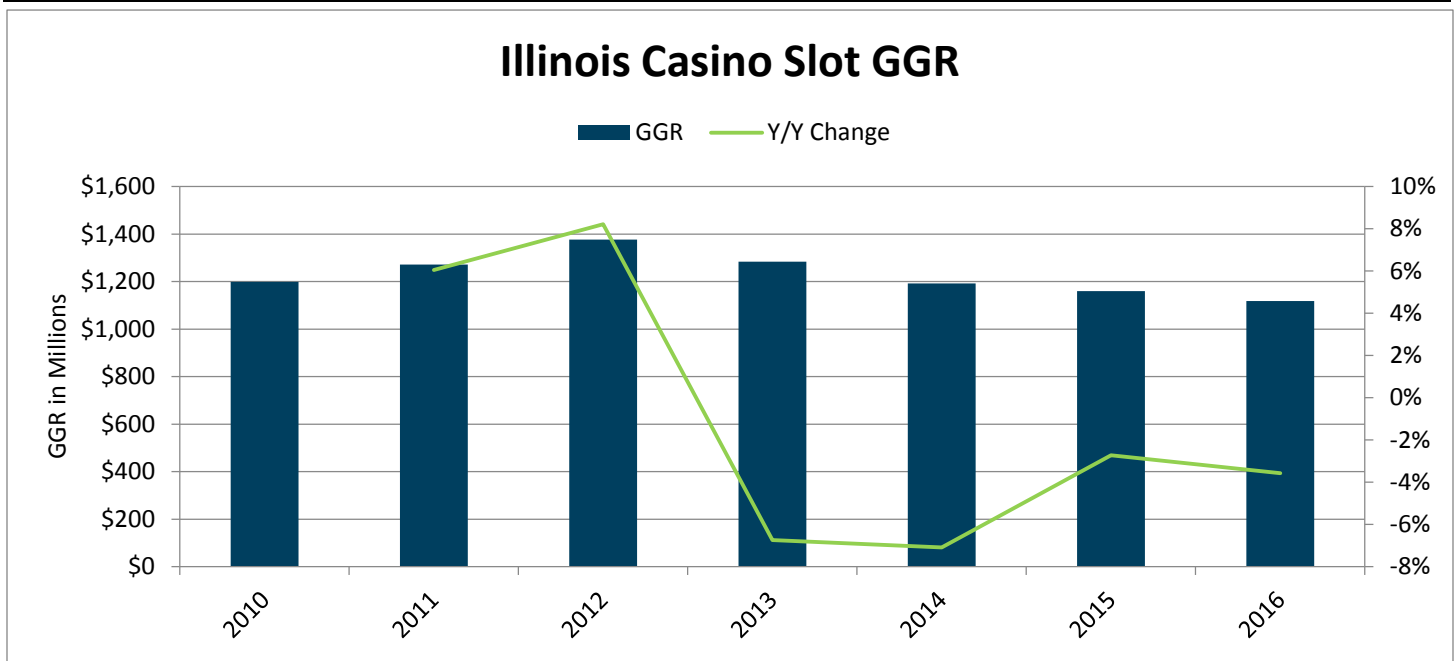
There are a couple additional complications in this analysis that are important to note. Truck stops are the only establishment type that does not require an on premises liquor consumption license, so the number of truck stop VGT establishments is included in the list of VGT establishments but not the eligible liquor license total, therefore inflating the percentages. The other complicating factor is the existence of slot cafes, for which a liquor license will be obtained but the license was obtained for the purpose of creating a VGT establishment. In keeping both of those factors in mind, we believe that the likely participation rate for VGT installation among existing eligible license holders is lower than the 51% figure we found for our Illinois municipal dataset, and we have factored that into our Pennsylvania analysis.



## Casino Gaming Market

The recent trend in casino slot GGR in Illinois show a peak in 2012 following the stabilization of the market after the opening of Rivers Casino, then declines coinciding with the introduction of VGTs to the market. Though the market appears to still be contracting, the annual percent change saw significant improvement in 2015 versus 2014 (Figure 11).

**Figure 11: Illinois Casino Slot GGR**

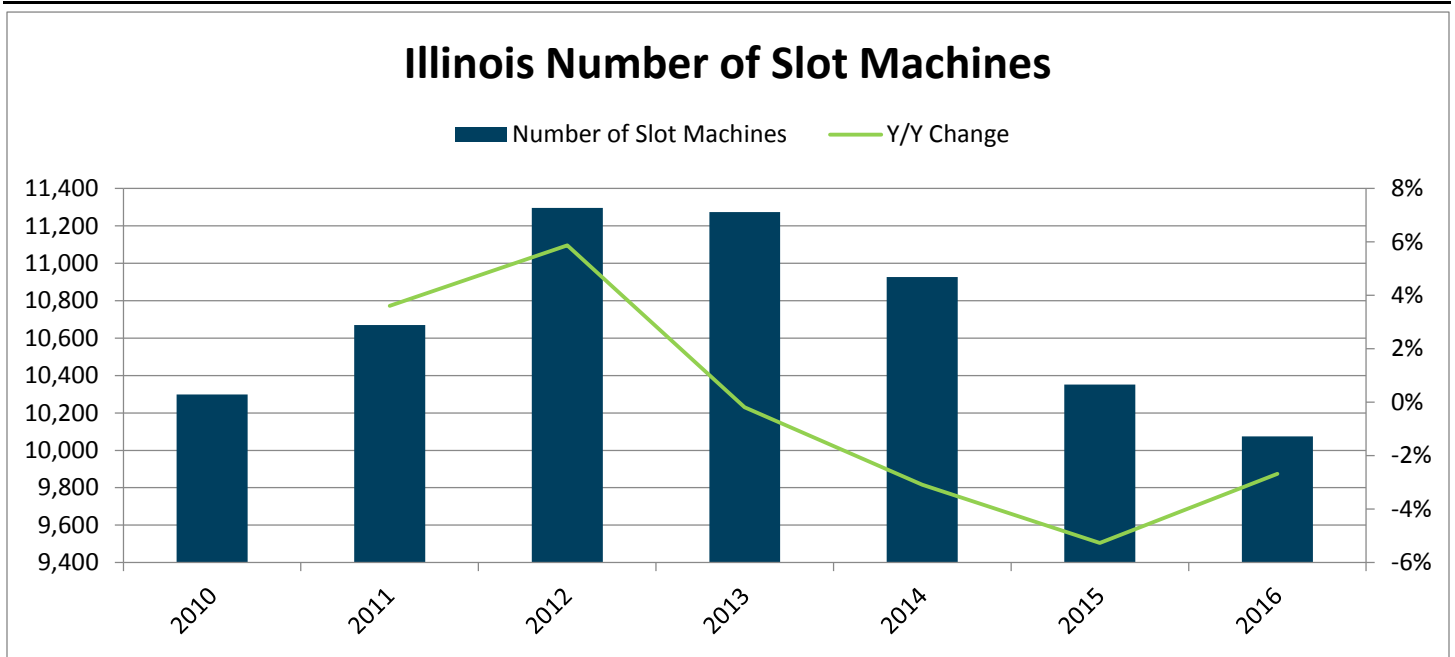


Source: Illinois Gaming Board, Union Gaming Analytics



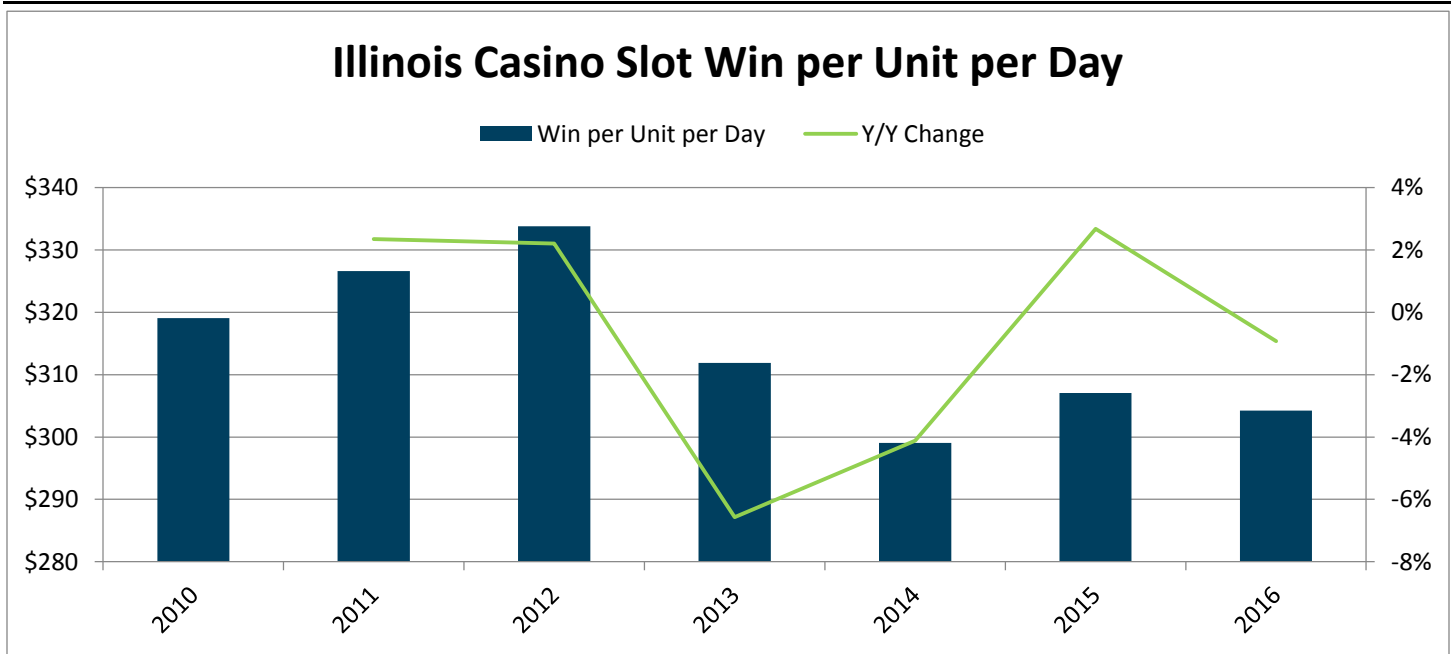
The casinos in the market have reduced units, though not in direct relation to the recent decline in slot GGR, resulting in a couple years of WPU decline, though that trend reversed in 2015 (Figure 12 & Figure 13).

**Figure 12: Illinois Casino Number of Slot Machines**



Source: Illinois Gaming Board, Union Gaming Analytics

**Figure 13: Illinois Casino Slot Win per Unit per Day**



Source: Illinois Gaming Board, Union Gaming Analytics



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Though the Illinois VGT market has 24,840 units compared to 10,074 units in the casinos, the casinos have considerably higher WPU and just over 50% slot market share (Figure 14).

**Figure 14: Illinois Machine Market Summary – Calendar 2016**

CY 2016	Illinois		
	Slot	VGT	Total
GGR (\$mm)	\$1,118.6	\$1,108.1	\$2,226.8
Machines	10,074	24,840	34,914
WPU	\$304	\$122	\$175
Market Share			
Slot GGR	50.2%	49.8%	100.0%
Machines	28.9%	71.1%	100.0%
Population	12,859,995	12,859,995	12,859,995
WPP	\$87	\$86	\$173

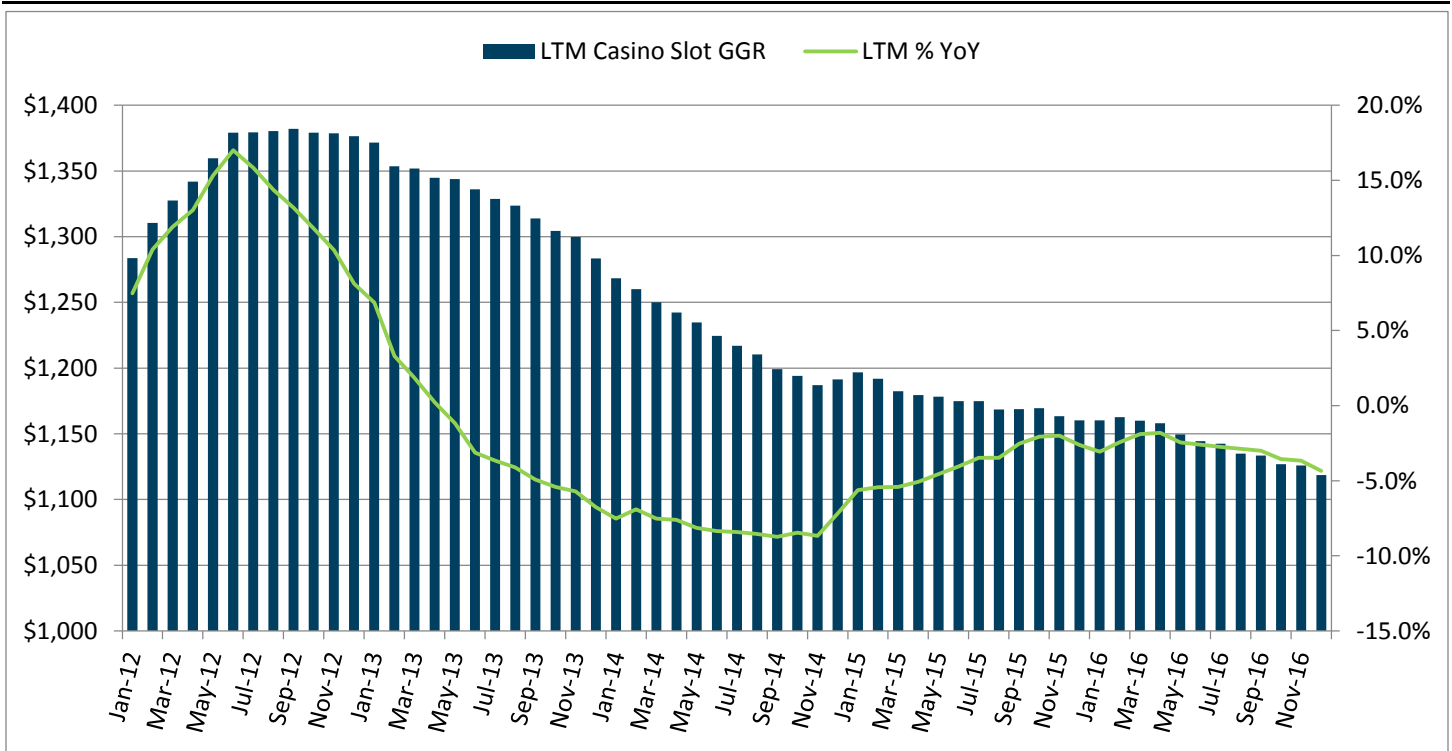
Source: Illinois Gaming Board, Union Gaming Analytics



# Illinois VGT Impact on GGR

The VGTs in Illinois have had an impact on the casino slot GGR in the state. Figure 15 shows the LTM slot GGR on a monthly basis and you can see at the start of the chart the LTM slot GGR is still increasing as the LTM number continues to reflect the increased revenue from Rivers casino, but after leveling off in mid-2012, the LTM slot GGR begins to decline right when the VGTs were introduced in September 2012. The rate of year over year LTM decline bottomed out in late 2014 when declines were nearly 10% per month, then showed signs that the slot GGR market is closing in on stability at a lower baseline before starting to decline again in May of 2016.

