

US Gambling Stagnation Will New Gambling Forms Make a Difference?

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Volume 4, Number 1, 2023

URI: <https://id.erudit.org/iderudit/1098536ar>

DOI: <https://doi.org/10.29173/cgs152>

[See table of contents](#)

Publisher(s)

University of Alberta Library

ISSN

2563-190X (digital)

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Cite this document

Lambert, T. (2023). US Gambling Stagnation: Will New Gambling Forms Make a Difference? *Critical Gambling Studies*, 4(1), 77–89.
<https://doi.org/10.29173/cgs152>

Article abstract

Much has been written recently in the popular press about the rise of sports gambling, historical horse racing or instant racing (HHR), and esports. However, despite this, some note an overall decline in the popularity of gambling and gaming in general as horse racing (pari-mutuel) wagering has declined dramatically over the decades and as casino and lottery revenues have fallen slightly since before the Great Recession. This exploratory research note examines the trends in US gambling over the last several decades and explores whether the new forms of gambling will stem and reverse overall gambling stagnation in the United States. Despite reports of new gambling outlet successes, it appears that sports gambling, HHR, and esports have not done much to stop the overall fall in gambling revenues. This is probably due to stagnant disposable personal income growth.

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ISSN: 2563-190X. Available Open Access at <https://criticalgamblingstudies.com>

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APA Citation: Lambert, T. E. (2023). Commentary: US Gambling Stagnation: Will New Gambling Forms Make a Difference? *Critical Gambling Studies*, 4(1), 77-89.

<https://doi.org/10.29173/cgs152>

Article History:

Received November 2022

Accepted December 2022

Published January 2023


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Commentary: US Gambling Stagnation: Will New Gambling Forms Make a Difference?

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Abstract: Much has been written recently in the popular press about the rise of sports gambling, historical horse racing (HHR) or instant racing, and esports. However, despite this, some note an overall decline in the popularity of gambling and gaming in general as horse racing (pari-mutuel) wagering has declined dramatically over the decades and as casino and lottery revenues have fallen slightly since before the Great Recession. This exploratory research note examines the trends in US gambling over the last several decades and explores whether the new forms of gambling will stem and reverse overall gambling stagnation in the United States. Despite reports of new gambling outlet successes, it appears that sports gambling, HHR, and esports have not done much to stop the overall fall in gambling revenues. This is probably due to stagnant disposable personal income growth.

JEL Code: Z21

Keywords: Betting, casinos, esports, gambling, horse racing, lotteries, parimutuel wagering, sports gambling

Article History: Received November 2022; Accepted December 2022; First Published January 2023

Available Open Access from <https://doi.org/10.29173/cgs152>

"I spent half my money on gambling, alcohol and wild women. The other half I wasted."

~ W. C. Fields

Introduction

New Jersey was the first American state to legalize sports gambling outside of Nevada after a landmark United States Supreme Court decision in May 2018, struck down a federal law banning sports gambling in all other states and the District of Columbia (Murphy v. National Collegiate Athletic Association; Liptak & Draper, 2018). Some race tracks in New Jersey, such as Monmouth Park, began offering sports gambling as a way to bring back fans to pari-mutuel wagering which had been in decline for several decades at horse racing tracks throughout the nation (Associated Press, 2019). Per capita casino and casino hotel revenues have also stagnated when adjusted for inflation since before or after the Great Recession (Srinivasan & Lambert, 2015) as have per capita lottery sales when adjusted for inflation since the Great Recession. See Figures 1 to 4.^{2,3} The total number of casinos in the US has also declined; after reaching a peak of 524 in 2016, the total fell to 465

in 2019 (American Gaming Association, 2020). The total number of horse races held in the US has fallen around 50% since 1989 (US Jockey Club, 2021) as the on-site portion of the gambling industry has shrunk in size. The top 20 firms in the gambling industry made up around 38% of all gambling revenues in 2012. By 2017, this had increased to around 44%, reflecting merger and consolidation in the industry possibly triggered by lower profits due to less consumer spending (US Census Bureau, 2012; 2017).

