SIZING THE ILLEGAL AND UNREGULATED GAMING MARKETS IN THE UNITED STATES

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AMERICAN GAMING ASSOCIATION®

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AGA INTRODUCTION

The legal gaming industry is among the most highly regulated industries in America. Whether it is financial solvency and other licensing requirements, know your customer or anti-money laundering regulations, legal gaming operators and suppliers comply with thousands of laws and regulations designed to ensure consumer protections and confidence in the gaming market.

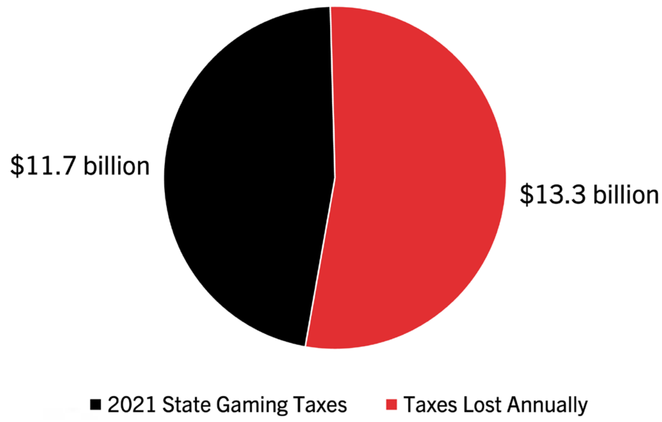
Illegal and unregulated gambling operators do not follow any of these standards, which exposes consumers to severe risk and undermines the economic and tax contributions of the legal gaming industry. This report, commissioned by the American Gaming Association (AGA) and prepared by The Innovation Group, quantifies for the first time the potential size of the illegal and unregulated gaming market across three verticals: sports betting, iCasinos (which we refer to as iGaming) and grey market slots, including those commonly referred to as "skill machines."

Based primarily on a survey of a more than 5,000 Americans and their gambling habits, as well as existing data on gaming participation rates and the known size of the legal market, the findings estimate that Americans bet more than $510 billion a year with illegal and unregulated operators. This costs the legal industry $44.2 billion in gaming revenue and state governments $13.3 in lost tax revenue.

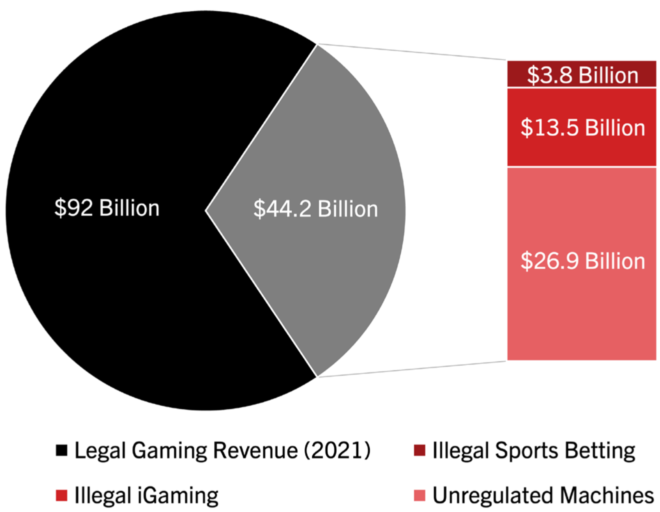
By defying regulations, illegal and unlicensed operators capture revenue from the regulated market, thereby reducing tax revenue used by states to support critical public programs such as education and law enforcement. This further inhibits the considerable economic benefits that come with regulated gaming. The scale of the tax loss is enormous: more than half of all potential state gaming tax dollars are lost to unregulated operators.

Combatting the illegal market is one of the AGA's top priorities and this research highlights the scope of the challenge: in 2021, the legal, regulated gaming industry generated $92 billion in combined commercial and tribal revenue, meaning that about a third of all gaming revenue each year is going to illegal or unregulated operators.

SCALE OF STATE GAMING TAXES LOST TO ILLEGAL & UNREGULATED MARKET



ANNUAL U.S. GAMING REVENUE BY LEGAL STATUS



The illegal and unregulated gambling market takes many shapes – whether it is the corner bookie, offshore sportsbooks and iGaming sites, or unlicensed slot machines. Wherever they are found, illegal and unregulated operators prey on vulnerable consumers, offer no commitment to responsible gaming, give no recourse to bettors if something goes wrong, encourage money laundering and generate no economic benefit to states or tribal nations.

Americans bet nearly $64 billion each year with illegal online sportsbooks and nearly $338 billion with online casinos. These operators entice often-unsuspecting

AGA INTRODUCTION

customers with advantageous odds since they don't pay taxes or need to meet the stringent regulatory and licensing requirements that legal operators are bound by. The AGA understands the frustration of consumers in states without legal sports betting options and believes the best solution is to expand access to legal sports betting, which consumers consistently say they prefer over illegal sites that offer no protections. Nearly 90 percent of gamblers across verticals say it is important for them to bet legally, but unlicensed online operators often purport to be legal options, sowing widespread confusion.

While offshore sites have succeeded in muddying the waters in internet search results, the law is clear: it is a crime to participate in the business of illegal gambling. There are a variety of statutes that make it illegal to operate or participate in financial transactions related to an unlicensed sportsbook in the United States, including the Wire Act, the Illegal Gambling Business Act, the Travel Act and the Unlawful Internet Gambling Enforcement Act. Beyond federal statutes aimed specifically at gambling, a variety of broader criminal laws targeting organized crime have also been the basis for prosecution of offshore gambling rings.