**Figure 15: Illinois Casino Slot LTM Trends – January 2012 – December 2016**

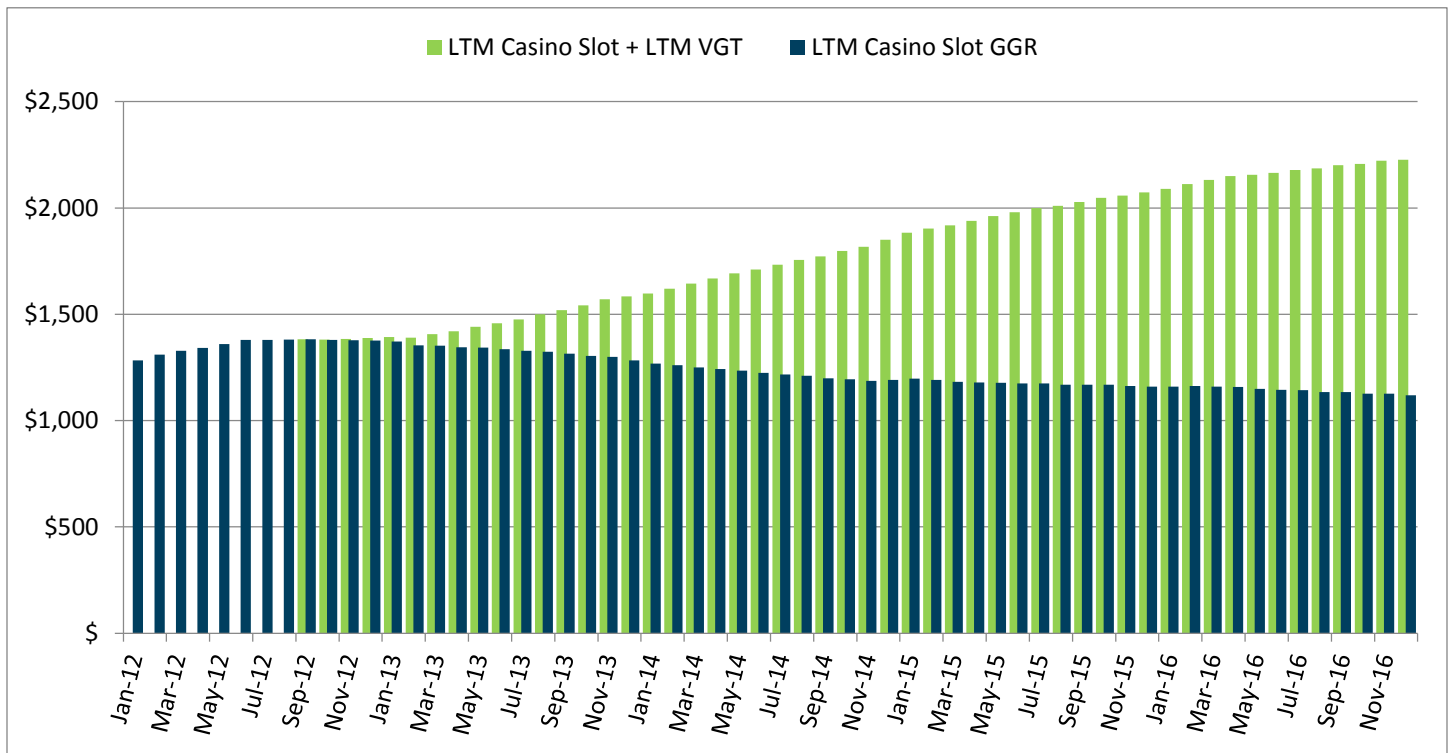


Source: Illinois Gaming Board, Union Gaming Analytics

When adding the VGT GGR and casino slot GGR numbers together into a single trend, the relationship between the increasing VGT GGR and the declining slot GGR is clear. The Illinois slot market appeared to have flattened out in mid-2012, then when the VGTs came online the total slot and VGT combined market has gone in a different direction compared to the casino slot only market. Despite the cannibalization shown, the total slot market has grown enormously to over \$2.2bn from under \$1.4bn which has been hugely beneficial to the state (Figure 16).



**Figure 16: Illinois Slot and VGT GGR LTM Trends**



Source: Illinois Gaming Board, Union Gaming Analytics

In the 12 months prior to the opening of the VGTs in Illinois, the casino GGR totaled \$1.6bn, of which \$1.4bn was slot GGR. In 2016, the casino GGR figure was \$1.4bn, of which \$1.1bn was from slots. Illinois casino GGR is down 13.7% in 2016 from its 2012 levels.

## Regional Adjustment

We assembled a set of diverse regional gaming markets to compare to Illinois’s recent GGR trends in order to separate the impact of VGTs from other external causes of GGR movement.

**Figure 17: US Regional vs Illinois Gaming Market**

GGR (USDk)	Louisiana	Colorado	South Dakota	Michigan	Pennsylvania	Mississippi	Missouri	Iowa	Indiana	Regional Set Total	Illinois
2011	\$2,374,310	\$750,109	\$99,018	\$1,424,445	\$3,026,646	\$2,238,223	\$1,805,288	\$1,423,999	\$2,720,518	\$15,862,557	\$1,477,787
2012	\$2,403,669	\$768,254	\$106,399	\$1,416,734	\$3,156,319	\$2,250,112	\$1,768,916	\$1,467,964	\$2,614,356	\$15,952,724	\$1,637,887
2013	\$2,442,900	\$748,708	\$100,562	\$1,349,504	\$3,113,873	\$2,145,965	\$1,706,753	\$1,416,155	\$2,331,654	\$15,356,074	\$1,551,443
2014	\$2,472,442	\$745,898	\$104,059	\$1,332,783	\$3,069,077	\$2,063,894	\$1,660,361	\$1,395,761	\$2,158,011	\$15,002,285	\$1,465,278
2015	\$2,648,540	\$790,078	\$108,358	\$1,376,408	\$3,173,789	\$2,097,066	\$1,701,908	\$1,405,382	\$2,187,179	\$15,488,709	\$1,431,325
2016	\$2,538,465	\$802,751	\$104,657	\$1,385,602	\$3,213,422	\$2,120,056	\$1,715,123	\$1,446,366	\$2,216,007	\$15,542,450	\$1,413,056

GGR % Change	Louisiana	Colorado	South Dakota	Michigan	Pennsylvania	Mississippi	Missouri	Iowa	Indiana	Regional Set Total	Illinois	Illinois Difference
2012	1.2%	2.4%	7.5%	-0.5%	4.3%	0.5%	-2.0%	3.1%	-3.9%	1.4%	10.8%	9.4%
2013	1.6%	-2.5%	-5.5%	-4.7%	-1.3%	-4.6%	-3.5%	-3.5%	-10.8%	-3.9%	-5.3%	-1.4%
2014	1.2%	-0.4%	3.5%	-1.2%	-1.4%	-3.8%	-2.7%	-1.4%	-7.4%	-1.5%	-5.6%	-4.0%
2015	7.1%	5.9%	4.1%	3.3%	3.4%	1.6%	2.5%	0.7%	1.4%	3.3%	-2.3%	-5.7%
2016	-4.2%	1.6%	-3.4%	0.7%	1.2%	1.1%	0.8%	2.9%	1.3%	0.3%	-1.3%	-1.6%

Source: Illinois Gaming Board, State Gaming Commissions, Union Gaming Analytics

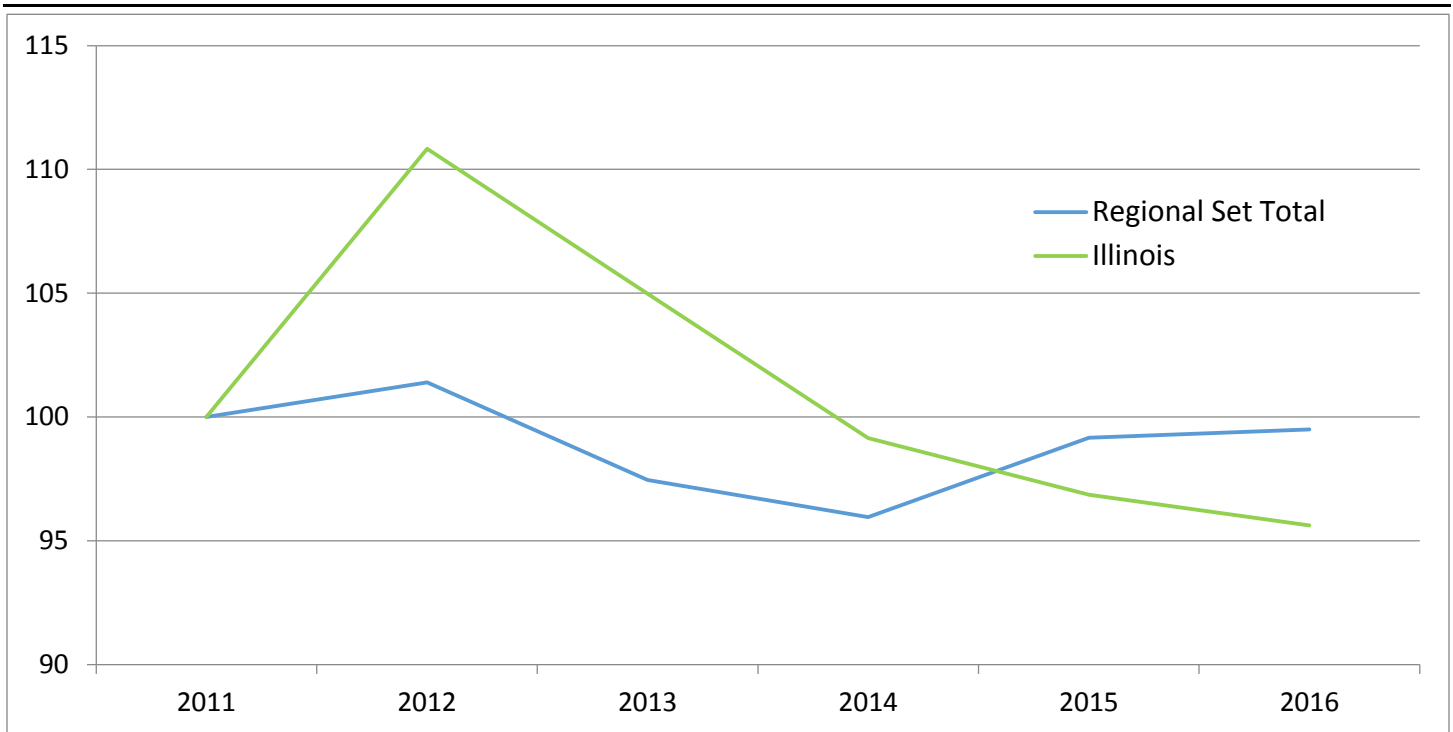


Figure 17 shows the GGR, and the year over year GGR change for this set of state gaming markets. This set shows that 2013 was a generally bad year for U.S. regional gaming, with other Midwestern markets such as Iowa and Missouri declining, as well as more isolated mountain west markets such as Colorado and South Dakota which are both insulated from any meaningful change in their competitive gaming landscape. The set average decline in 2013 was 3.9%, followed by a smaller decline of 1.5% in 2014, a positive year in 2015 with 3.3% growth and a slight increase of 0.3% in 2016.

Though the timing of the decline in Illinois's GGR corresponds with the introduction of VGTs to the market, US regional gaming markets across the country also declined at the same time, indicating that Illinois's 2013 and 2014 declines were not solely due to the VGTs.

Figure 18 shows an indexed comparison of the Illinois gaming market to the set of other regional state gaming markets shown in Figure 17. Illinois spikes in 2012 compared to modest growth elsewhere due to the opening of Rivers casino in Des Plaines, Illinois in mid-2011. The lines both slope down in 2013 and 2014, though Illinois's decline is steeper. In 2015 and 2016, the US regional gaming market is recovering from consecutive negative years, while Illinois's GGR continues to decline.

**Figure 18: US Regional vs Illinois Gaming Market Index**



Source: Illinois Gaming Board, State Gaming Commissions, Union Gaming Analytics

We use the broad patterns in regional gaming to estimate the probable GGR trend for the Illinois market assuming VGTs were never legalized. We attribute the difference between this hypothetical market and the true Illinois gaming market size to isolate VGT cannibalization.





Figure 19 shows the regional average year over year percent GGR change, the difference in Illinois's year over year GGR percent change. Note that while the majority of Illinois's slot market decline took place in 2013 and 2014 (Figure 15), when taking into account the trends of other gaming markets we conclude that the majority of cannibalization has actually taken place in 2015 and 2016. We estimate that in 2015, the Illinois gaming market lost \$170.5mm to the VGT's, a 10.6% decline from what the Illinois market would be without VGTs and in 2016, the Illinois gaming market lost \$194.3mm to the VGT's, a 12.1% decline from what the Illinois market would be without VGTs. This 12.1% estimate is lower than the actual decline of 13.7% since 2012, meaning that poor performance in comparable regional markets indicates that the VGT impact is less severe than it may appear at first look.

**Figure 19: VGT Impact on Illinois Casino GGR**

GGR (USDk)	Regional Average	Illinois Difference	IL Market No VGTs	Actual IL Market	VGT Cannibalization	Natural Market Movement	VGT % Cannibalization
2013	-3.9%	-1.4%	\$1,574,239	\$1,551,443	-\$22,795	-\$63,648	-1.4%
2014	-1.5%	-4.0%	\$1,550,106	\$1,465,278	-\$84,829	-\$23,783	-5.5%
2015	3.3%	-5.7%	\$1,601,799	\$1,431,325	-\$170,473	\$48,863	-10.6%
2016	0.3%	-1.6%	\$1,607,356	\$1,413,056	-\$194,300	\$4,966	-12.1%

Source: Illinois Gaming Board, State Gaming Commissions, Union Gaming Analytics



## Illinois Slot Cafes

Though the Illinois VGT market was originally intended for a similar set of establishments, the market evolved and now has VGT establishments dedicated to gaming, referred to as slot cafes, slot lounges, or slot parlors. The primary focus of these establishments is the slot gaming, rather than the gaming being secondary like it is at most bars, restaurants, and truck stops. These establishments cater to slot players and are more effective at competing with casinos due to the more slot-friendly atmosphere, the organization of the business catering to slot players, and the lack of other customers in the establishment who would not be there solely to game. Many slot players would not necessarily feel comfortable going into a bar just to go play on a VGT, and would rather drive the extra distance to go to a casino in order to be in an environment they prefer; the slot cafes bring that preferred environment at much greater convenience. The cannibalization number referenced in Figure 19 is inclusive of the impacts of these dedicated slot establishments, which have far higher WPU than their more traditional VGT establishments in which the gaming is a secondary attraction. These types of establishments will have a more significant cannibalization impact than the other potential VGT establishments since they offer a much more similar gaming experience to a casino, and appeal more to a traditional slot player.