This brief commentary focuses on gambling trends in the United States and what influences them. Also, there is a discussion on how sports gambling and esports gambling have grown when compared to parimutuel wagering, lotteries, and casino revenues since mid-2018. It appears initially that sports and esports gambling have failed to bring in any resurgence in overall gambling in the US, and instead have probably and mostly taken away revenues from other

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² US per capita estimates are used in order to help assess market share growth over time since it is hard to find estimates of market size in terms of people for each form of gambling, if not the size of the overall gambling consumer market. It is also useful in trying to standardize the data comparisons made in this paper.

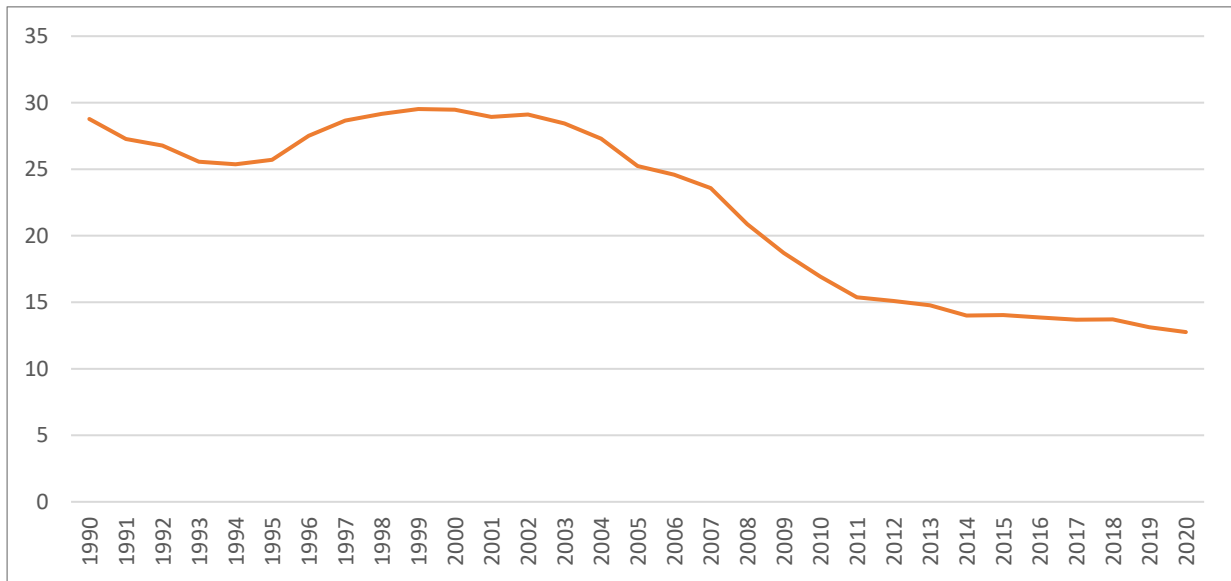
³ All inflation adjustments use an Urban Consumer Price Index with a base year of 1982-1984 as provided by the US Bureau of Labor Statistics (US Bureau of Labor Statistics, no date).



venues for gambling. Charitable gaming has been adversely affected too due to greater competition and stagnant disposable personal income (see Figure 5). These trends appear to have existed before the Covid-19 pandemic peak during 2020 and are somewhat ironic in that until the 1970s, gambling outside of horse racing had great difficulty gaining acceptance among the US public and then took off with the proliferation of lotteries and casinos in different states in the 1980s and 1990s (Madhusudhan, 1996; Guell, 2010; Lambert,