Unregulated gaming machines also continue to proliferate. We estimate that there are more than 580,000 unregulated gaming machines across the country and that Americans bet more than $109 billion on those machines every year.

With 870,000 regulated machines in casinos and slot routes, that means 40% of all gaming machines in the U.S. are unlicensed. To make things worse, players are often losing money on these machines at three times the rate they would with regulated machines in Nevada.

These unregulated machines look and act just like the slot machines found in a casino, but operate instead in unlicensed environments like bars, taverns, convenience stores, and gas stations, where they prey on vulnerable consumers, including minors. Additionally, the lack of regulatory controls increases the risks they may be tied to criminal activity including money laundering, drug trafficking and violent crime.

Legal gaming machine manufacturers are subject to federal laws, including the Johnson Act, which makes it unlawful to trade in unregulated gaming devices, operate a gambling business outside the bounds of state law, or to transfer wagering paraphernalia through interstate channels if not permitted by state law.

Unregulated machines clearly meet the definition of gambling devices. State lawmakers and regulators must take action to strengthen and enforce laws protecting consumers from these machines that often lure players in under the guise of being "games of skill."

When people think of illegal gambling, they may picture an underground casino with a doorman, a password to get in, and sophisticated high rollers, but the reality is more pernicious. Illegal and unregulated gambling is available everywhere and to nearly everyone, on phones and next to the candy aisle at the convenience store.

The AGA urges state and federal law enforcement to educate consumers about the dangers of illegal gambling and investigate and prosecute operators who openly violate the law. It is also incumbent upon policymakers at all levels of government to clarify and strengthen laws and regulations to address any potential ambiguity or enforcement gaps that are currently exploited.

DETAILED REPORT

PREPARED BY THE INNOVATION GROUP

EXECUTIVE SUMMARY

The American Gaming Association retained The Innovation Group to provide an independent assessment of the size of the illegal and unregulated markets for sports betting, online slots and table games (iCasino) and gaming machines in physical locations.

The unregulated market, often referred to as the "gray market," purports to straddle the line between the illegal (black) market and the regulated (white) market. In some cases, the unregulated market includes gambling on which the law is ambiguous, silent or disputed. Examples of unregulated gaming include so-called "skill games" – electronic machines bearing similarities to slot machines that, except in states where they have been explicitly regulated, operate largely unregulated in bars, taverns and fraternal halls – and online betting sites that take wagers from U.S. consumers but are not licensed to operate in the U.S. or to accept bets placed from the U.S. (though some are licensed in offshore jurisdictions such as Malta or Curacao).

For the purposes of this report, the "illegal and unregulated market" refers to wagers placed by U.S. residents with operators that lack a U.S. gaming license, irrespective of whether they may be authorized to conduct business anywhere outside the U.S. It includes sports bets placed with bookies and with unlicensed online operators, wagers placed on unlicensed online slots and table games, and wagers placed on "skill games" in states where they are unregulated. The estimates in this report do not include certain other illegal gambling, including underground casinos or poker, illegal dog fighting, etc.

To estimate the combined market size, we conducted a survey of more than 5,000 American adults in which we asked detailed questions about their overall gambling habits for both land-based and interactive and regulated and unregulated gambling. We used the survey results to extrapolate a full U.S. estimate from baseline figures that we were able to derive in specific markets based on public reporting and interviews.

SUMMARY OF THE U.S. ILLEGAL AND UNREGULATED MARKET

UNREGULATED MARKET		ESTIMATED HANDLE	ESTIMATED REVENUE	ESTIMATED STATE GAMING TAX REVENUE LOSS
Sports Betting (includes Bookies and Offshore)		$63.8bn	$3.8bn	$0.7bn
Online Slots and Table Games		$337.9bn	$13.5bn	$3.9bn
Unregulated Machines in Bars, Taverns, etc.		$109.2bn	$26.9bn	$8.7bn
TOTAL		**$510.9bn**	**$44.2bn**	**$13.3bn**
Estimated Number of Skill/Gray Machines	*580,651*			

Tax rates for loss estimate are AGA estimates of average tax rates for each vertical across legal states: Sports – 19.4%, Slots and Table Games – 29.1%, Machines – 32.5%

INTRODUCTION

In the United States, illegal and unregulated gambling takes several forms. Gamblers bet on sports with bookies and offshore online sportsbooks. Slots and table games are widely available through offshore online casinos ("iCasinos"). Unregulated physical devices, including so-called "skill games," mimic the experience of slot machines and are commonly located in bars, truck stops, malls and other convenience locations around the country.

Unregulated operators are not beholden to reporting requirements, and the threat of enforcement provides incentives for these operators to conceal their revenue and other data. This lack of transparency makes estimating the scope of this industry a difficult task.

Further, the unregulated gaming market resists comparison to other markets. Extrapolation from the regulated gaming market is impeded by the unregulated market's fragmented and largely online character. Several existing estimates of unregulated market size in the literature that we reviewed employed a "top-down" approach, attempting to size the market by comparison with other regulated gaming markets, reporting large ranges for revenue and handle as a result. Notably, none of the approaches we reviewed published survey data of self-reported unregulated market gambling spend among U.S. residents aged 21 and older.

Surveying gamblers about their spend by channel allows an estimate of the unregulated market size to be constructed from the "bottom up," extrapolating per-person spend by a sample's propensity to gamble. These metrics are readily calculated for the overall population in the regulated market, so we can use the disparity between self-reporting and known quantities (e.g., publicly available reporting from regulatory agencies in regulated markets) to identify and correct for respondents' tendency to misreport their gambling spend.[1] We were likewise able to utilize estimates of unregulated machine counts from several jurisdictions as a range of inputs to correct for reporting bias in unregulated machine survey data. The different estimates from an array of sources provides a principled way of varying initial assumptions while holding the overall methodology constant, generating a range of estimates based on the same survey results.