### Illinois Slot Cafe Total Market

In order to determine the size of the cafe market in Illinois, we conducted a thorough analysis of reports from both the Illinois Gaming Commission and the Illinois Liquor Control Commission. We first used the Illinois VGT reports to identify potential slot cafes based on the license holder name, frequency of appearance in the reports, the number of VGTs in the establishment and the VGT GGR. We cross referenced this data against our data from the Liquor Control Commission to correlate license names with establishment names and establishment addresses, which we used to do more research such as using google street view to examine signage and determine whether an establishment is highlighting its other offerings or is focusing solely on its VGTs. Utilizing the Illinois VGT revenue reports and the list of all Illinois liquor licenses, we estimate that there are approximately 654 slot cafes in Illinois out of the state total 6,231 establishments. Approximately half are owned by large slot cafe operators, while the rest are single establishments or multiple establishments in the same municipality with a local owner. We estimate that 10.5% of the total establishments in the state are slot cafes, though that number is rising.

### Illinois Slot Cafe WPU Analysis

The slot cafes in Illinois do considerably higher WPU on their VGTs than the other types of establishments in their municipalities. Figure 20 and Figure 21 show a set of 20 municipalities, most of which have both slot cafe chain locations as well as a diverse set of other establishments. We chose these municipalities to create a random and representative sample of the state at large. In the municipalities in which these slot cafes are located, they are generally managing to do between double and triple the WPU as their competitors, demonstrating the appeal of their business type to slot players. The other establishments are close to the state average WPU at \$131 WPU over the past three months, while the VGTs located in the cafes in this set are averaging approximately \$298 WPU.



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**Figure 20: Illinois Slot Cafe WPU (1 of 2)**

	Oct-16				Nov-16				Dec-16						
	Establishments	Machines	NTI	WPU	WPU Premium	Establishments	Machines	NTI	WPU	WPU Premium	Establishments	Machines	NTI	WPU	WPU Premium
<b>Crest Hill</b>															
Cafe	3	15	\$112,341	\$250	3.3x	3	15	\$112,886	\$243	3.6x	3	15	\$102,627	\$228	2.9x
Other	11	47	\$107,050	\$76		11	47	\$99,375	\$68		11	47	\$109,083	\$77	
Total	14	62	\$219,391	\$118		14	62	\$212,261	\$110		14	62	\$211,710	\$114	
<b>Alton</b>															
Cafe	1	5	\$59,965	\$400	3.9x	1	5	\$50,549	\$326	3.0x	1	5	\$52,525	\$350	3.0x
Other	30	121	\$372,492	\$103		30	120	\$403,116	\$108		30	123	\$430,228	\$117	
Total	31	126	\$432,457	\$114		31	125	\$453,665	\$117		31	128	\$482,753	\$126	
<b>Fairveiw Heights</b>															
Cafe	2	10	\$102,613	\$342	3.4x	2	10	\$97,512	\$315	3.6x	2	10	\$91,165	\$304	2.7x
Other	9	40	\$122,081	\$102		9	40	\$108,312	\$87		9	40	\$133,775	\$111	
Total	11	50	\$224,694	\$150		11	50	\$205,824	\$133		11	50	\$224,940	\$150	
<b>Addison</b>															
Cafe	4	20	\$189,330	\$316	1.9x	4	20	\$207,400	\$335	2.1x	4	20	\$207,400	\$346	2.1x
Other	12	52	\$265,186	\$170		13	55	\$268,297	\$157		13	55	\$268,297	\$163	
Total	16	72	\$454,516	\$210		17	75	\$475,697	\$205		17	75	\$475,697	\$211	
<b>Waukegan</b>															
Cafe	7	35	\$388,574	\$370	2.2x	7	35	\$357,238	\$329	2.0x	7	35	\$348,897	\$332	1.9x
Other	48	216	\$1,109,758	\$171		48	220	\$1,138,500	\$167		48	223	\$1,163,340	\$174	
Total	55	251	\$1,498,332	\$199		55	255	\$1,495,738	\$189		55	258	\$1,512,238	\$195	
<b>Joliet</b>															
Cafe	4	20	\$215,392	\$359	2.9x	4	20	\$190,566	\$307	2.8x	4	20	\$205,719	\$343	2.9x
Other	70	273	\$1,010,638	\$123		70	273	\$932,892	\$110		70	275	\$971,915	\$118	
Total	74	293	\$1,226,030	\$139		74	293	\$1,123,458	\$124		74	295	\$1,177,634	\$133	
<b>Springfield</b>															
Cafe	17	84	\$749,560	\$297	2.6x	17	84	\$729,186	\$280	2.5x	17	84	\$747,077	\$296	2.6x
Other	109	481	\$1,649,493	\$114		111	491	\$1,698,789	\$112		110	490	\$1,665,419	\$113	
Total	126	565	\$2,399,053	\$142		128	575	\$2,427,975	\$136		127	574	\$2,412,496	\$140	
<b>Elk Grove</b>															
Cafe	5	25	\$292,239	\$390	2.9x	5	25	\$305,844	\$395	3.2x	5	25	\$278,258	\$371	2.7x
Other	11	47	\$191,421	\$136		12	52	\$198,999	\$123		12	52	\$214,591	\$138	
Total	16	72	\$483,660	\$224		17	77	\$504,843	\$211		17	77	\$492,849	\$213	
<b>Champaign</b>															
Cafe	12	60	\$466,432	\$259	1.9x	12	60	\$425,309	\$229	1.8x	12	60	\$471,825	\$262	1.9x
Other	41	184	\$740,562	\$134		41	185	\$721,822	\$126		41	184	\$767,956	\$139	
Total	53	244	\$1,206,994	\$165		53	245	\$1,147,131	\$151		53	244	\$1,239,781	\$169	
<b>Peoria</b>															
Cafe	2	10	\$129,654	\$432	4.0x	2	10	\$124,075	\$400	3.7x	2	10	\$105,482	\$352	3.2x
Other	57	215	\$699,227	\$108		56	212	\$715,398	\$109		56	220	\$731,407	\$111	
Total	59	225	\$828,881	\$123		58	222	\$839,473	\$122		58	230	\$836,890	\$121	

Source: Illinois Gaming Board, Union Gaming Analytics



**Figure 21: Illinois Slot Cafe WPU (2 of 2)**

	Oct-16					Nov-16					Dec-16				
	Establishments	Machines	NTI	WPU	WPU Premium	Establishments	Machines	NTI	WPU	WPU Premium	Establishments	Machines	NTI	WPU	WPU Premium
<b>Aurora</b>															
Cafe	0	0	\$0		-	0	0	\$0		-	0	0	\$0		-
Other	30	135	\$180,470	\$45		30	134	\$555,473	\$134		30	134	\$555,473	\$138	
Total	30	135	\$180,470	\$45		30	134	\$555,473	\$134		30	134	\$555,473	\$138	
<b>Bloomington</b>															
Cafe	1	5	\$31,296	\$209	1.3x	1	5	\$34,670	\$224	1.4x	1	5	\$33,420	\$223	1.3x
Other	54	240	\$1,178,529	\$164		53	231	\$1,161,950	\$162		53	231	\$1,213,319	\$175	
Total	55	245	\$1,209,825	\$165		54	236	\$1,196,620	\$164		54	236	\$1,246,739	\$176	
<b>Cicero</b>															
Cafe	3	15	\$171,756	\$382	2.0x	3	15	\$189,131	\$407	2.2x	3	15	\$167,141	\$371	2.0x
Other	26	107	\$603,431	\$188		25	104	\$590,317	\$183		25	104	\$583,692	\$187	
Total	29	122	\$775,187	\$212		28	119	\$779,448	\$211		28	119	\$750,833	\$210	
<b>Decatur</b>															
Cafe	17	85	\$681,568	\$267	1.9x	17	85	\$671,160	\$255	1.8x	18	90	\$689,772	\$255	1.7x
Other	60	278	\$1,190,741	\$143		61	283	\$1,227,919	\$140		61	288	\$1,322,687	\$153	
Total	77	363	\$1,872,309	\$172		78	368	\$1,899,079	\$166		79	378	\$2,012,459	\$177	
<b>DeKalb</b>															
Cafe	1	5	\$46,719	\$311	2.4x	1	5	\$35,909	\$232	1.8x	1	5	\$35,421	\$236	1.8x
Other	17	72	\$276,001	\$128		17	71	\$287,639	\$131		17	71	\$274,760	\$129	
Total	18	77	\$322,720	\$140		18	76	\$323,548	\$137		18	76	\$310,181	\$136	
<b>Tinley Park</b>															
Cafe	0	0	\$0		-	0	0	\$0		-	0	0	\$0		-
Other	22	101	\$406,441	\$134		21	98	\$373,469	\$123		22	103	\$417,693	\$135	
Total	22	101	\$406,441	\$134		21	98	\$373,469	\$123		22	103	\$417,693	\$135	
<b>Rock Island</b>															
Cafe	0	0	\$0		-	0	0	\$0		-	0	0	\$0		-
Other	18	69	\$267,916	\$129		18	69	\$257,467	\$120		18	70	\$269,313	\$128	
Total	18	69	\$267,916	\$129		18	69	\$257,467	\$120		18	70	\$269,313	\$128	
<b>Peru</b>															
Cafe	1	5	\$33,172	\$221	2.0x	1	5	\$44,183	\$285	2.5x	1	5	\$43,774	\$292	2.7x
Other	19	89	\$290,284	\$109		20	93	\$324,381	\$113		20	93	\$305,282	\$109	
Total	20	94	\$323,455	\$115		21	98	\$368,564	\$121		21	98	\$349,056	\$119	
<b>Summit</b>															
Cafe	1	5	\$54,737	\$365	2.4x	1	5	\$69,129	\$446	3.2x	1	5	\$69,395	\$463	3.2x
Other	18	79	\$354,108	\$149		19	86	\$374,923	\$141		19	86	\$372,200	\$144	
Total	19	84	\$408,845	\$162		20	91	\$444,052	\$157		20	91	\$441,596	\$162	
<b>Set Total</b>															
Cafe	81	404	\$3,725,348	\$307	2.4x	81	404	\$3,644,745	\$291	2.3x	82	409	\$3,649,899	\$297	2.2x
Other	662	2,846	\$11,015,828	\$129		665	2,864	\$11,439,040	\$129		665	2,889	\$11,770,432	\$136	
Total	743	3,250	\$14,741,176	\$151		746	3,268	\$15,083,785	\$149		747	3,298	\$15,420,331	\$156	

Source: Illinois Gaming Board, Union Gaming Analytics

**Illinois Slot Cafe Ramp Analysis**

Figure 22 shows the expansion of the eight largest slot cafe chains currently operating in the state of Illinois. The slot cafe concept experienced the majority of its growth in 2014. Among the largest chains existing today, none had any establishments operating at the end of 2012, and in 2013 just 45 out of the current total of 221 were operating. 2014 was the period of the largest growth, indicating that these types of establishments will have a slower ramp than the more traditional establishments. The first twelve months after VGTs were introduced in Illinois, September 2012 through August 2013, was the period of the most rapid VGT growth (Figure 44), while the growth in slot cafes didn't peak until over a year after that. While other establishment types just have to essentially put VGTs in their business somewhere, the cafes would have to find a pre-existing business or empty storefront, buy it, completely remodel the interior, and acquire a liquor license, making the process for creating a slot cafe much slower. As of December 2016 the slot cafe market share of establishments among these eight operators is 3.9%. Their VGT unit market share is 4.4% because they always have the maximum of 5 units and thus have a higher average machines per establishment than the rest of the market, and their VGT NTI market share of 10.9% demonstrates how much more appealing these machines are to slot gamers than the VGTs at other establishments (Figure 22).



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**Figure 22: Illinois Slot Cafe Ramp**

	2012	2013	2014	2015	2016
<b>Blackhawk Restaurant Group</b>					
Establishments (end of period)	0	10	50	59	65
Units (end of period)	0	50	250	295	325
NTI	\$0	\$812	\$16,158,130	\$36,409,883	\$41,898,080
<b>Illinois Cafe &amp; Service Co</b>					
Establishments (end of period)	0	10	34	39	41
Units (end of period)	0	50	170	195	205
NTI	\$0	\$77,600	\$6,787,859	\$17,649,863	\$21,440,218
<b>Stella's</b>					
Establishments (end of period)	0	3	17	28	36
Units (end of period)	0	15	85	135	179
NTI	\$0	\$65,774	\$6,032,814	\$12,602,441	\$18,507,441
<b>Lucy's</b>					
Establishments (end of period)	0	20	21	22	24
Units (end of period)	0	100	105	105	120
NTI	\$0	\$2,815,139	\$8,915,606	\$10,785,096	\$11,495,186
<b>Suzi's</b>					
Establishments (end of period)	0	2	11	11	17
Units (end of period)	0	10	55	55	85
NTI	\$0	\$65,154	\$2,285,236	\$4,476,146	\$5,532,650
<b>SOILL Restaurant Systems</b>					
Establishments (end of period)	0	0	6	12	16
Units (end of period)	0	0	30	60	80
NTI	\$0	\$0	\$686,923	\$4,748,216	\$8,331,207
<b>Shelby's</b>					
Establishments (end of period)	0	0	6	11	11
Units (end of period)	0	0	30	55	55
NTI	\$0	\$0	\$1,550,727	\$4,726,159	\$6,636,640
<b>Pinewoods Restaurant Group</b>					
Establishments (end of period)	0	0	13	11	11
Units (end of period)	0	0	65	55	55
NTI	\$0	\$0	\$2,750,740	\$5,965,727	\$7,186,379
<b>VGT Cafe Set Total</b>					
Establishments (end of period)	0	45	158	193	221
Units (end of period)	0	225	790	955	1,104
NTI	0	\$3,024,479	\$45,168,036	\$97,363,531	\$121,027,800
Establishment Market Share	0.0%	1.4%	3.4%	3.7%	3.9%
Unit Market Share	0.0%	1.7%	4.1%	4.3%	4.4%
NTI Market Share	0.0%	1.0%	6.8%	10.7%	10.9%
<b>State Totals</b>					
Establishments (end of period)	549	3,253	4,675	5,222	5,726
Units (end of period)	2,290	13,369	19,182	22,135	24,840
NTI	\$12,302,262	\$300,717,311	\$659,511,405	\$913,604,038	\$1,108,145,508

Source: Illinois Gaming Board, Union Gaming Analytics



The Illinois gaming market is down 13.7%, or \$224.8m, from its level before the VGTs were introduced in the state, but after analysis of both the broad decline in US regional gaming revenue over the span and the increased revenue and impact on casino gaming due to slot cafes in the state, we conclude that the VGT impact excluding these two factors is just 7.2%, or \$115m (Figure 23). We present a more detailed methodology behind our estimate of the Illinois market without slot cafes in the following section and in Figure 37.