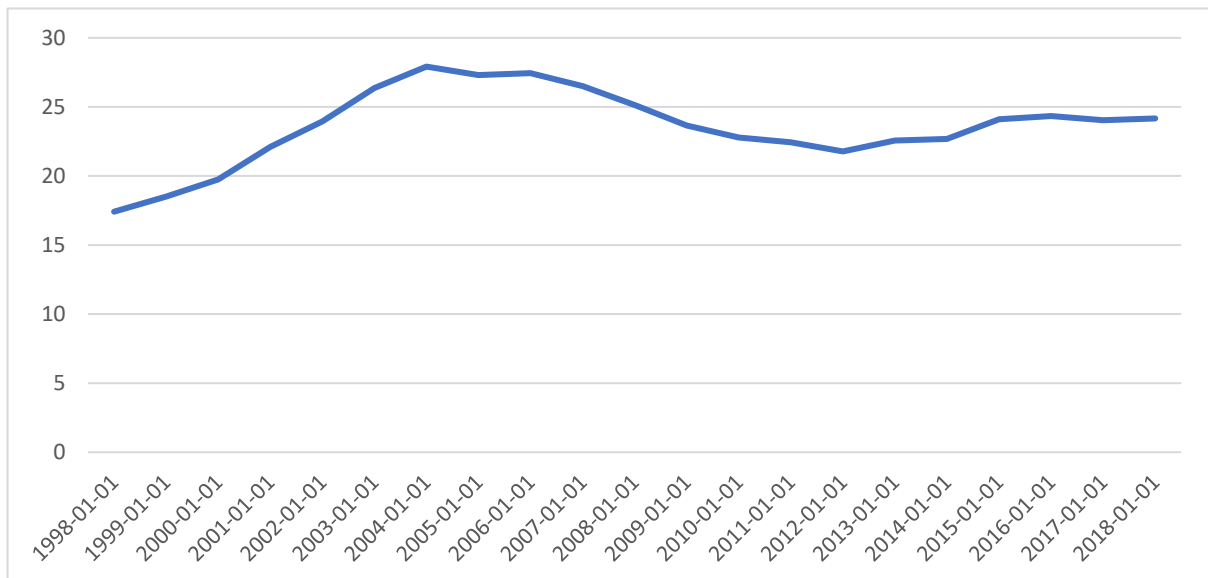
2022). Some states require sports gambling to be onsite whereas others allow this as well as the use of online gambling (American Gaming Association, 2021), and, according to the US Bureau of Economic Analysis (BEA), sports gambling revenues are classified as casino revenues. Therefore the impact of sports gambling has been muted and perhaps not that beneficial to the growth of gambling as gambling revenues in total have seemed to flat-line.

Figure 1. Per Capita Inflation Adjusted On and Off Track Betting (1982-84 base)



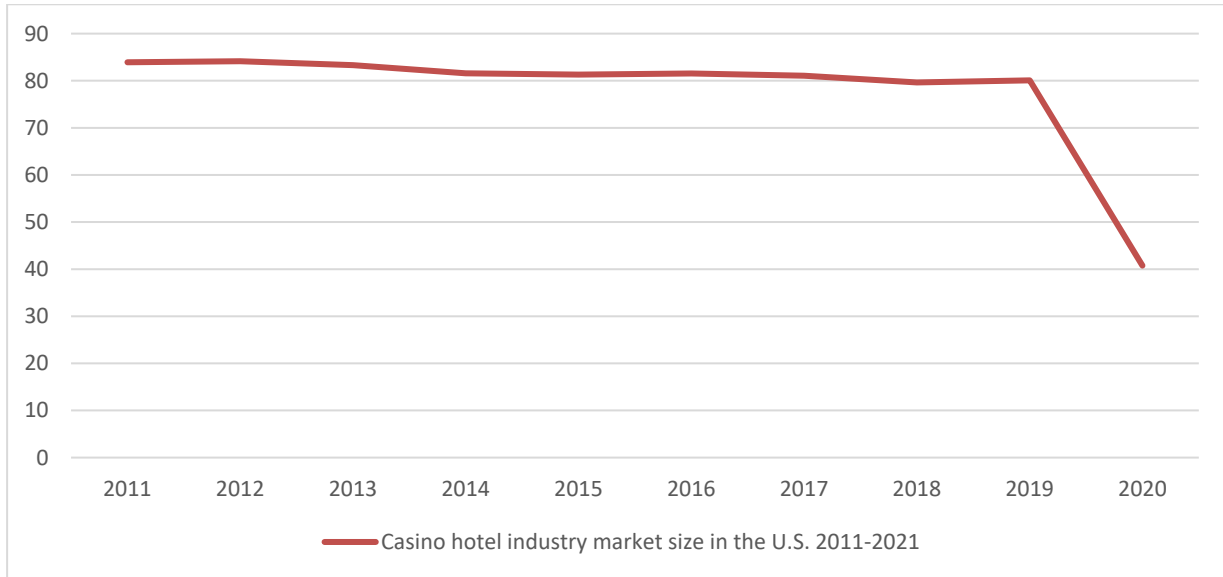
Source: US Jockey Club and Equibase Company LLC, CHRIMS (Comprehensive Horse Racing Information Management Systems), and Hipodromo Camarero, 1990-2020. <http://jockeyclub.com/default.asp?section=FB&area=8>. Accessed on June 22, 2021.