To estimate the size of the unregulated gambling market, we surveyed 5,284 U.S. adults, asking all respondents to indicate where they had encountered unregulated machines, and asking those 21 or older to report where and how often they gambled, as well as how much they spent when they did. Of the total sample, 4,982 were aged 21+. We asked all adults about their observation of skill machines, but only asked those 21+ about their own gambling behaviors. Precise sampling allowed us to complete an approximately equal number of interviews in each U.S. Census region.

To correct for survey bias, we adjusted our survey data with metrics from industry reports and government records. Using this methodology, we produced U.S. market size estimates for illegal sports betting, illegal iCasino games and unregulated machines.

In the sections that follow, we detail our approach to estimating the size of each of these markets. Each section reports the average of the outputs of our various approaches, understanding that there are considerations in favor of higher or lower estimates for each.

[1] The methodology of adjusting by known regulated market spend/handle helps account for survey respondent tendency to misreport wagers per se, but it is not able to account for any disproportionate tendency for survey respondents to misreport wagers placed through unregulated channels.

THE ILLEGAL SPORTS BETTING MARKET

Since the Supreme Court overturned the Professional and Amateur Sports Protection Act (PASPA) in 2018, the U.S. regulated sports betting market has grown rapidly, with regulated sports betting now active in 31 states and mobile sports betting active in 22 (As of Nov. 30, 2022; See Appendix).

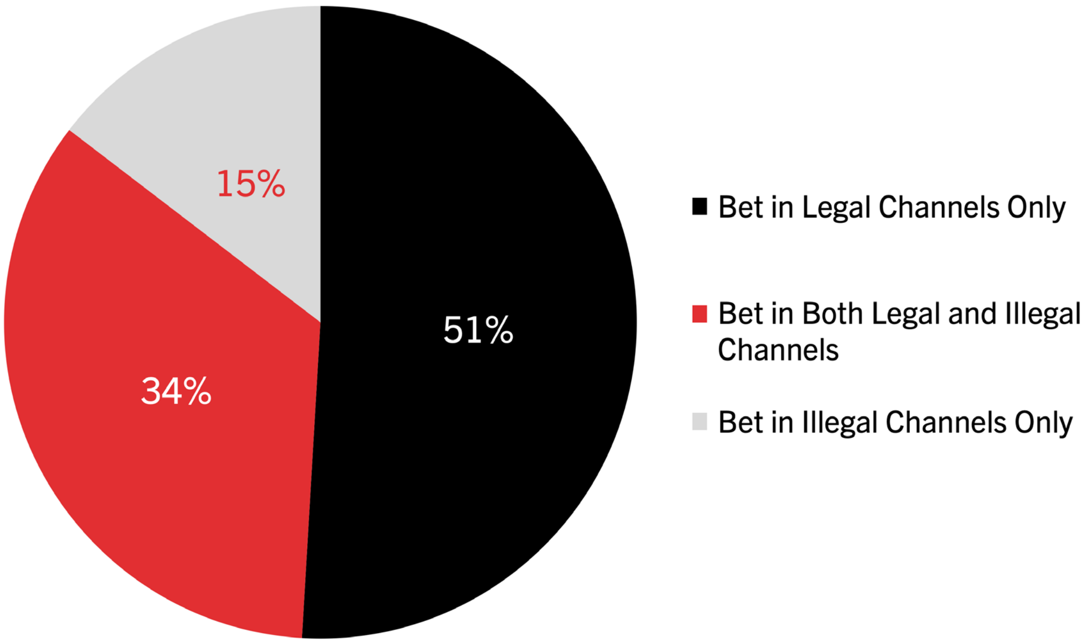
The rise in legal sports betting in the U.S. raises questions about the continued impact of the illegal market. Namely, what is a U.S. adult's propensity to bet on sports in the illegal market? How much do they bet on illegal sites? Do these metrics vary by region?

To answer these, we conducted a survey of U.S. adults to estimate illegal sports betting spend, handle and propensity to gamble in each of the U.S. census regions.

We asked survey respondents aged 21 and older to indicate how often in the past year they bet on sports, the size of their average bet, and the percentages of their bets placed online, at a casino or with a bookie. We asked respondents who indicated that they bet on sports online to select from a list of 20 prominent online sports betting providers (including both legal and illegal sites) to tell us on which sites they had bet and the percentage of their bets they placed on each site. We included an option for respondents to write-in sites on which they bet that were not included in the list and are comfortable that the list captured the most popular legal and illegal providers.

The chart below shows the percentage of respondents that bet only in legal channels, bet in both legal and illegal channels, and bet only in illegal channels.

PERCENTAGE OF SPORTS BETTORS WHO BET IN LEGAL VS ILLEGAL CHANNELS



We counted the number of respondents who reported engaging in sports betting in the past year and divided this number by the number of survey respondents aged 21 and older to calculate the sample's propensity to engage in sports betting. We repeated this analysis for those who indicated that they bet on a regulated site or at a casino to calculate our sample's propensity to engage in regulated sports gambling, and for those who indicated that they bet on an illegal site or with a bookie to calculate our sample's propensity to engage in illegal sports betting.