**Figure 23: Illinois Gaming Market Cannibalization due to VGTs – Adjusted**

Market Scenario (\$ in mm)	GGR	\$ Difference vs Actual	% Difference vs Actual	\$ Difference vs Regionally Adjusted	% Difference vs Regionally Adjusted
IL GGR Pre-VGT (2012)	\$1,637.9				
IL GGR 2016 Estimate without VGTs	\$1,607.4	-\$30.5	-1.9%		
IL 2016 GGR Actual	\$1,413.1	-\$224.8	-13.7%	<b>-\$194.3</b>	<b>-12.1%</b>
IL 2016 GGR without Cafes	\$1,492.4	-\$145.5	-8.9%	<b>-\$115.0</b>	<b>-7.2%</b>

Source: Illinois Gaming Board, Union Gaming Analytics



# Pennsylvania Gaming Market Background

## Historical Overview of Pennsylvania Gaming Market

The Pennsylvania Legislature approved casinos with slot machines in July 2004. The original legislation envisioned 14 gaming licenses with seven of the licenses to be issued to racing facilities, five of the licenses for new stand-alone casinos, and two licenses for resort casinos attached to hotels with a limited number of slots and gaming restricted to registered guests. The provision limiting play to registered guests was later modified, and in 2010 the State Legislature approved live table games for all licensees.

The twelve operating locations are spread throughout the state. Four are in the vicinity of Philadelphia and two are in the vicinity of Pittsburgh. Three are located in the eastern part of the state where they draw significant visitation from New York and New Jersey and one is located in the northwest portion of the state drawing mostly from Ohio. One is located in the central part of the state near the capital city of Harrisburg and one location is in a resort area in the southwestern part of the state about 90 minutes outside of Pittsburgh.

A license designated for a location in the city of Philadelphia was awarded to Stadium Casino LLC, a venture of Greenwood Gaming, operators of the Parx Casino and Cordish Cos., operators of the Live! Casino in Maryland. The casino will be located next to the city's three sports stadiums and is expected to open in 2018 with 2,000 slots, 100 tables and a 200-room hotel with a spa and conference center.

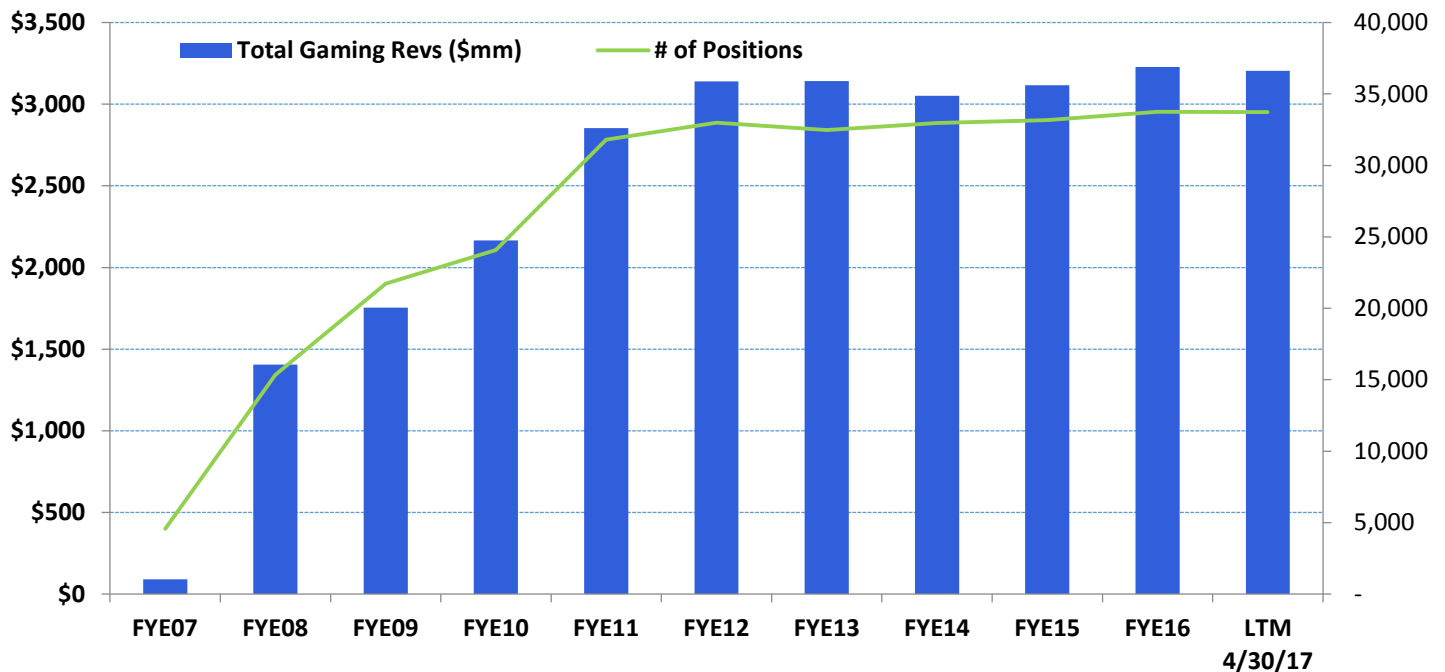
The remaining casino license available for a racetrack location has not been issued. A harness racing license was awarded to Centaur Gaming for its Valley View Downs proposal, located in New Castle, near the border with Youngstown, OH. Centaur was not granted the casino license needed to proceed with construction of the facility due to a lack of sufficient funding in 2008 and Centaur later declared bankruptcy. The racing license was purchased by American Harness Tracks LLC in 2010 and then sold in 2012 to Endeka Entertainment which had planned to partner with Penn National to build the project. After Penn National backed out stating the market was oversaturated, in October 2015 Endeka sold the rights to the project to Joseph Procacci, a Philadelphia investor. Procacci was unable to obtain the casino license due to a required stringent financing and construction timeline and the project reverted back to Endeka. Endeka has stated it will postpone further efforts for at least a year and the project's future remains in question.



## Historical Overview of Pennsylvania Gross Gaming Revenues

Mohegan Sun at Pocono Downs was the first casino/racino to open in Pennsylvania in November of 2006. As the additional casinos/racinos in the state opened, GGR grew from FYE07 to FYE13, with revenues of \$3.14bn for the fiscal year ended June 30, 2013 (Figure 24). However, due to increased competition in the northeast and other surrounding states, Pennsylvania GGR declined in FYE14 for the first time to \$3.05bn or a decline of 2.9% year-over-year. Revenues recovered somewhat in FYE15 to \$3.12bn and increased again in FYE16 to a record \$3.23bn. For the twelve month period ending April 30, 2017, revenues were \$3.21 billion with slot revenue of \$2.34bn or \$243 win/unit/day, and table game revenue was \$861.8mm or \$1,942 table/win/day (Figure 25). Currently there are approximately 26,434 slots and 1,216 table games in the 12 locations (Figure 26).

**Figure 24: Pennsylvania Historical Gaming Revenues and Number of Gaming Positions**

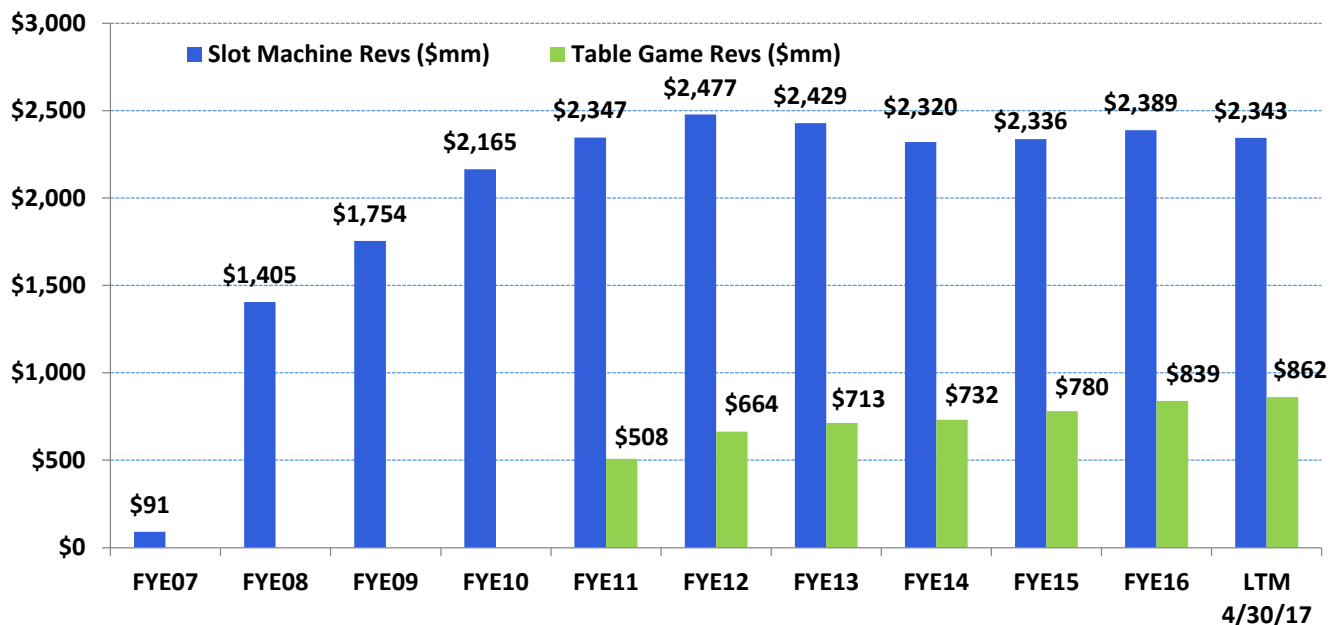


Source: Pennsylvania Gaming Control Board, Union Gaming Analytics. Fiscal year (FYE) ends June 30<sup>th</sup>.





**Figure 25: Pennsylvania Historical Slot and Table Game Revenues**



Source: Pennsylvania Gaming Control Board, Union Gaming Analytics. Fiscal year (FYE) ends June 30<sup>th</sup>.

**Figure 26: Pennsylvania Gaming Market**

Property	Opening Date	Category	GGR (\$ mm)	LTM 4/30/16						
				Slot / VLT Revenue (\$ mm)	Total Slots	Slot Win / Day	Table Revenue (\$ mm)	Total Tables	Table Win / Day	
Mohegan Sun at Pocono Downs (Wilkes-Barre)	Nov. 2006	Category I	\$255.1	\$210.7	2,325	\$248	\$44.4	91	\$1,341	
Parx Casino and Racing (Bensalem)	Dec. 2006	Category I	\$553.0	\$386.4	3,493	\$303	\$166.6	175	\$2,608	
Harrahs Philadelphia (Chester)	Jan. 2007	Category I	\$266.8	\$201.8	2,624	\$211	\$65.0	109	\$1,632	
Presque Isle Downs (Erie)	Feb. 2007	Category I	\$128.2	\$113.2	1,588	\$195	\$15.0	40	\$1,035	
Meadows Racetrack and Casino (North Strabane TWN)	Jun. 2007	Category I	\$252.2	\$219.1	3,130	\$192	\$33.2	82	\$1,108	
Mt. Airy Casino (Stroudsburg)	Oct. 2007	Category II	\$186.2	\$141.3	1,868	\$207	\$44.9	81	\$1,514	
Hollywood Casino at Penn National (Grantville)	Feb. 2008	Category I	\$245.5	\$210.0	2,382	\$241	\$35.6	73	\$1,332	
Sands Casino Bethlehem (Bethlehem)	May 2009	Category II	\$540.2	\$305.7	3,013	\$278	\$234.5	232	\$2,769	
Rivers Casino (Pittsburgh)	Aug. 2009	Category II	\$331.1	\$265.0	2,938	\$247	\$66.0	121	\$1,492	
Sugarhouse Casino (Philadelphia)	Sep. 2010	Category II	\$297.0	\$180.5	1,876	\$264	\$116.5	134	\$2,387	
Valley Forge Casino (Upper Merion Township)	Mar. 2012	Category III	\$115.6	\$79.7	599	\$364	\$35.9	50	\$1,968	
Lady Luck Casino (Nemacolin)	Jul. 2013	Category III	\$34.2	\$29.9	597	\$137	\$4.3	28	\$420	
<b>Total</b>			<b>\$3,205.1</b>	<b>\$2,343.2</b>	<b>26,434</b>	<b>\$243</b>	<b>\$861.8</b>	<b>1,216</b>	<b>\$1,942</b>	

Category I = Racino, Category II = Stand-alone Casino, Category III = Resort Casino

Source: Pennsylvania Gaming Control Board, Union Gaming Analytics



# Pennsylvania VGT Analysis

## Gravity Model Introduction

Our method of analysis is based on gravity model principles, and is a variant of our proprietary gravity model. The gravity model is based on the principle that the closer an individual is to a casino, the higher the ‘gravity’ of that casino will be, which leads to higher gaming total spending by individuals who are closer to a gaming option. It also indicates that given two gaming options, the proximity to each option is a critical factor to consider along with the relative quality of the gaming options in determining which gaming option is more likely to capture that consumer’s gaming budget.

The gravity model is used in this case to divide the population relative to their distance to the closest casino. If VGTs are added to the gaming market, they present a gaming option that will typically be closer to the consumer, but don’t offer nearly as comprehensive of a gaming experience as is offered at a full casino, so the impact of gravity competes with the impact of the quality of the gaming offering in determining consumer choice. Customers who are farther from a casino are more likely to choose VGT gaming, while consumers closer to a casino are more likely to choose casino gaming on the basis of this gravity effect.

## Projections

We forecast a VGT market of \$1.24bn in Pennsylvania in our stabilized market, with 8,239 VGT establishments and 36,418 VGTs. This is slightly larger than the existing Illinois VGT gaming market in terms of revenue, though we do expect the Pennsylvania market to have substantially more VGT supply and therefore lower WPU (Figure 27). We use Illinois as our primary point of comparison due to the similar populations of the state, the fact that both states had existing and robust gaming markets prior to the introduction of VGTs, and it is the most recent state to introduce VGTs.

**Figure 27: Illinois VGT Gaming Supply Comparison Metrics**

	Pennsylvania (2020)	Illinois (2016)
Population	12,965,132	12,837,801
Establishments	8,239	5,726
VGTs	36,418	24,840
VGT GGR (USDmm)	\$1,242.4	\$1,108.1
WPU	\$93	\$122

Source: Illinois Gaming Board, ESRI, Union Gaming Analytics

## Pennsylvania and Illinois VGT Bill Comparison

While the majority of the Pennsylvania VGT bill (HB 1010) is very similar to the Illinois VGT bill (Public Act 96-0034), there are some relevant differences between the two bills that could have financial implications in Pennsylvania. In Figure 28 we detail the main differences between the two bills.