Figure 2. Per Capita Inflation Adjusted Casino Revenues (1982-84 base)



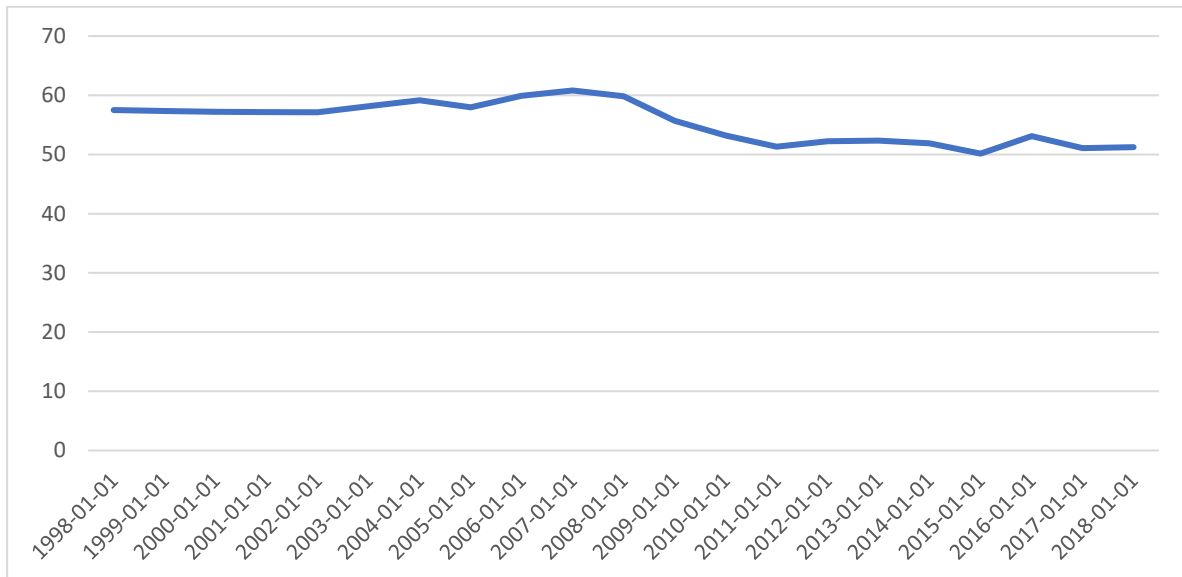
Source: U.S. Census Bureau, Total Revenue for Casinos Excluding Casino Hotels, Establishments Subject to Federal Income Tax, Employer Firms [REVEF71321TAXABL], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/REVEF71321TAXABL>, June 22, 2021

Figure 3. Inflation Adjusted Per Capita Casino Hotel Revenues (1982-84)