SURVEY RESPONDENT DATA

	NATIONWIDE	NORTHEAST	SOUTH	MIDWEST	WEST
Survey Respondents 21+	4,982	1,118	1,247	1,344	1,273
Total Sports Bettors	1,052	277	327	237	211
Total Sports Betting Propensity	21.1%	25.0%	26.0%	18.0%	17.0%
Regulated Sports Bettors	825	218	255	183	169
Regulated Sports Propensity	16.6%	19.5%	20.4%	13.6%	13.3%
Illegal Sports Bettors	474	121	146	105	102
Illegal Sports Propensity	9.5%	10.8%	11.7%	7.8%	8.0%

86 of these 1052 bettors didn't select channels/platforms that allowed for them to be categorized as either legal or illegal bettors.

We calculated the average reported yearly handle per player for both the legal and illegal markets by multiplying each player's reported sports betting frequency by the size of their reported average bet and multiplying by the percentage of bets they reported placing in the legal market and illegal market, respectively. We then calculated each region's legal sports betting handle implied by our survey data by multiplying average handle per player by the relevant sample's propensity to gamble and the 21+ population of each region. We summed each region's implied legal sports betting handle to calculate the nationwide legal market handle implied by our survey data. To correct for survey bias, we calculated adjustment factors for handle by dividing the nationwide regulated market handle implied by our survey data by nationwide regulated sports betting handle from industry reports.

H2 Gambling Capital reports the regulated sports betting handle of $85.5 billion, with total revenues of $6.2 billion, implying a hold percentage of 7.2 percent, for Sep 2021 – Aug 2022 (the twelve months preceding the conclusion of the survey).[2] These numbers align with data available through the AGA's Commercial Gaming Revenue Tracker.[3]

H2 also projected 2022 U.S. onshore regulated commercial sports-betting handle at $96 billion, with total revenues of $7.2 billion and a hold percentage of 7.5 percent, in line with AGA reported revenue trends.[4] [5]

LEGAL SPORTS BETTING REVENUE ($BILLIONS)

	AVERAGE	LAST 12 MONTHS	H2 2022 PROJECTED
Handle	$90.7	$85.5	$96.0
Revenue	$6.8	$6.2	$7.2
Hold Percentage	7.4%	7.2%	7.5%

Source: The Innovation Group; American Gaming Association; H2 Gambling Capital

[2] H2 Gambling Capital Oct 2022 US Sportsbetting Summary
[3] AGA Commercial Gaming Revenue Tracker - American Gaming Association
[4] H2 Gambling Capital Oct 2022 US Sportsbetting Summary
[5] AGA Commercial Gaming Revenue Tracker - American Gaming Association

We multiplied the survey's implied illegal handle by the regulated market adjustment factors to estimate unregulated handle. Assuming a reduced hold percentage in the unregulated market of 6 percent, we estimated unregulated sports revenue by multiplying handle by hold percentage.

ESTIMATED ILLEGAL SPORTS BETTING MARKET REVENUE BY REGION

REVENUE/HANDLE - REGION	AVERAGE	BASED ON LAST 12 MONTHS REGULATED MARKET	BASED ON 2022 FORECAST REGULATED MARKET	REVENUE/HANDLE PER CAPITA
Revenue - Northeast	$621m	$573m	$670m	$14
Revenue - South	$1.8bn	$1.6bn	$1.9bn	$19
Revenue - Midwest	$1bn	$941m	$1.1bn	$20
Revenue - West	$417m	$384m	$449m	$7
Revenue - Nationwide	**$3.8bn**	**$3.5bn**	**$4.1bn**	**$15**
Handle - Northeast	$10.4bn	$9.6bn	$11.1bn	$237
Handle - South	$29.5bn	$27.2bn	$31.8bn	$311
Handle - Midwest	$17bn	$15.7bn	$18.3bn	$331
Handle - West	$7bn	$6.4bn	$7.5bn	$119
Handle - Nationwide	**$63.8bn**	**$58.8bn**	**$68.8bn**	**$257**

THE ILLEGAL ONLINE SLOT & TABLE MARKET

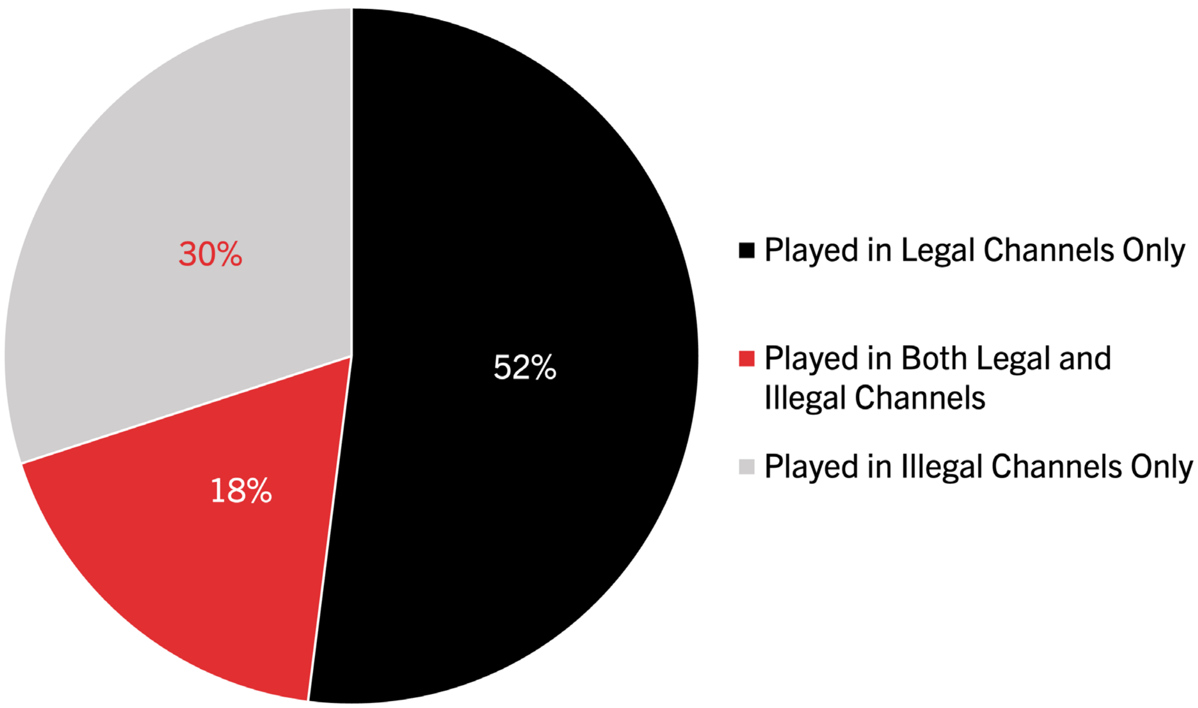
While the reach of the legal market for online slots and table games in the U.S. is small relative to that of legal sports betting, similar questions arise about the illegal iCasino market. To answer these, we conducted a survey of U.S. adults to estimate illegal online slot and table game spend, handle and propensity to gamble in each of the U.S. census regions.