### Figure 28: Pennsylvania and Illinois VGT Bill Comparison

	Pennsylvania	Illinois
Number of VGTs per establishment licensee	- no more than 10 for truck stops - no more than 10 for nonprimary locations - no more than 5 for establishments licensee that is not a truck stop or nonprimary location	5, regardless of establishment type
Maximum Wager	Shall not exceed \$5.00	Shall not exceed \$2.00
Maximum cash award	Share not exceed \$1,000	Share not exceed \$500
Tax Rate	38% (34% to the Commonwealth and 4% local share assessment)	30%
Theoretical Pay Out	Minimum of 85% of the amount wagered	No less than 80% of amount wagered
Municipal Approval	No local approval required	Municipalities must locally opt in

Source: Pennsylvania General Assembly, Illinois Gaming Board, Union Gaming Analytics

## Illinois Comparison

The recent introduction of VGTs to the Illinois market is our best comparison case for how the VGTs will perform in the Pennsylvania market. The states have very similar populations and income levels, and both states had robust existing casino gaming markets. In Figure 29 and Figure 30 we show the way in which we used the Illinois VGT market as a basis for comparison to the potential Pennsylvania market. We broke up the Illinois VGT market and the state population into three categories based on the drive time to their closest casino: less than 30 minutes, between 30 and 60 minutes, and over 60 minutes. We accomplished this segmentation by uploading the location of every Illinois casino and casino near the Illinois border into our mapping software and created drive time areas of 30 and 60 minutes around each casino location. We then extracted the population and income data on a zip code level from each drive time zone and aggregated the data to identify the total population and income for each casino drive time distance segment. We conducted the same mapping analysis in Pennsylvania to segment the population as well. The proximity to an existing casino has a clear impact on the VGT market in both supply and demand.

### VGT Supply

In terms of supply, the quantity of machines and establishments relative to the population rises as you get farther from a casino, indicating that proprietors are more eager to operate VGTs when farther from competition. The location of casinos in population rich areas also indicates a trend of more VGTs in rural areas on a population adjusted basis. This trend would likely emerge even without any casinos in the state (though not to the same degree) due to a greater volume and variety of entertainment options in cities than in rural areas, and a higher ratio of bars to population in rural areas as well. The VGTs per then thousand people follows essentially the same trend as the establishments, increasing as you get farther from casino competition (Figure 29).



**Figure 29: Illinois VGT Gaming Supply Comparison Metrics**

Illinois Group	Population	Total Income (m)	Year End 2016 Establishments	Year End 2016 VGTs	Est. Avg LTM Machines	VGTs per Ten Thousand People	Establishments per Ten Thousand People	VGTs per Establishment
Sub 30	8,662,278	270,571.2	2,320	10,044	9,574	11.6	2.7	4.3
30-60	2,357,443	74,307.3	1,658	7,069	6,739	30.0	7.0	4.3
Over 60	1,818,080	47,134.4	1,748	7,727	7,366	42.5	9.6	4.4
Total	12,837,801	392,012.9	5,726	24,840	23,679	19.3	4.5	4.3

Source: Illinois Gaming Board, ESRI, Union Gaming Analytics

**VGT Demand**

The two metrics in which we look at the VGT revenue are Win per Person (“WPP”), and income allocation. WPP is GGR divided by the population, and income allocation is the GGR divided by the total income, calculated by multiplying per capita income by the population. Demand for VGT gaming increases as you get farther from casino competition. This means that VGT gaming fills in as a more convenient alternative to casino gaming, but as you get closer to an available casino patrons tend to prefer going to full casinos (Figure 30).

**Figure 30: Illinois VGT Gaming Revenue Comparison Metrics**

Illinois Group	Population	Total Income (m)	Est. Avg LTM Machines	2016 VGT GGR	VGT WPU	2016 Income Allocation	2016 WPP
Sub 30	8,662,278	270,571.2	9,574	\$483.1	\$138	0.18%	\$56
30-60	2,357,443	74,307.3	6,739	\$282.2	\$115	0.38%	\$120
Over 60	1,818,080	47,134.4	7,366	\$342.8	\$128	0.73%	\$189
Total	12,837,801	392,012.9	23,679	\$1,108.1	\$128	0.28%	\$86

Source: Illinois Gaming Board, ESRI, Union Gaming Analytics

**VGT vs. Casino Market Share**

In order to come up with total slot machine spending metrics for Illinois, we combine the 2016 VGT numbers with estimates of casino slot machine spending. Using assumptions based on our experience with a large number of US regional casino databases, we estimate the origin of slot gaming revenue to the Illinois casinos based on the same distance bands used for the VGT analysis (Figure 31).

**Figure 31: Illinois VGT vs Casino GGR**

Illinois Group	2016 VGT GGR	2016 Income Allocation	2016 WPP	Est. Casino Slot GGR	Casino Slot WPP	Casino Slot Income Allocation	Total Machine GGR	Total Machine WPP	Total Machine Income Allocation	VGT Market Share	Casino Slot Market Share
Sub 30	\$483.1	0.18%	\$56	\$852.2	\$98	0.31%	\$1,335.3	\$154	0.49%	36%	64%
30-60	\$282.2	0.38%	\$120	\$154.6	\$66	0.21%	\$436.8	\$185	0.59%	65%	35%
Over 60	\$342.8	0.73%	\$189	\$111.9	\$62	0.24%	\$454.7	\$250	0.96%	75%	25%
Total	\$1,108.1	0.28%	\$86	\$1,118.6	\$87	0.29%	\$2,226.8	\$173	0.57%	50%	50%

Source: Illinois Gaming Board, Union Gaming Analytics



## Illinois and Pennsylvania: Key Differences

There are a few key differences that needed to be considered before using these metrics as a basis for prediction of the potential Pennsylvania VGT market.

### Capacity Constraints: Impact on Demand

First are the gaming position caps at Illinois's casinos. The riverboat casinos in Illinois are limited to 1,200 total gaming positions, which include slots and tables. This restriction prevents the casinos from adequately responding to market demand. In our estimation, this had had a dramatic effect on the size of the total casino gaming market and particularly the gaming market of Chicago. Figure 32 shows a set of other MSA gaming markets we used for comparison to test the impact of capacity constraints on the Chicago MSA gaming market. The high ratio of population versus total gaming positions in Chicago of 746 vs a range in the comparison set of 188 to 451 demonstrates the lack of gaming supply, and the low WPP of just \$183 vs a comp set range of \$293 to \$431 demonstrates the way in which the undersupply effects GGR. The Chicago MSA income allocation to gaming of 0.56% is also far below this comparison set, which are all over 1%. The capacity constraints have kept Illinois's total casino slot machine count to just 10,074, while the casino slot machine count in Pennsylvania is 26,498.

**Figure 32: MSA Gaming Market Comparisons**

Comp Dataset	Market Data		Combined							
	Population (millions)	Aggregate Income (\$M)	Positions	People Per Position	Local GGR (\$M)	Visitor GGR (\$M)	Total GGR (\$M)	Win Per Position (\$)	Local WPP (\$)	Local Win Per Income
Baton Rouge	0.8	\$21,943.9	3,236	248	\$259.6	\$35.4	\$294.9	\$250	\$323	1.18%
Cincinnati	2.1	\$63,097.0	10,210	207	\$752.4	\$78.1	\$830.4	\$223	\$356	1.19%
Detroit	4.3	\$127,083.1	9,520	451	\$1,301.6	\$84.0	\$1,385.6	\$399	\$303	1.02%
Kansas City	2.0	\$62,968.6	8,417	242	\$685.2	\$58.4	\$743.6	\$242	\$336	1.09%
New Orleans	1.2	\$34,314.5	6,517	188	\$360.1	\$222.3	\$582.3	\$245	\$293	1.05%
St. Louis	2.8	\$86,012.6	10,568	265	\$890.7	\$122.5	\$1,013.2	\$263	\$319	1.04%
<b>Chicago MSA</b>	<b>9.4</b>	<b>\$307,370.5</b>	<b>12,645</b>	<b>746</b>	<b>\$1,727.0</b>	<b>\$76.2</b>	<b>\$1,803.2</b>	<b>\$391</b>	<b>\$183</b>	<b>0.56%</b>

Source: State Gaming Commissions, Union Gaming Analytics

Figure 33 shows the same WPP and income allocation metrics for the Philadelphia and Pittsburgh MSAs. Though both Pennsylvania cities come in below the metrics shown above for smaller regional markets, the gaming markets are still considerably larger than the Chicago gaming market on an income and population adjusted basis.

**Figure 33: Pennsylvania MSA Gaming Market Comparisons**

<b>Philadelphia MSA (2016)</b>		<b>Pittsburgh MSA (2016)</b>	
Delaware Park	\$163,812,406		
Dover Downs	\$150,958,687		
Harrington Raceway	\$88,518,150		
Hollywood Perryville	\$72,296,263		
Harrah's Chester Downs	\$272,142,145		
Parx	\$551,664,504	Rivers	\$334,153,656
Sugarhouse	\$297,680,423	Meadows	\$253,026,147
Valley Forge	\$114,860,785	Nemacolin	\$33,981,632
<b>Total MSA GGR</b>	<b>\$1,711,933,363</b>	<b>Total MSA GGR</b>	<b>\$621,161,434</b>
Phila MSA Pop	6,115,623	Pitt MSA Pop	2,371,215
<b>WPP</b>	<b>\$280</b>	<b>WPP</b>	<b>\$262</b>
Total Income (mm)	\$208,047	Total Income (mm)	\$73,595
<b>Income Allocation</b>	<b>0.82%</b>	<b>Income Allocation</b>	<b>0.84%</b>

Source: State Gaming Commissions, Union Gaming Analytics

### No VGTs Allowed in City of Chicago

Though VGTs are allowed in Cook County, IL, they are prohibited by the law in the city of Chicago. This has had a significant impact on the VGT metrics, especially in the 0-30 minutes from a casino distance band. 2.7 million people live in the City of Chicago, which is 21% of the state population. The lack of VGTs in Chicago eliminates what would otherwise be the most population dense, lucrative VGT market in the state. The entire city is contained within the 0-30 minute distance band, so there are 2.7 million people without convenient VGT access as well as thousands of establishments in areas with high population density without the option of opening VGTs, depressing both supply and demand in that distance band.

We analyzed the impact to the state of Illinois that would occur if the city of Chicago was allowed to offer video gaming. The numbers presented below represent the incremental impact to the state for one calendar year once the market has reached stabilization. We determined that 3,220 incremental VGT establishments would open with an additional 13,598 VGT machines (Figure 34).

Figure 34 shows a total market supply comparison between our projected Pennsylvania market, the existing Illinois market, and our forecasted Illinois market if VGTs were allowed in the City of Chicago. Our Pennsylvania forecasted VGT market is still larger in overall slot supply than the Illinois market, but even with VGTs in the City of Chicago there are some additional factors which reduce the gaming supply in the Chicago market.

- There are 6,023 slot machines on the Indiana side of the border but still contained in the greater Chicago gaming market. The Illinois market therefore loses substantial revenue that is leaving to gamble out of state. The reverse is true for Pennsylvania, which generates significant GGR from out of state money coming into the state, notably from New Jersey and New York. These factors mean that if



both markets were stabilized and appropriately supplied we would still expect to see additional gaming supply in Pennsylvania relative to population.

- The Illinois capacity constraints prevent the casinos from expanding supply to meet demand, particularly in the Chicago market.
- There is no casino located in downtown Chicago, compounding the issue with the capacity constraints to leave the Illinois market undersupplied
- The municipal opt in system in Illinois has prevented the full expansion of VGTs across the state, though the majority of municipalities have opted in at this point

**Figure 34: Pennsylvania Market compared to Illinois with and without Chicago VGTs**

	Pennsylvania (2020)	Illinois (2016) without Chicago	Illinois (2016) with Chicago
<b>Establishments</b>			
Casino	12	10	10
VGT	8,239	5,726	8,946
Total	8,251	5,736	8,956
<b>Machines</b>			
Casino	26,498	10,074	10,074
VGT	36,418	24,840	38,438
Total	62,916	34,914	48,512
<b>VGTs</b>			
Casino	\$2,225.0	\$1,118.6	\$795.3
VGT	\$1,242.4	\$1,108.1	\$2,186.0
Total	\$3,467.4	\$2,226.8	\$2,981.3

Source: State Gaming Commissions, Union Gaming Analytics

### Opt In and Opt Out

Illinois's VGT law requires that municipalities opt in through local approval in order to introduce VGTs. This greatly slowed down the ramp up for the Illinois VGT market and has reduced the overall market size due to eligible establishment owners who may be amenable to adding VGTs not being able to do so. In order to better assess the impact of the state's opt-in system on the VGT market size, we compared the number of total opted in municipalities to the total municipality count in the state. There are 959 municipalities in Illinois which currently have VGT machines, compared to 1,299 municipalities in the state. This means that 340 municipalities, or 26% of the total, have yet to opt in. However, many of the unrepresented municipalities are in the City of Chicago and lack to choice to opt-in.

Though these 340 municipalities do present an opportunity for additional VGT market growth if the state's VGT law were structured as Pennsylvania's is and there is no opt-in/opt-out option, it is not the case that there is an additional 26% market growth available. The huge number of municipalities in the state demonstrates that they are small areas, and so VGTs in neighboring municipalities are able to pick up the excess gaming demand



from the opt-out municipalities. We believe that if every municipality (outside of the city of Chicago) were to opt-in now, the market supply would grow considerably more than VGT revenue, driving WPU down.

### **Betting Limits**

The betting limit for VGTs in Pennsylvania will be \$5 rather than \$2 in Illinois, and the max payout is larger at \$1,000 vs \$500. The rationale for this change is that it should improve the math model for the consumers. More specifically, the higher jackpot enables the VGT operators to offer fairer odds for certain bets, such as in cases where a reasonable payout relative to the odds of an outcome is above \$500 even with low bets. An example of this would be four aces in video poker, a jackpot with just 1/5,761 odds, but a \$500 payout on a 0.25\$ bet corresponds to just 1/2,000 odds. Higher jackpots allow for more fair payouts for certain jackpots and therefore incentivize more VGT play among customers. The higher bet limit is also beneficial in that it provides more options for players and allows for a higher volume of betting for patrons who wish to bet above \$2.

### **Slot Cafes**

As discussed above, the slot cafes in Illinois are establishments dedicated to VGT gaming, which attempt to emulate a casino experience. These cafes outperform the other establishments in the market on WPU by 2x-3x (Figure 21), and due to their specific targeting of slot players they are more competitive with casinos. We estimate that 10.5% of the establishments in Illinois are cafes, which corresponds to 29% share of the total VGT GGR due to the slot cafes increased WPU.