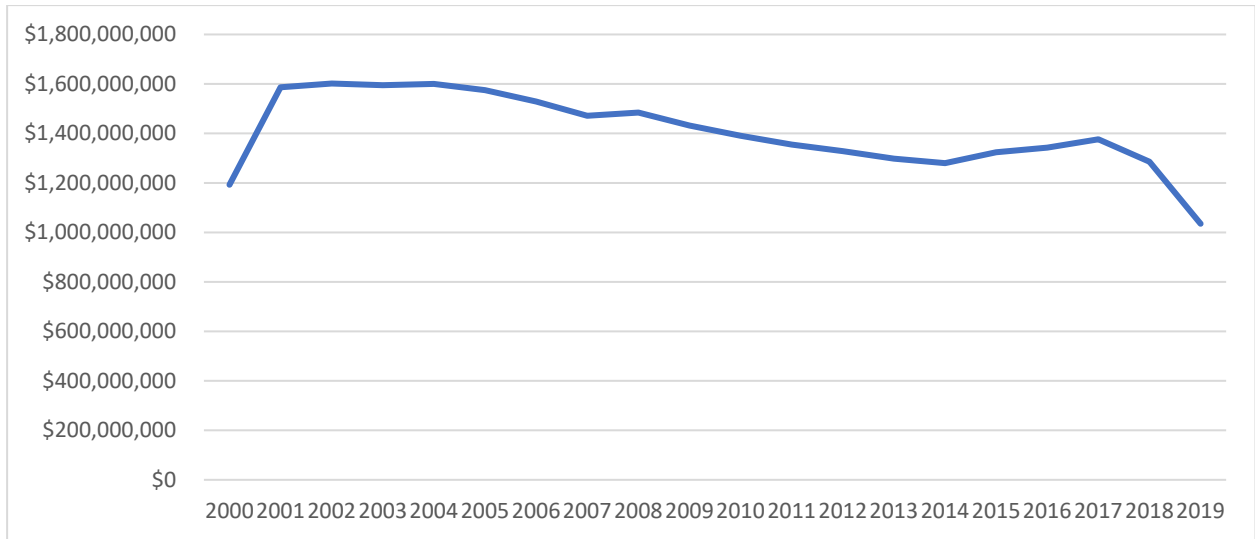
Source: IBISWorld. (December 22, 2020). Market size of the casino hotel sector in the United States from 2011 to 2020, with a forecast for 2021 (in billion U.S. dollars) [Graph]. In Statista. Retrieved June 22, 2021, from <https://www-statista-com.echo.louisville.edu/statistics/1174152/casino-hotels-industry-market-size-us/>

Figure 4. Per Capita Inflation Adjusted Lottery Revenues (1982-84 base)



Source: US Census Bureau. 1977-2018, updated annually. Annual Survey of State and Local Government Finances, 1977-2018. Compiled by the Urban-Brookings Tax Policy Center. Washington, DC: Urban-Brookings Tax Policy Centers (1977-2018). Date of Access: (30-Mar-2020). <https://www.taxpolicycenter.org/statistics/lottery-revenue>