We asked survey respondents to indicate how often in the past year they played slots or table games, their average budget when playing these types of games, and what percentage of their play occurred online, at a casino or at distributed locations (e.g., bars, fraternal halls, gas stations, etc.). Similar to the approach for sizing the illegal sports betting market, we asked respondents about their brick-and-mortar slot and table game spend and legal online slot and table game spend in order to identify respondent tendency to over- or under-report their gambling spend.

We asked respondents who indicated that they played slots or table games online to select from a list of 22 prominent online slot and table game providers (including both legal and illegal sites) the sites on which they played and the percentage of their play on each site. We included an option for respondents to write in sites on which they bet that were not included in the list and are comfortable that the list captured the most popular online slot and table game providers.

The chart below shows the percentage of iCasino respondents who reported betting only in legal channels, bet in both legal and illegal channels and bet in only illegal channels.

PERCENTAGE OF PLAYERS WHO PLAYED iCASINO IN LEGAL VS ILLEGAL CHANNELS



We counted the number of respondents who reported playing any slots or table games in the past year and divided this number by the number of survey respondents to calculate the sample's propensity to play slots or table games through any channel for each U.S. Census region. We repeated this analysis to calculate propensity to play slots or table games in-person at a casino and on illegal online slot and table game sites. Survey results are displayed in the table below.

SURVEY RESPONDENT DATA

	NATIONWIDE	NORTHEAST	SOUTH	MIDWEST	WEST
Survey Respondents 21+	4,982	1,118	1,247	1,344	1,273
All Slot/Table Players	1,513	371	413	379	350
All Slot/Table Propensity	30.4%	33.2%	33.1%	28.2%	27.5%
In-Person Slot/Table Players	1,307	310	345	336	316
In-Person Slot/Table Propensity	26.2%	27.7%	27.7%	25.0%	24.8%
Illegal Online Slot/Table Players	162	35	48	43	36
Illegal Online Slot/Table Propensity	3.3%	3.1%	3.8%	3.2%	2.8%

We repeated this propensity analysis for respondents from the six states in which online slots and table games are regulated and operational.[6]

SURVEY RESPONDENT DATA ***REGULATED ONLINE SLOT AND TABLE GAMES STATES***

	REGULATED STATES
Survey Respondents 21+	746
Regulated Online Slot/Table Players	82
Regulated Online Slot/Table Propensity	11%

For the in-person casino market, the legal iCasino market and the illegal iCasino market, we calculated average yearly spend per player by multiplying their reported play frequency by their average slot/table spend in the channel. We then calculated the spend implied by our survey data by multiplying average spend per player by the relevant sample's propensity to gamble and the relevant 21+ population. We summed these estimates to arrive at nationwide spend estimates implied by the survey data for the in-person slots and table games market, the legal online slots and table games market and the illegal online slots and table games market. Since in-person casino spend and legal online slots and table games spend are publicly known or, in the case of tribal gaming, widely reported, we used these figures to normalize respondents' reported spend levels and adjust for bias.

The average of last-twelve month and full year 2022 estimated in-person slots and table games revenue for all casinos in the U.S. is $79.6 billion, the sum of reported commercial casino slot and table game revenue and tribal casino slot and table game revenue.[7] [8]

H2 Gambling Capital reports legal iCasino revenue at $4.6 billion for Sep 2021 – Aug 2022 (the twelve months preceding the conclusion of the survey) and projected 2022 revenue at $5 billion. We use $4.8 billion, the average of these estimates, for our adjustment.

[6] These states are Connecticut, Delaware, Michigan, New Jersey, Pennsylvania, and West Virginia

[7] AGA Commercial Gaming Revenue Tracker – American Gaming Association

[8] State of Play – American Gaming Association

We multiplied the survey's implied illegal iCasino revenue by each of our two regulated market adjustment factors to derive estimates of illegal market size, estimating an aggregate 4 percent hold.