While there is no specific language in HB1010 that prohibits slot cafes in Pennsylvania, there are some limiting factors that should impact the number of slot cafes that open in the state. The number of liquor licenses in Pennsylvania, which is controlled by the Pennsylvania Liquor Control Board, has remained constant over the years and therefore the limited licenses are a valuable commodity. Depending on the county, location and other factors, the cost of a liquor license can range from approximately \$200,000 to \$700,000. Businesses that are looking to purchase a license have a few choices. They can purchase an inactive license (a license that is currently being held, but not in operation) or they can acquire a license through the purchase of an existing business. If they choose the latter, they will also be required to pay a multiple on the existing revenue stream of the business and therefore the purchase of the license and corresponding business will be greater than the cost of the license itself. Additionally, if HB1010 is passed, the initial rush to acquire available liquor licenses may drive the prices of these licenses higher, which would result in a negative impact on the returns associated with slot cafes in Pennsylvania. Taking into consideration all of the factors above, we assumed that the percentage of slot cafes in Pennsylvania will be 2.5% of the total establishments.





## Illinois VGT Market Metrics Estimates Removing Slot Cafes

Figure 35 shows the difference in VGT supply if there were no cafes in the market. We assumed that 50% of cafes removed from the market would be replaced by more traditional VGT establishments (bars, taverns, truck stops, etc.). This is due to the increased opportunity for establishments to make higher WPU due to the lack of cafe competition, as well as some existing cafe owners choosing to open bars, taverns, restaurants, etc. rather than a slot cafe if slot cafes were not allowed. If slot cafes were not allowed in the Illinois market, we estimate that the December 2016 establishment total would decrease by 301, and the number of VGTs would decrease by 1,529.

**Figure 35: Illinois VGT Gaming Supply Comparison Metrics with No Cafes**

Illinois Group	Population	Total Income (m)	Year End 2016 Establishments	Year End 2016 VGTs	VGTs per Ten Thousand People	Establishments per Ten Thousand People	VGTs per Establishment
Sub 30	8,662,278	270,571.2	2,199	9,425	10.9	2.5	4.3
30-60	2,357,443	74,307.3	1,571	6,634	28.1	6.7	4.2
Over 60	1,818,080	47,134.4	1,656	7,251	39.9	9.1	4.4
Total	12,837,801	392,012.9	5,425	23,311	18.2	4.2	4.3

Source: Illinois Gaming Board, ESRI, Union Gaming Analytics

The change in VGT revenue would be more dramatic than the change in VGT supply if you remove slot cafes from the market. Given our estimate of 29% GGR market share for slot cafes, even with a 50% replacement rate removing them from the market decreases VGT GGR from \$1,108mm to \$848.1mm, bringing WPU down from \$128 to \$105 (Figure 36).

**Figure 36: Illinois VGT Gaming Demand Comparison Metrics with No Cafes**

Illinois Group	Population	Total Income (m)	Est. Avg LTM Machines	2016 VGT GGR	VGT WPU	2016 Income Allocation	2016 WPP
Sub 30	8,662,278	270,571.2	8,985	\$378.0	\$115	0.14%	\$44
30-60	2,357,443	74,307.3	6,324	\$208.2	\$90	0.28%	\$88
Over 60	1,818,080	47,134.4	6,912	\$261.9	\$104	0.56%	\$144
Total	12,837,801	392,012.9	22,221	\$848.1	\$105	0.22%	\$66

Source: Illinois Gaming Board, ESRI, Union Gaming Analytics

Slot cafes are far more competitive with casinos than other types of establishments. Our analysis of the timing of the Illinois casino cannibalization, which took place primarily in 2016 (Figure 19), and the timing of slot cafe openings taking place primarily in 2014 (Figure 22), shows that the slot cafes cannibalize a higher share of their revenue than other establishments. If they were removed from the market, we forecast a cannibalization of \$115.0mm vs the existing cannibalization estimate of \$194.4mm, a 40.8% decline in the casino cannibalization. A loss of gaming revenue of \$115.0mm would be a 7.2% decline in Illinois casino GGR, vs. our existing estimate of 12.1% decline attributable to the VGTs (Figure 37).



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**Figure 37: Illinois VGT Gaming Cannibalization: Cafes vs No Cafes**

	GGR	% Cannibalized	Cannibalized GGR	Cannibalization % of IL Casino GGR
<b>With Cafe</b>				
Café	\$325.0	27.1%	\$88.1	5.5%
Other	\$783.1	13.6%	\$106.2	6.6%
Total	\$1,108.1	17.5%	\$194.3	12.1%
<b>No Cafe</b>				
Other	\$848.1	13.6%	\$115.0	7.2%
% Difference	-23.5%		-40.8%	

Source: Illinois Gaming Board, Union Gaming Analytics



## Pennsylvania VGT Metrics

All projections are for the first stabilized year of VGT operation, which we forecast will take place in the third year of their operation.

### VGT Supply

The supply of VGTs should be higher relative to population in all drive time segments in Pennsylvania than Illinois due to the lack of an op-in requirement on the municipal level. A much larger adjustment is required within 30 minutes of a casino to account for the illegality of VGTs in the city of Chicago, which has greatly reduced the VGT supply in the 0-30 distance band in Illinois whereas in Pennsylvania VGTs will be allowed in the largest cities of Philadelphia and Pittsburgh. Without any adjustment for the availability of eligible establishments, we forecast a total VGT count in Pennsylvania of 41,775 in 9,431 establishments. Though truck stops will be allowed more VGTs in Pennsylvania thus increasing the average VGTs per establishment, the majority of the establishments will be bars/taverns with a maximum number of VGTs allowed at 5 and therefore having an opposite impact on establishment size.

**Figure 38: Predicted Pennsylvania VGT Supply (Unadjusted)**

Pennsylvania Group	2020		Establishments	VGTs per Ten		Establishments per Ten Thousand People	VGTs per Establishment
	Population	Total Income (m)		VGTS	Thousand People		
Sub 30	6,961,202	231,293.7	3,617	15,817	22.7	5.2	4.4
30-60	4,071,850	123,095.3	3,527	15,341	37.7	8.7	4.4
Over 60	1,932,081	50,791.2	2,288	10,618	55.0	11.8	4.6
Total	12,965,132	405,180.2	9,431	41,775	32.2	7.3	4.4

Source: ESRI, Union Gaming Analytics

After making our initial prediction in Figure 38, we apply these metrics on a county level and compare the predicted number of establishments to the known total number of eligible establishments, including both liquor license holders as well as truck stops. When the total number of VGT establishments exceeds our estimated 'ceiling' on the number of VGT establishments, we adjust the projected establishment count down, which increases the projected WPU. Our VGT establishment cap is calculated by applying a theoretical maximum participation rate on eligible establishments to account for proprietors who do not wish to add VGTs to their business, which may be due to the upfront cost, moral opposition, or that VGTs do not fit into their conception of what they want the establishment to look and feel like. Figure 39 shows the adjusted supply of VGTs to the market, with a total machine count of 36,418 and a total establishment count of 8,239.

**Figure 39: Predicted Pennsylvania VGT Supply (Adjusted)**

Pennsylvania Group	2020		Establishments	VGTs per Ten		Establishments per Ten Thousand People	VGTs per Establishment
	Population	Total Income (m)		VGTS	Thousand People		
Sub 30	6,961,202	231,293.7	3,522	15,400	22.1	5.1	4.4
30-60	4,071,850	123,095.3	3,005	13,071	32.1	7.4	4.4
Over 60	1,932,081	50,791.2	1,712	7,948	41.1	8.9	4.6
Total	12,965,132	405,180.2	8,239	36,418	28.1	6.5	4.4

Source: ESRI, Union Gaming Analytics



### VGT Demand

The demand for VGT gaming required some adjusting relative to the metrics seen in Illinois in order to account for the differences between the markets. Just as the illegality of VGTs in the city of Chicago necessitated an increase in the VGT supply in the 0-30 minute from a casino distance band, we similarly increase the forecasted WPP and income allocation to gaming within the 0-30 minute distance band due to the fact that a higher percentage of individuals in this distance band will have access to VGT gaming than in our Illinois comparison market.

We also adjusted all three distance band metrics in order to account for the capacity constraints in the Illinois market. The VGTs in Illinois are adding gaming supply to an underserved market, which increases their performance due to less significant competition from casino gaming. The VGTs in Pennsylvania will be introduced into a gaming market with a much higher existing slot total relative to the population, which impacts the amount of gaming revenue the VGTs can generate.

In order to project VGT GGR, we use both the income allocation and WPP metrics as methods of forecasting based on income and population respectively. We multiply the segment population by the segment WPP, and multiply the segment income allocation by the segment total income, then average the results of both methods to arrive at the forecasted GGR.

It is important to note the low WPU (Figure 40) compared to the current market Illinois VGT WPU (Figure 30). The majority of the gap is due to the difference in how we adjusted VGT supply and VGT demand when accounting for the differences between the gaming markets. We believe that the lack of VGT supply in the city of Chicago has a larger impact on supply than on demand, which means that in making our adjustments to apply the market performance metrics to Pennsylvania, we increased gaming supply in the 0-30 minute group to a greater degree than we increased the WPP and income allocation. The same logic applies in the case of Illinois’s municipal op-in requirement. An establishment owner amenable to installing VGTs in their business in a municipality which has not opted-in has no ability to introduce VGT supply the market unless they take the drastic step of moving their business. However, a patron amenable to playing VGTs residing in a municipality which has not opted in can easily play VGTs in a neighboring municipality and therefore contribute to the state total VGT GGR. Therefore, when accounting for the lack of a municipal requirement in Pennsylvania, the impact is stronger on supply than it is on demand, which drives WPU down.

The necessary adjustment to account for the number of eligible licenses on a county level also impacts the WPU, though we do not forecast an impact in income allocation or WPP. Therefore, the adjusted table in Figure 40 just shows the change in WPU which results from the available license adjustment.

**Figure 40: Predicted Pennsylvania VGT GGR (Adjusted)**

Pennsylvania Group	2020		VGT GGR	VGT WPU	Income Allocation	WPP
	Population	Total Income (m)				
Sub 30	6,961,202	231,293.7	\$546.8	\$97	0.24%	\$79
30-60	4,071,850	123,095.3	\$438.3	\$92	0.36%	\$108
Over 60	1,932,081	50,791.2	\$257.4	\$89	0.51%	\$133
Total	12,965,132	405,180.2	\$1,242.4	\$93	0.31%	\$96

Source: ESRI, Union Gaming Analytics



## Cannibalization and Market Growth

We estimate that the differences between the Illinois and Pennsylvania gaming markets should result in less cannibalization relative to the size of the casino market, but more cannibalization in terms of absolute dollars for Pennsylvania. The capacity constraints in Illinois resulted in the VGTs inducing incremental gaming spending due to the market being underserved. However, in Pennsylvania the present gaming capacity is much greater than in Illinois relative to the population, and so the VGTs will be introduced into a more fully served gaming market. In addition, the VGTs will not have any restrictions for placement in Philadelphia or Pittsburgh, so the two largest casino gaming markets in the state will not be protected in the way that Chicago is. The other main difference between the state VGT markets is the barriers to entry for slot cafes in Pennsylvania which should result in a lower percentage of slot cafes (compared to the overall number of establishments) in Pennsylvania than Illinois.

We forecast a total cannibalization of \$347.6mm, of which \$331.0mm will be from Pennsylvania casinos. The Pennsylvania in state cannibalization of \$331.0mm results in a 9.5% reduction in our forecasted 2020 Pennsylvania casino GGR. This compares to our Illinois cannibalization estimate of 12.1%, and our estimated cannibalization of 7.2% if cafes were removed from the market. Though our cannibalization estimate is lower relative to the size of the casino market, it is more impactful to the casino market when comparing to our cafe adjusted Illinois market. We also forecast that a far greater percentage of the Pennsylvania VGT GGR is cannibalization than it was in Illinois due to the gaming undersupply in Illinois. The forecasted Pennsylvania market growth of \$894.8mm is close to the \$913.8 market growth seen in Illinois due to the VGTs, though the considerably larger existing Pennsylvania casino gaming market means that the percent growth is lower. In each case, the cannibalization is dwarfed by the magnitude of gaming market growth, therefore providing significant tax revenue benefit to the state as well as local governments (Figure 41).

**Figure 41: Pennsylvania Forecast vs Illinois Cannibalization and Market Growth**

	Pennsylvania	Illinois	Illinois (no cafe)
VGT Cannibalization	\$347.6	\$194.3	\$115.0
Cannibalization as % of VGT GGR	28.0%	17.5%	13.6%
Cannibalization as % of State GGR	9.5%	12.1%	7.2%
Market Growth due to VGTs	\$894.8	\$913.8	\$733.1
Market Growth as % of VGT GGR	72.0%	82.5%	86.4%
Market Growth as % of State GGR	25.6%	56.9%	45.9%

Source: Pennsylvania Gaming Control Board, Illinois Gaming Control Board, Union Gaming Analytics

This higher percentage can be attributed to the differences in the market discussed above: the capacity constraints and the lack of VGT supply in the City of Chicago. Broken down into distance bands, on an individual basis the market growth increases as you get farther from a casino, while cannibalization increases as well. Introducing a VGT a few blocks away from a patron is going to sway consumer choice much more for patrons who would otherwise have to drive farther to get to a casino. In other words, the choice of driving 15 minutes to a casino vs driving 5 minutes to a VGT is going to result in a casino trip more frequently than a choice between driving 5 minutes to a VGT vs 60 minutes to a casino. This is why we are forecasting a much higher percentage loss in slot GGR for more distant customers (Figure 42).



**Figure 42: Slot Market pre and post VGTs in Pennsylvania per Distance Band**

Pennsylvania Group	Slot Market Cannibalization	Slot Market Growth	Growth er Person	Total VGT WPP	Cannibalization Per Person	2020 Slot GGR Per Person no VGTs	2020 Casino Slot GGR Per Person with VGTs	asino Slot GGR Cannibalized	Total Slot GGR per Person 2020 with VGTs
Within 30	\$174.3	\$372.5	\$54	\$79	\$25	\$212	\$187	12%	\$266
30-60	\$116.4	\$321.8	\$79	\$108	\$29	\$119	\$91	24%	\$198
Outside of 60	\$54.7	\$202.7	\$105	\$133	\$28	\$57	\$28	50%	\$162
Total	\$345.4	\$897.0	\$69	\$96	\$27	\$160	\$133	17%	\$229

Source: Pennsylvania Gaming Control Board, Union Gaming Analytics

**Pennsylvania Resident Gaming Spending: Casino and VGT Market Share**

In terms of market share, we forecast a high casino market share of 71% within 30 minutes, and a high VGT market share of 81% farther than 60 minutes away from a casino. The total VGT market share of machine play is 42%, less than the total VGT market share in Illinois of 50% which is due to both the insufficient casino slot machine supply due to capacity constraints and the existence of slot cafes (Figure 31). In the case of Pennsylvania, we forecast that the combined VGT and casino slot WPP will decrease as you get farther from a casino, opposite of the trend seen in Illinois.. We attribute this to the capacity constraints as well as the lack of VGTs in Chicago (Figure 43).