ESTIMATED ILLEGAL iCASINO MARKET REVENUE

REVENUE/HANDLE - REGION	AVERAGE	BASED ON B&M CASINO	BASED ON REGULATED ONLINE SLOTS AND TABLE GAMES	REVENUE/HANDLE PER CAPITA
Revenue - Northeast	$1.9bn	$1.8bn	$1.9bn	$42
Revenue - South	$6.0bn	$6.0bn	$6.0bn	$64
Revenue - Midwest	$3.7bn	$3.7bn	$3.7bn	$71
Revenue - West	$2.0bn	$2.0bn	$2.0bn	$34
Revenue - Nationwide	**$13.5bn**	**$13.5bn**	**$13.6bn**	**$55**
Handle - Northeast	$46.1bn	$46.0bn	$46.2bn	$1,054
Handle - South	$150.8bn	$150.4bn	$151.1bn	$1,589
Handle - Midwest	$91.8bn	$91.6bn	$92.0bn	$1,784
Handle - West	$49.2bn	$49.1bn	$49.3bn	$841
Handle - Nationwide	**$337.9bn**	**$337.1bn**	**$338.7bn**	**$1,359**

THE UNREGULATED MACHINES MARKET

In this section, we estimate the number of machines, revenue and handle in the unregulated machines market. Unregulated machines include so-called "skill games," which are commonly located in bars, truck stops, malls and convenience locations around the country.

We again leveraged survey data to estimate the size of the market, relying on the responses of people who had seen and/or played these games in their state of residence. As a benchmark, we were able to look closely at data reflecting the market size in states such as Nebraska, Virginia, Kentucky and Pennsylvania. We additionally considered the known number of Coin-Operated Amusement Machines in Georgia, which, while regulated, provide an indication of the market size for unregulated machines in other states. We chose these benchmark states because of the availability of data, i.e., these were states in which the local government has had cause to track or investigate the preponderance of "skill games" and generate the data. We describe the benchmarks below, followed by our nationwide estimates.

BENCHMARK STATES

Below we review data indicating the number of machines in several states with differing regulatory regimes.

Nebraska

Nebraska permits "skill games" provided operators apply for a site license and obtain a tax decal for each machine.[9] Thus, the Nebraska Department of Revenue maintains a statewide database of all skill games with an active tax decal. As of September 21, 2022, there were 3,752 registered skill games in Nebraska.[10]

Georgia

The Georgia Lottery licenses "Coin Operated Amusement Machines" (COAMs), electronic games that provide a similar experience to slot machines. These machines are regulated by the state lottery, but still may provide a benchmark for machine preponderance. In their 2021 end-of-year financial statement, the Georgia Lottery reported 39,539 active machines.[11]

Virginia

The Virginia legislature has twice enacted measures to clarify that skill game machines qualify as illegal gambling devices under state law. Most recently, skill games were defined as illegal gambling by the state legislature as part of the 2022-2024 state budget. Prior to this, the legislature in 2020 enacted a ban on skill games that was set to take effect in 2021. This measure provided existing machines a one-year grace period to continue operation during the Covid 19 pandemic under the regulation of the state Alcoholic Beverage Control Authority (ABC). The 2020 ban has been challenged in a Virginia court, which issued a temporary injunction on enforcing the ban pending the outcome of these legal proceedings. This litigation remained unresolved during the period that this research was conducted.[12] [13] [14]

Virginia ABC published data on the number of licensed "skill games" in the state from the beginning of the licensing period in July 2020 through May 2021.[15] From these data, we calculated a monthly growth rate and applied it to the most recent machine count to estimate the number of machines in each of the 12 months preceding the survey. We estimated the average number of machines in Virginia during this period at 8,194.

[9] Nebraska Department of Revenue | Regulation of Cash Devices
[10] These data were obtained through a public records request with the Nebraska Department of Revenue
[11] Georgia Lottery 2021 Financial Statements.
[12] Virginia 2022-2024 Budget | Item 4-14 #4c
[13] Virginia judge halts enforcement of ban on skill machines | Courthouse News Service
[14] Virginia Acts of Assembly 2020 Chapter 1277
[15] Games of Skill Activity - May 2021

Kentucky

We estimated the number of skill games in Kentucky in two ways, using their average as our benchmark.

In 2022, the Kentucky Lottery undertook a survey of games in lottery locations and estimated their impact on state lottery revenues.[16] We used the number of games observed in lottery retailers and an estimate (utilizing data from a similar study undertaken by the Virginia Lottery) of the proportion of games in lottery locations to derive an estimate of the number of machines in Kentucky (15,459).

Alternatively, we used an estimate of per-machine impact on state lottery revenues from the Virginia Lottery and combined it with a total lottery impact number from the Kentucky Lottery to derive an estimate of the number of machines in Kentucky (9,078).

We took the average of these two estimates, 12,269, for the Kentucky benchmark.

Pennsylvania

In 2019, the Virginia Joint Legislative Audit and Review Commission (JLARC) reported that Pennsylvania had anywhere from 52,000 to 82,000 machines.[17] In 2022, Pennsylvania Bar News reported that the state had as many as 80,000 machines.[18] We estimate the number of machines at 67,000, the average of the range reported by JLARC.

TOTAL MACHINE ESTIMATES BY STATE

	NEBRASKA	GEORGIA	VIRGINIA	KENTUCKY	PENNSYLVANIA
Machines	3,752	39,539	8,194	12,269	67,000

MODELING THE NUMBER OF MACHINES

Our survey asked U.S. adults to indicate the states in which they had seen these unregulated machines and the states in which they had played such games. To avoid double-counting, we restricted these to observations by respondents who indicated seeing or playing gray machines in their state of residence. We then calculated propensity to see and to play unregulated machines on a state-by-state basis.

MACHINES PER CAPITA SEEN AND PLAYED BY STATE

	NEBRASKA	GEORGIA	VIRGINIA	KENTUCKY	PENNSYLVANIA
Machines	3,752	39,539	8,194	12,269	67,000
Population 21+	1,438,893	7,968,153	6,525,410	3,393,078	9,919,194
Propensity - Machines Seen	0.571	0.621	0.575	0.583	0.672
Propensity - Machines Played	0.179	0.417	0.425	0.417	0.460
Machines per Capita Seen	0.005	0.008	0.002	0.006	0.010
Machines per Capita Played	0.015	0.012	0.003	0.009	0.015

Using each benchmark state's machines per-capita metric, we estimated the number of machines in each state by multiplying by the state population and the relevant propensity metric.

[16] Kentucky Lottery State Legislature Testimony, Where are skill games, gray slot machines in Kentucky?
[17] Gaming in the Commonwealth | 2019 JLARC Report
[18] Pennsylvania Bar News, Vol. 32, No. 13, July 11, 2022 at p. 3

We then averaged the state machine estimates for each benchmark state's 'seen' and 'played' models, exempting states in which skill games are clearly regulated (Georgia, Nebraska, Wyoming) and states with regulated distributed gaming where survey confusion seemed likely (Nevada, Illinois).

ESTIMATED UNREGULATED MACHINE COUNT BY BENCHMARK

BENCHMARK	NATIONWIDE	NORTHEAST	SOUTH	MIDWEST	WEST
Approach 1 (Using VA Model)	197,627	41,680	89,091	32,922	33,934
Approach 2 (Using NE Model)	434,236	89,329	192,587	77,901	74,418
Approach 3 (Using KY Model)	570,202	120,310	257,125	94,857	97,910
Approach 4 (Using GA Model)	756,994	159,849	341,534	125,618	129,993
Approach 5 (Using PA Model)	944,197	199,333	425,929	156,799	162,137
Average	**580,651**	**122,100**	**261,253**	**97,619**	**99,678**

Revenue, Handle and Hold

Virginia ABC reports from January-May 2021 provided statewide data for the number of active skill games, the total amount wagered and the total amount awarded.[19] The 2021 Georgia Lottery financial report also provided data on the number of active Class B COAMs, the total amount wagered and the total amount awarded.[20] From these, we calculated average annual machine revenue, handle and percent hold.

AVERAGE ANNUAL MACHINE REVENUE, HANDLE AND HOLD

	AVERAGE	VIRGINIA DATA	GEORGIA DATA
Yearly Revenue per Machine	$46,270	$58,723	$33,816
Yearly Handle per Machine	$188,449	$264,062	$112,836
Hold Percentage	24.6%	22.2%	30.0%

Source: Virginia ABC; Georgia Lottery

Virginia revenue and handle metrics likely constitute a reasonable estimate for per machine revenue other states. The operator of a significant number of unregulated machines has a strong presence in Virginia and other states around the country.[21] They advertise that operators can make $20,000 per year with their machines and our research indicates that the operator takes a 40% share of machine revenue, placing yearly machine revenue at approximately $50,000.[22] [23]

Georgia COAM machine revenue may underestimate per-machine revenue in other states. Georgia COAMs have maximum betting limits that may curb yearly revenues.[24] Georgia also has a large number of machines-per-player relative to Virginia, though both states have similar reported play propensity, potentially indicating less play on any given machine. Because Virginia has a low number of machines-per-player relative to other states, Virginia revenues may be relatively overstated. Taking an average of these yearly revenue values work to mitigate these competing concerns.

[19] Games of Skill Activity - May 2021
[20] Georgia Lottery 2021 Financial Statements
[21] Queen of Virginia Skill & Entertainment Games by Pace O Matic
[22] Kentucky Lottery State Legislature Testimony
[23] ibid
[24] Georgia Code | Title 50, Chapter 27, Article 3

To estimate total revenue, we multiply revenue per machine and handle per machine estimates by the number of machines in each state in each of our unregulated market models.

ESTIMATED UNREGULATED GAMING MACHINE TOTAL U.S. REVENUE AND HANDLE BY BENCHMARK STATE ($BILLIONS)

BENCHMARK STATE	AVERAGE	MODEL 1 (VA)	MODEL 2 (NE)	MODEL 3 (KY)	MODEL 4 (GA)	MODEL 5 (PA)
Total U.S. Machines	580,651	197,627	434,236	570,202	756,994	944,197
Total U.S. Revenue	$26.9	$9.1	$20.1	$26.4	$35.0	$43.7
Total U.S. Handle	$109.2	$37.2	$81.7	$107.3	$142.4	$177.6

From these estimates, we classified models by regulatory status and calculated average number of machines, revenue and handle for each class.

ESTIMATED TOTAL U.S. UNREGULATED REVENUE AND HANDLE BY BENCHMARK GROUP ($BILLIONS)

BENCHMARK STATES	FIVE STATES AVERAGE	UNREGULATED MARKETS (AVG OF VA, KY, PA)	REGULATED MARKETS (AVG OF NE, GA)
Total U.S. Machines	580,651	570,675	595,615
Total U.S. Revenue	$26.9	$26.4	$27.6
Total U.S. Handle	$109.2	$107.3	$112.0

Because these models are so similar, we report regional results only for the “Five States” model.

U.S. CENSUS REGION UNREGULATED MACHINE
REVENUE AND HANDLE ESTIMATES ($BILLIONS)

	NORTHEAST	SOUTH	MIDWEST	WEST
Machines	121,398	260,266	99,353	99,634
Revenue	$5.6	$12.0	$4.6	$4.6
Handle	$22.9	$49.0	$18.7	$18.7

DISCLAIMER

Certain information included in this report contains forward-looking estimates, projections and/or statements. The Innovation Group has based these projections, estimates and/or statements on our current expectations about future events. These forward-looking items include statements that reflect our existing beliefs and knowledge regarding the operating environment, existing trends, existing plans, objectives, goals, expectations, anticipations, results of operations, future performance and business plans.