**Figure 43: Pennsylvania VGT vs Casino GGR**

Pennsylvania Group	VGT GGR	Income Allocation	WPP	2020 Casino Slot GGR	2020 Casino Slot WPP	2020 Casino Slot Income Allocation	Total Machine GGR	Total Machine WPP	Total Machine Income Allocation	VGT Market Share	Casino Slot Market Share
Sub 30	\$546.8	0.24%	\$76	\$1,304.2	\$187	0.56%	\$1,851.0	\$266	0.80%	30%	70%
30-60	\$438.3	0.35%	\$110	\$369.3	\$91	0.30%	\$807.6	\$198	0.66%	54%	46%
Over 60	\$257.4	0.51%	\$132	\$55.0	\$28	0.11%	\$312.4	\$162	0.61%	82%	18%
Total	\$1,242.4	0.31%	\$96	\$1,728.5	\$133	0.43%	\$2,970.9	\$229	0.73%	42%	58%

Source: Pennsylvania Gaming Control Board, Union Gaming Analytics

Note that the market share percentages shown in Figure 43 do not match the market share percentages shown in Figure 47. The market share percentages of 58% for casinos and 42% for VGTs shown above apply to Pennsylvania resident slot gaming spending, while the 64% for casinos and 36% for VGTs is for slot gaming which takes places in the state of Pennsylvania. The percentages shown in Figure 43 therefore exclude an estimate for the out of state contribution to Pennsylvania slot machine revenue, but add back an estimate for the Pennsylvania resident contribution to slot revenue at out of state casinos in neighboring states. We make this adjustment because this market share analysis is grounded in consumer choice by Pennsylvania residents between casino gaming and VGT gaming based on the distance a consumer lives from their closest casino option.



## Ramp Analysis

### Illinois VGT Market Ramp: 2012-Present

The Illinois market has grown from a \$175.8mm dollar market to a \$1.05bn market by year 4, and the projected fifth year based on 6 months of data shows the continuing growth in the market at \$1.15bn, 10% growth over the year 4 results. The growth in NTI has come from growth in both the number of VGTs in the market and growth in WPU. The rate of growth in the number of units is fastest in the first two years, and then the average monthly machines added decreased from 779 to 258 in year 3 (Figure 44).

**Figure 44: Illinois VGT Ramp Analysis**

Period	NTI (mm)	NTI YoY %	Year End VGTs	Average VGTs	Total VGTs Added	Average Monthly VGTs Added	Year End WPU	Average WPU
First 12 Months	\$175.8		9,345	4,705	9,345	779	\$101	\$94
13-24 Months	\$545.4	210%	18,118	14,880	8,773	731	\$105	\$100
25-36 Months	\$841.8	54%	21,208	19,621	3,090	258	\$115	\$118
37-48 Months	\$1,051.1	25%	24,065	22,730	2,857	238	\$122	\$126
49-54 Months Annualized	\$1,151.8	10%	25,363	24,808	1,298	108	\$143	\$128

Source: Illinois Gaming Board, Pennsylvania Gaming Control Board, Union Gaming Analytics

### Illinois VGT Ramp by Distance Band

In the existing Illinois VGT market, the largest share of establishments, units, and NTI is within 30 minutes of the closest casino. However, the outside of 60 segment was actually the fastest grower early on, with the largest NTI market share until 2014. This coincides with the period of the most rapid growth of the slot cafes, most of which are located close to population centers and therefore close to casinos, mainly in the Chicago suburbs. The growth in the cafe businesses in the within 30 segment has also led to higher WPU, which has resulted in the NTI market share within 30 being higher than the VGT market share. This was not the case early on in the VGT market, when the machines which opened over an hour from the closest casino were operating with the highest WPU of any segment (Figure 45).

**Figure 45: Illinois VGT Market Share by Distance Band**

Establishments	2012	2013	2014	2015	2016
Within 30	38%	39%	40%	40%	41%
30-60	23%	27%	26%	29%	29%
Outside of 60	39%	35%	33%	31%	31%
Total	100%	100%	100%	100%	100%

VGTs	2012	2013	2014	2015	2016
Within 30	37%	38%	40%	39%	40%
30-60	23%	26%	26%	28%	28%
Outside of 60	40%	36%	34%	32%	31%
Total	100%	100%	100%	100%	100%

NTI	2012	2013	2014	2015	2016
Within 30	33%	36%	40%	42%	44%
30-60	22%	23%	24%	26%	25%
Outside of 60	45%	41%	37%	33%	31%
Total	100%	100%	100%	100%	100%

Source: Illinois Gaming Board, Union Gaming Analytics

### Illinois vs Pennsylvania Ramp Differences

The key difference between the observed ramp rate in Illinois and the projected ramp rates in Pennsylvania is the municipal opt-in system in Illinois. In Illinois, each municipality must vote to opt in before any VGTs can be added, whereas in Pennsylvania no opt-in system is included in the law. The opt-in system means slower initial growth, with longer term growth potential as years after the introduction of VGTs new municipalities can opt in and go through their own ramp period in machines, establishments, and WPU.

When estimating the Pennsylvania ramp, we took into account the difference in the municipality opt in law, assuming a faster ramp with full VGT supply and stabilized revenue by year 3. We forecast nominal growth in machine and establishment count beyond the end of year 3, though that growth is slow enough that we would define that market as stabilized over that span. Though Illinois will likely continue to grow during and beyond year five, the Pennsylvania market won't follow the same pattern. In addition to the municipality law in Illinois, the tight restriction on the total quantity of liquor licenses will also affect the low rate of growth beyond year 3. There will be a very small number of proprietors of eligible establishments during year 3 of VGT legality who did not have at least a few years prior in which they could have chosen to bring VGTs to their business. The result of our ramp analysis is shown in Figure 46.



**Figure 46: Pennsylvania Projected 5 Year Ramp**

	2018	2019	2020	2021	2022
<b>Establishments</b>					
Year End	6,591	7,827	8,451	8,616	8,781
Annual Average	3,828	7,260	8,239	8,540	8,705
<b>Machines</b>					
Year End	29,135	34,598	37,358	38,086	38,814
Annual Average	16,919	32,094	36,418	37,752	38,480
VGT GGR	\$507.8	\$1,040.5	\$1,242.4	\$1,304.3	\$1,342.7
WPU	\$82	\$89	\$93	\$95	\$96
<b>Annual Tax Increase</b>	<b>\$118.5</b>	<b>\$242.9</b>	<b>\$290.0</b>	<b>\$304.5</b>	<b>\$313.4</b>
<b>Cumulative</b>	<b>\$118.5</b>	<b>\$361.4</b>	<b>\$651.5</b>	<b>\$956.0</b>	<b>\$1,269.4</b>

Source: Illinois Gaming Board, Pennsylvania Gaming Control Board, Union Gaming Analytics

## Total Market Comparison

In Figure 47 we compare the existing slot markets of Pennsylvania and Illinois, as well as our projected future Pennsylvania market for both slots and VGTs. The existing Illinois market is much smaller at \$2.2bn than our projected Pennsylvania market if VGTs were added at \$3.5bn. The Illinois market is underperforming due to the capacity constraints, the lack of VGTs in the city of Chicago, and the substantial amount of gaming revenue leaving the state to gamble at nearby border casinos as discussed in this section. In addition, the Pennsylvania market is inflated due to the significant slot GGR which comes from out of state residents. Northern New Jersey and New York City are both significant feeder markets for the Eastern Pennsylvania and Philadelphia area casinos, and therefore that gaming revenue sourced from out of state is factored into GGR without being factored into the state population or total state income. This results in a projected Pennsylvania total WPP of \$267, and income allocation of 0.86%. Though these are higher than the comparable metrics in Illinois of \$173 and 0.57%, they are in line with the metrics seen in Philadelphia and Pittsburgh where residents have ample access to gaming (Figure 33).

We forecast that the casino market share of the total slot market in Pennsylvania would be 64%, greater than the casino share of 50% in Illinois. This is due to the capacity constraints in Illinois limiting the casinos ability to effectively maximize their gaming revenue.

**Figure 47: Illinois vs Pennsylvania Total Market Size**

<b>Current Illinois</b>		<b>Current Pennsylvania</b>		<b>Projected 2020 Pennsylvania w/ VGTs</b>	
Casino Slot GGR	\$1,118.6	Casino Slot GGR	\$2,343.0	Casino Slot GGR	\$2,225.0
WPP	\$87	WPP	\$183	WPP	\$172
Income Allocation	0.29%	Income Allocation	0.63%	Income Allocation	0.55%
VGT GGR	\$1,108.1	VGT GGR	-	VGT GGR	\$1,242.4
WPP	\$86	WPP	-	WPP	\$96
Income Allocation	0.28%	Income Allocation	-	Income Allocation	0.31%
Total Slot GGR	\$2,226.8	Existing Total Slot GGR	\$2,343.0	Projected Total Slot GGR	\$3,467.4
WPP	\$173	WPP	\$183	WPP	\$267
Income Allocation	0.57%	Income Allocation	0.63%	Income Allocation	0.86%
Casino Slot Market Share	50%	Casino Slot Market Share	100%	Casino Slot Market Share	64%
VGT Market Share	50%	VGT Market Share	-	VGT Market Share	36%

Source: Illinois Gaming Board, Pennsylvania Gaming Control Board, Union Gaming Analytics

## Tax Revenue

Our stabilized year 3 tax projection is a \$290.0mm increase in government gaming tax revenue. This projection assumes a 2.2% growth rate on casino GGR in the absence of VGTs based on the 2011-2016 CAGR, but the casino growth is immaterial because the VGT GGR, cannibalization amount, and the change in gaming tax would not be altered by a different growth rate assumption here. The other assumption made here is that 100% of the cannibalized GGR from the casinos is slot GGR, which is based on the observed result in the Illinois market. Slot players and table players are typically independent rather than individuals who play both types of games. The total cumulative projected increase in gaming tax is \$1.27bn.



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**Figure 48: 5 Year Tax Impact Detail**

	2018	2019	2020	2021	2022
Casino Slot GGR	2,447.2	2,501.1	2,556.1	2,612.3	2,669.8
Casino Table GGR	900.3	920.2	940.4	961.1	982.2
GGR (No VGT)	3,347.6	3,421.2	3,496.5	3,573.4	3,652.0
Slot Tax Rate	55%	55%	55%	55%	55%
Table Tax Rate	10%	10%	10%	10%	10%
Slot Tax	1,346.0	1,375.6	1,405.8	1,436.8	1,468.4
Table Tax	90.0	92.0	94.0	96.1	98.2
Total Tax (No VGT)	1,436.0	1,467.6	1,499.9	1,532.9	1,566.6
Total Cannibalization	142.1	291.1	347.6	364.9	375.6
In State	135.3	277.3	331.0	347.6	357.8
New Slot GGR	2,311.9	2,223.8	2,225.0	2,264.8	2,312.0
% Decline	5.5%	11.1%	13.0%	13.3%	13.4%
New Total Casino GGR	3,212.3	3,144.0	3,165.4	3,225.8	3,294.2
% Decline	4.2%	8.5%	9.9%	10.2%	10.3%
New Slot Tax	1,271.6	1,223.1	1,223.8	1,245.6	1,271.6
New Table Tax	90.0	92.0	94.0	96.1	98.2
New Total Casino Tax	1,361.6	1,315.1	1,317.8	1,341.7	1,369.8
Casino Tax Reduction	74.4	152.5	182.1	191.2	196.8
VGT GGR	507.8	1,040.5	1,242.4	1,304.3	1,342.7
VGT Tax Rate	38%	38%	38%	38%	38%
VGT Tax \$	193.0	395.4	472.1	495.7	510.2
<b>Casino + VGT Tax</b>	<b>1,554.5</b>	<b>1,710.5</b>	<b>1,789.9</b>	<b>1,837.4</b>	<b>1,880.0</b>
\$ Change	118.5	242.9	290.0	304.5	313.4
% Change	8.3%	16.6%	19.3%	19.9%	20.0%

Source: Pennsylvania Gaming Control Board, Union Gaming Analytics



## Pennsylvania VGT GGR by County

Our model assumes that there will be VGTs in every county in Pennsylvania (67 counties) throughout the state and therefore all of the counties in the state of Pennsylvania will generate VGT GGR and benefit from the introduction of VGTs in the form of tax revenue. As part of the local share assessment, the county where the VGTs are located will receive two percent (2%) of the VGT gaming revenue and in the first full year of stabilized operations (year 3) this results in \$24.8mm of VGT gaming tax revenue. Additionally, the municipality where the VGTs are located will also receive two percent of the VGT gaming revenue as part of the local share assessment and results in \$24.8mm of VGT gaming tax revenue (Figure 49).

**Figure 49: Pennsylvania VGT GGR by County**

County	VGT GGR (\$ mm)	County Tax Revenue (\$ mm)	Municipality Tax Revenue (\$ mm)	County	VGT GGR (\$ mm)	County Tax Revenue (\$ mm)	Municipality Tax Revenue (\$ mm)
Adams	\$13.0	\$0.3	\$0.3	Lackawanna	\$18.5	\$0.4	\$0.4
Allegheny	\$105.1	\$2.1	\$2.1	Lancaster	\$56.8	\$1.1	\$1.1
Armstrong	\$5.8	\$0.1	\$0.1	Lawrence	\$9.5	\$0.2	\$0.2
Beaver	\$17.0	\$0.3	\$0.3	Lebanon	\$11.0	\$0.2	\$0.2
Bedford	\$5.0	\$0.1	\$0.1	Lehigh	\$29.1	\$0.6	\$0.6
Berks	\$43.8	\$0.9	\$0.9	Luzerne	\$25.2	\$0.5	\$0.5
Blair	\$17.1	\$0.3	\$0.3	Lycoming	\$15.5	\$0.3	\$0.3
Bradford	\$5.7	\$0.1	\$0.1	McKean	\$5.5	\$0.1	\$0.1
Bucks	\$61.4	\$1.2	\$1.2	Mercer	\$9.8	\$0.2	\$0.2
Butler	\$22.1	\$0.4	\$0.4	Mifflin	\$6.0	\$0.1	\$0.1
Cambria	\$18.9	\$0.4	\$0.4	Monroe	\$13.4	\$0.3	\$0.3
Cameron	\$0.7	\$0.0	\$0.0	Montgomery	\$80.5	\$1.6	\$1.6
Cabbon	\$7.0	\$0.1	\$0.1	Montour	\$3.0	\$0.1	\$0.1
Centre	\$22.0	\$0.4	\$0.4	Northampton	\$24.6	\$0.5	\$0.5
Chester	\$54.9	\$1.1	\$1.1	Northumberland	\$11.7	\$0.2	\$0.2
Clarion	\$5.3	\$0.1	\$0.1	Perry	\$4.9	\$0.1	\$0.1
Clearfield	\$9.9	\$0.2	\$0.2	Philadelphia	\$107.0	\$2.1	\$2.1
Clinton	\$4.8	\$0.1	\$0.1	Pike	\$6.5	\$0.1	\$0.1
Columbia	\$7.4	\$0.1	\$0.1	Potter	\$2.3	\$0.0	\$0.0
Crawford	\$8.9	\$0.2	\$0.2	Schuylkill	\$14.7	\$0.3	\$0.3
Cumberland	\$27.6	\$0.6	\$0.6	Snyder	\$4.7	\$0.1	\$0.1
Dauphin	\$22.1	\$0.4	\$0.4	Somerset	\$8.6	\$0.2	\$0.2
Delaware	\$47.7	\$1.0	\$1.0	Sullivan	\$0.8	\$0.0	\$0.0
Elk	\$4.2	\$0.1	\$0.1	Susquehanna	\$4.5	\$0.1	\$0.1
Erie	\$20.5	\$0.4	\$0.4	Tioga	\$5.5	\$0.1	\$0.1
Fayette	\$11.1	\$0.2	\$0.2	Union	\$6.3	\$0.1	\$0.1
Forest	\$0.8	\$0.0	\$0.0	Venango	\$6.5	\$0.1	\$0.1
Franklin	\$19.8	\$0.4	\$0.4	Warren	\$5.2	\$0.1	\$0.1
Fulton	\$1.7	\$0.0	\$0.0	Washington	\$18.4	\$0.4	\$0.4
Greene	\$3.8	\$0.1	\$0.1	Wayne	\$4.9	\$0.1	\$0.1
Huntingdon	\$5.8	\$0.1	\$0.1	Westmoreland	\$44.7	\$0.9	\$0.9
Indiana	\$11.5	\$0.2	\$0.2	Wyoming	\$3.4	\$0.1	\$0.1
Jefferson	\$5.9	\$0.1	\$0.1	York	\$52.4	\$1.0	\$1.0
Juniata	\$2.6	\$0.1	\$0.1	Total	\$1,242.4	\$24.8	\$24.8

Source: Pennsylvania Gaming Control Board, Union Gaming Analytics



## Pennsylvania Illegal Gaming Market

Authorities in Pennsylvania struggle with enforcing gambling laws against illegal video poker and slot machines typically labeled “for amusement only” and stowed in the corner or backrooms of countless bars and clubs. While the number of illegal machines in Pennsylvania is not known, there have been reports and hearings (conducted in front of the government officials) that estimate the number of illegal machines. We supplemented our research by holding a series of discussions / interviews with a cross section of Pennsylvania gaming market participants to check the data found in reports against their local knowledge. The most recent hearing was in September 2015 in front of the Pennsylvania House Gaming Oversight Committee regarding seizure of illegal gambling devices in Pennsylvania. Based on the September 2015 hearing, we determined that the size of the illegal gaming market in Pennsylvania ranges from 18,900 machines to 37,800 machines with GGR ranging from \$369mm to \$737mm (Figure 50).

Since the amount of dollars wagered on the illegal video poker and slot machines is not recorded, the state of Pennsylvania is not able to capture or generate any gaming tax revenue from these dollars wagered. Therefore, if HB 1010 is passed, the state would now be able to capture the gaming tax revenue that is being wagered on the VGT machines in Pennsylvania.

**Figure 50: Pennsylvania Illegal Gaming Market**

	Licensed Applicants	Licensed Applicants		
# of Liquor Licensed Establishments <sup>(1)</sup>	18,000	18,000		
% of Licenses that are Retail <sup>(1)</sup>	70%	70%		
# of Retail Locations	12,600	12,600		
% of Retail Locations that have Illegal Gaming Machines	50%	60%		
# of Retail Locations with Illegal Gaming Machines	6,300	7,560		
# of Illegal Gaming Machines per Location @ 50%		3	4	5
# of Illegal Gaming Machines in PA		18,900	25,200	31,500
Win per Unit per Week		\$375	\$375	\$375
Total Illegal Gaming Machine GGR		\$368,550,000	\$491,400,000	\$614,250,000
Win per Unit per Day		\$53.42	\$53.42	\$53.42
# of Illegal Gaming Machines per Location @ 60%		3	4	5
# of Illegal Gaming Machines in PA		22,680	30,240	37,800
Win per Unit per Week		\$375	\$375	\$375
Total Illegal Gaming Machine GGR		\$442,260,000	\$589,680,000	\$737,100,000
Win per Unit per Day		\$53.42	\$53.42	\$53.42

(1) Source: PA House Gaming Oversight Committee Hearing, September 29, 2015.

Source: PA House Gaming Oversight Committee Hearing (Sept. 2015), Public Domain, Union Gaming Analytics



## Illinois VGT Impact on Lottery

The VGTs in Illinois may have had an impact on the state’s lottery. Figure 51 shows the Illinois lottery revenue for the fiscal years 2008 to 2016 and you can see that since 2008, the lottery has only experienced a decline in revenue in 2011 and 2014. The Illinois lottery has grown at a compound annual growth rate (“CAGR”) of 3.5% since 2008 and since the introduction of VGTs in 2012, the lottery has grown at a CAGR of 1.6%. It is also important to note that in 2010 the state of Illinois privatized the lottery and hired a private firm (Northstar Lottery Services) to manage the day-to-day operations of the lottery. The contract was for 10 years however Northstar was unable to meet its original profit targets and in September 2016 a deal was cut to relieve Northstar of its responsibilities. The privatization of the Illinois lottery and the issue with Northstar not being able to meet its profit targets may have had an impact on the Illinois lottery.

**Figure 51: Illinois Lottery Revenue – FY2008 – FY2016**

Illinois	Lottery	
	\$	% Change
FY 2008	\$2,164,515,910	
FY 2009	\$2,178,772,429	0.7%
FY 2010	\$2,283,450,031	4.8%
FY 2011	\$2,262,995,344	-0.9%
FY 2012	\$2,676,996,000	18.3%
FY 2013	\$2,832,576,000	5.8%
FY 2014	\$2,802,310,000	-1.1%
FY 2015	\$2,837,805,000	1.3%
FY 2016	\$2,855,535,000	0.6%
CAGR '08 - '16	3.5%	
CAGR '12 - '16	1.6%	

Source: Illinois Lottery, Union Gaming Analytics

Figure 52 shows the year over year lottery revenue change for the U.S. regional gaming markets. This set shows that since 2008, lottery revenue has a positive CAGR for all states except South Dakota and that Illinois CAGR of 3.5% is very close to the U.S. regional CAGR of 3.7%. Taking a closer look at the data shows that since 2012 (the year VGTs were introduced in Illinois), the regional comp set has a CAGR of 5.3% while Illinois experienced a CAGR of 1.6%. While lottery revenue has been increasing in Illinois since 2012, it is possible that the smaller CAGR in Illinois compared to the U.S. regional comp set is due to the introduction of VGTs since lottery players now have another form of convenience gaming.



**Figure 52: US Regional Lottery Market vs Illinois Lottery Market**

Lottery % Change	Louisiana	Colorado	South Dakota	Michigan	Pennsylvania	Missouri	Iowa	Indiana	Regional Set Average	Illinois
FY 2009	1.3%	-2.5%	-2.2%	0.6%	0.0%	-2.7%	-2.4%	-11.0%	-1.4%	0.7%
FY 2010	-1.6%	1.6%	-0.1%	-0.8%	-0.7%	0.4%	5.3%	1.0%	-0.2%	4.8%
FY 2011	3.0%	3.5%	-9.9%	-0.8%	4.6%	3.0%	5.9%	6.9%	2.8%	-0.9%
FY 2012	12.0%	5.1%	-4.0%	3.1%	8.5%	9.7%	14.5%	8.1%	7.1%	18.3%
FY 2013	4.2%	3.9%	3.9%	2.6%	6.3%	4.0%	9.1%	9.2%	5.1%	5.8%
FY 2014	0.3%	-3.8%	-1.4%	4.8%	2.7%	1.4%	-7.4%	9.1%	2.8%	-1.1%
FY 2015	0.8%	-1.3%	5.5%	6.8%	0.5%	-2.6%	3.4%	2.2%	2.0%	1.3%
FY 2016	12.1%	10.5%	5.0%	12.5%	8.3%	16.4%	13.0%	16.0%	11.5%	0.6%
CAGR '08 - '16	3.9%	2.0%	-0.5%	3.5%	3.7%	3.5%	5.0%	4.9%	3.7%	3.5%
CAGR '12 - '16	4.2%	2.2%	3.2%	6.6%	4.4%	4.6%	4.2%	9.0%	5.3%	1.6%

Source: Illinois Lottery, Union Gaming Analytics

In Figure 53 we also analyzed states that have casino, video gaming and lottery gaming markets to get a better understanding of these markets impact one another for both the 2008 to 2016 and 2012 to 2016 time periods. The total gaming market in Louisiana has grown at a CAGR of 0.1% since 2008 and 1.6% since 2012 and the total gaming market in South Dakota has grown at a CAGR of -0.5% since 2008 and 2.7% since 2012. Comparatively, the total gaming market in Illinois has grown at a CAGR of 4.7% since 2008 and 5.6% since 2012.

**Figure 53: States with Casino, Video Gaming and Lottery Gaming Markets**

	Illinois				Louisiana				South Dakota			
	Casino <sup>(1)</sup>	Video Gaming	Lottery	Total	Casino <sup>(1)</sup>	Video Gaming	Lottery	Total	Casino <sup>(1)</sup>	Video Gaming	Lottery	Total
FY 2009	-8.9%		0.7%	-3.4%	-5.0%	-0.1%	1.3%	-3.4%	-1.7%	-2.0%	-2.2%	-2.0%
FY 2010	-4.1%		4.8%	1.3%	-3.3%	-10.0%	-1.6%	-4.4%	5.4%	-2.1%	-0.1%	0.1%
FY 2011	7.8%		-0.9%	2.4%	0.0%	1.3%	3.0%	0.6%	-5.7%	-11.0%	-9.9%	-9.4%
FY 2012	10.8%		18.3%	15.7%	1.2%	-1.1%	12.0%	2.0%	7.5%	-7.9%	-4.0%	-3.0%
FY 2013	-5.3%	2344.4%	5.8%	8.3%	1.6%	0.5%	4.2%	1.7%	-5.5%	4.5%	3.9%	1.6%
FY 2014	-5.6%	119.3%	-1.1%	5.2%	1.2%	-3.6%	0.3%	0.3%	3.5%	0.3%	-1.4%	0.7%
FY 2015	-2.3%	38.5%	1.3%	5.2%	7.1%	1.6%	0.8%	5.4%	4.1%	7.5%	5.5%	6.1%
FY 2016	-1.3%	21.3%	0.6%	3.7%	-2.8%	-2.9%	12.1%	-1.0%	-3.4%	4.3%	5.0%	2.5%
CAGR '08 - '16	-1.3%	nm	3.5%	4.7%	0.0%	-1.9%	3.9%	0.1%	0.4%	-1.0%	-0.5%	-0.5%
CAGR '12 - '16	-3.6%	208.1%	1.6%	5.6%	1.7%	-1.1%	4.2%	1.6%	-0.4%	4.1%	3.2%	2.7%

(1) Casino segment does not include tribal casinos.

Source: State Lotteries, Union Gaming Analytics

Figure 54 shows the market share by gaming type (commercial, route, and lottery) for the U.S. regional gaming market. In most of the markets, the market share for each gaming type has been pretty consistent with the exception of Pennsylvania, Indiana and Illinois.



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**Figure 54: US Regional Market Share by Gaming Type**

Illinois	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	42.0%	39.6%	37.5%	39.5%	37.9%	33.1%	29.7%	27.6%	26.3%
Video Gaming	0.0%	0.0%	0.0%	0.0%	0.3%	6.4%	13.4%	17.6%	20.6%
Lottery	58.0%	60.4%	62.5%	60.5%	61.9%	60.5%	56.9%	54.8%	53.1%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Louisiana	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	71.1%	70.0%	70.8%	70.4%	69.9%	69.8%	70.5%	71.6%	70.3%
Video Gaming	18.6%	19.2%	18.1%	18.2%	17.6%	17.4%	16.8%	16.2%	15.8%
Lottery	10.3%	10.8%	11.1%	11.4%	12.5%	12.8%	12.8%	12.2%	13.8%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
South Dakota	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	22.6%	22.7%	23.8%	24.8%	27.5%	25.6%	26.3%	25.8%	24.3%
Video Gaming	50.1%	50.1%	48.9%	48.1%	45.7%	47.0%	46.8%	47.5%	48.3%
Lottery	27.3%	27.3%	27.2%	27.1%	26.8%	27.4%	26.9%	26.7%	27.4%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Colorado	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	58.6%	60.2%	60.2%	59.1%	58.5%	56.9%	57.8%	59.5%	57.5%
Video Gaming	-	-	-	-	-	-	-	-	-
Lottery	41.4%	39.8%	39.8%	40.9%	41.5%	43.1%	42.2%	40.5%	42.5%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Michigan	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	36.5%	36.0%	36.9%	37.8%	37.0%	35.3%	33.9%	33.2%	30.8%
Video Gaming	-	-	-	-	-	-	-	-	-
Lottery	63.5%	64.0%	63.1%	62.2%	63.0%	64.7%	66.1%	66.8%	69.2%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Pennsylvania	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	31.3%	36.2%	41.4%	48.5%	47.6%	45.7%	44.7%	45.4%	43.7%
Video Gaming	-	-	-	-	-	-	-	-	-
Lottery	68.7%	63.8%	58.6%	51.5%	52.4%	54.3%	55.3%	54.6%	56.3%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Missouri	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	62.8%	64.1%	64.8%	64.3%	61.7%	59.9%	58.9%	60.2%	56.6%
Video Gaming	-	-	-	-	-	-	-	-	-
Lottery	37.2%	35.9%	35.2%	35.7%	38.3%	40.1%	41.1%	39.8%	43.4%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Iowa	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	85.1%	85.0%	84.2%	84.0%	82.5%	80.7%	81.6%	81.2%	79.8%
Video Gaming	-	-	-	-	-	-	-	-	-
Lottery	14.9%	15.0%	15.8%	16.0%	17.5%	19.3%	18.4%	18.8%	20.2%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Indiana	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Casino	76.4%	79.3%	79.1%	77.5%	75.3%	71.4%	67.9%	67.8%	64.7%
Video Gaming	-	-	-	-	-	-	-	-	-
Lottery	23.6%	20.7%	20.9%	22.5%	24.7%	28.6%	32.1%	32.2%	35.3%
Total Gaming	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: State Lotteries, Union Gaming Analytics





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The Illinois Lottery is still growing, but its market share as compared to other forms of gaming in the state is down and its growth rate has lagged behind other regional markets. Some combination of poor performance due to Northstar Lottery Services and the introduction of VGTs may be partially responsible for this slower growth than would be expected given comparable state lottery growth, though breaking down the impact with more granularity between those relevant factors would require a more detailed analysis. This section was based on secondary analysis and a more definitive conclusion would require deeper analysis with primary analysis methods.



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