Further, statements that include the words “may,” “could,” “should,” “would,” “believe,” “expect,” “anticipate,” “estimate,” “intend,” “plan,” “project” or other words or expressions of similar meaning have been utilized. These statements reflect our judgment on the date they are made and we undertake no duty to update such statements in the future.

Although we believe that the expectations in these reports are reasonable, any or all of the estimates or projections in this report may prove to be incorrect. To the extent possible, we have attempted to verify and confirm estimates and assumptions used in this analysis. However, some assumptions inevitably will not materialize as a result of inaccurate assumptions or as a consequence of known or unknown risks and uncertainties and unanticipated events and circumstances, which may occur. Consequently, actual results achieved during the period covered by our analysis will vary from our estimates and the variations may be material. As such, The Innovation Group accepts no liability in relation to the estimates provided herein.

Prepared for:

American Gaming Association
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GLOSSARY

Illegal and Unregulated Gaming | Wagers placed by U.S. residents with operators that lack a U.S. gaming license, irrespective of whether they may be authorized to conduct business anywhere outside the U.S. It includes sports bets placed with bookies and with unlicensed online operators, wagers placed on unlicensed online slots and table games, and wagers placed on electronic gaming machines including "skill games" in states where they are unregulated.

iGaming or iCasino | Real money online casino games like poker, slots or blackjack. It does not include online lottery products or so-called social games in which no real money is wagered.

Illegal iCasino or iGaming operators | Those without a U.S. gaming licenses that take bets from consumers in the U.S., irrespective of whether they may be licensed in other jurisdictions.

Illegal sports betting operators | Unlicensed individuals or organizations that take sports bets from consumers in the U.S. This includes in-person bookies as well online sportsbooks that do not hold a U.S. gaming license, irrespective of whether they may be licensed in other jurisdictions.

Handle | The total amount bet by consumers.

Revenue | The handle, minus the amount returned to bettors in winning payouts. In other words, the amount won by casinos, sportsbooks or machine operators.

Hold or hold percentage | Gaming operator revenue divided by handle. In other words, the percent of the total amount bet won by the casino, sportsbook or machine operators.

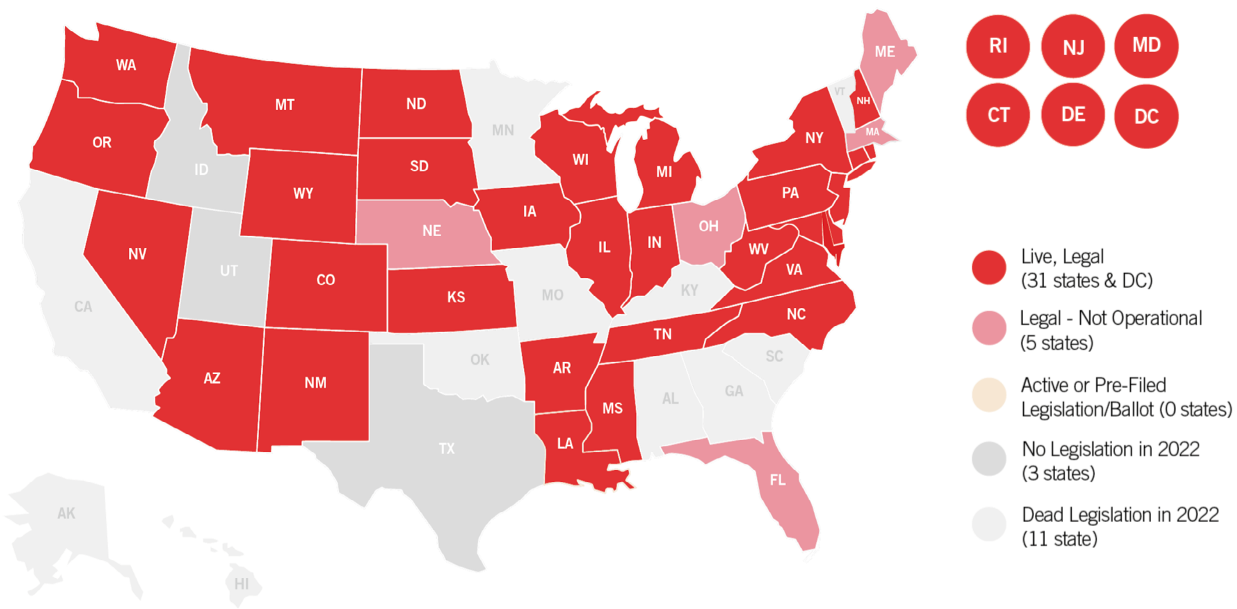
Unregulated machines | Machines that are not licensed or regulated by states or tribal governments. These machines often look and play like traditional regulated slot machines. They include so-called "skill games," which are commonly located in bars, truck stops, malls and convenience locations around the country.

Coin Operated Amusement Machines (COAMs) | Electronic games that provide a similar experience to slot machines.

State gaming taxes | Taxes derived directly from legal gaming revenue. They do not include other taxes paid by legal gaming operators, including real estate taxes, payroll taxes, corporate income taxes, or federal excise taxes, among others.

APPENDIX

U.S. SPORTS BETTING
REGULATORY STATUS BY STATE
as of November 30, 2022



U.S. MOBILE SPORTS BETTING
REGULATORY STATUS BY STATE
as of November 30, 2022