Figure 5. US Charitable Gaming, 2000 to 2019, NOT Inflation Adjusted

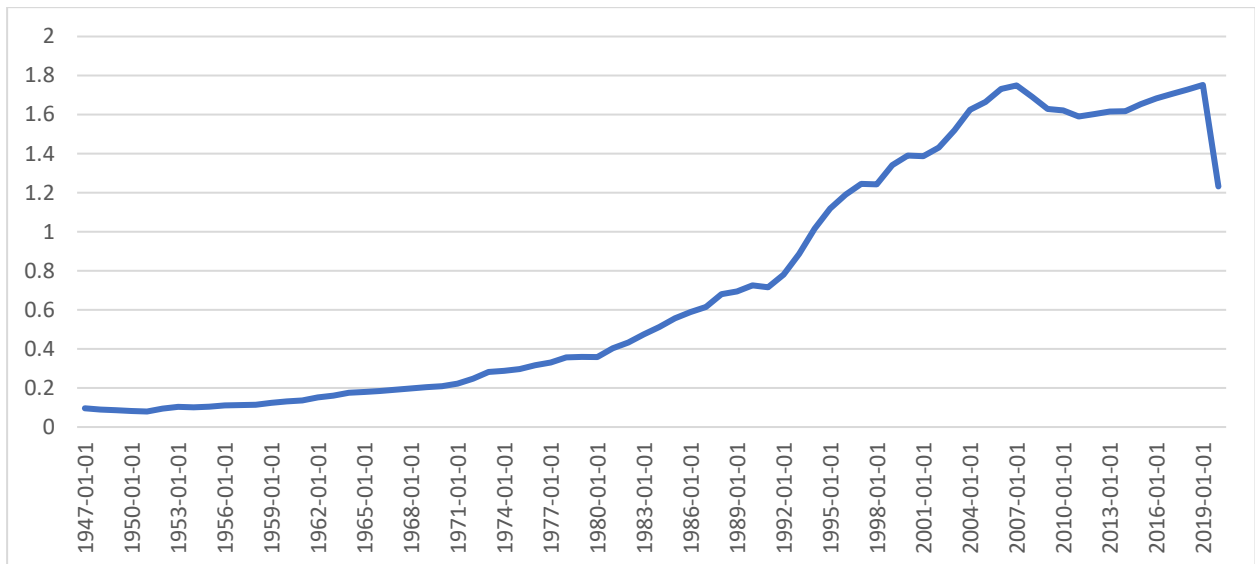


Source: North American Gaming Almanac, 2000 to 2019

Figure 6 illustrates stagnation in per capita and inflation adjusted personal, consumption expenditures for gambling in general. Even when the dramatic drop in 2020 due to the Covid-19 pandemic is ignored, gambling expenditures have had difficulty getting back to 2008 levels. Additionally, as Figure 7 shows, gambling has undergone a decline as a percentage of recreational spending since reaching a peak in 2006. Gambling has also declined as a share of disposable

personal income since its peak in 2007 (see Figure 8). This is not surprising given the downward trend in growth in real disposable personal income (DPI) per capita over the last several decades as shown in Figure 9⁴ and as personal consumption expenditures (PCE) have become a smaller part of DPI since the Great Recession (Figure 10). The post Great Recession period shows a worsening of the anemic growth in DPI.

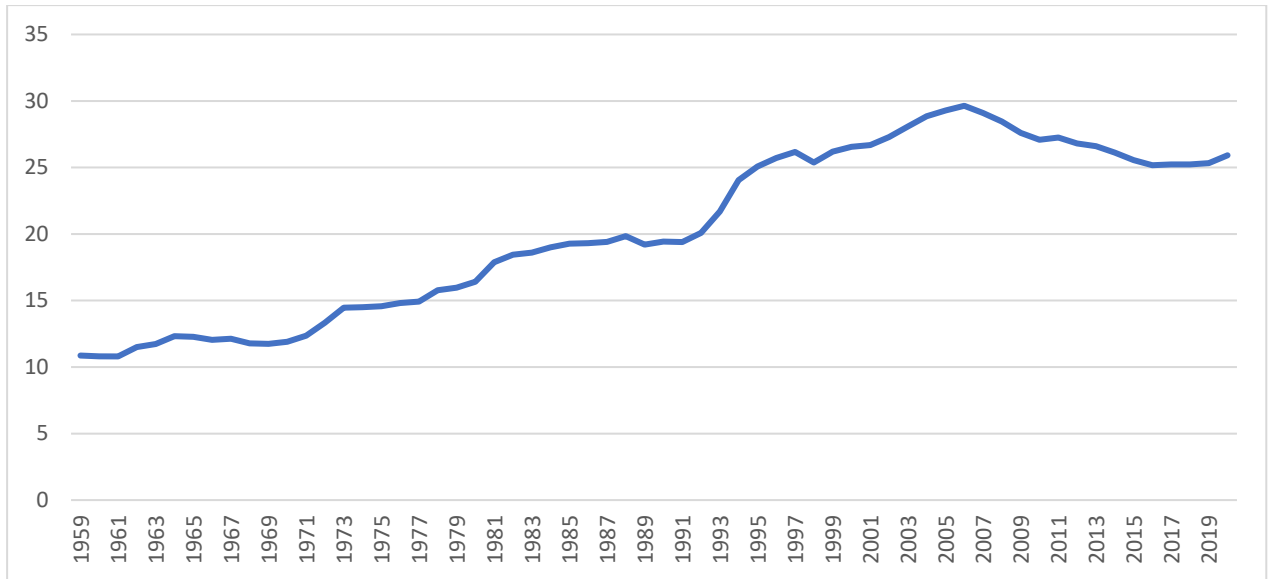
Figure 6. Inflation Adjusted Per Capita Gambling Expenditures (1982-84 base)



Source: U.S. Bureau of Economic Analysis, Personal consumption expenditures: Services: Gambling [DGAMRC1A027NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/DGAMRC1A027NBEA>, June 21, 2021; and US Census Bureau, Census of Housing and Population.

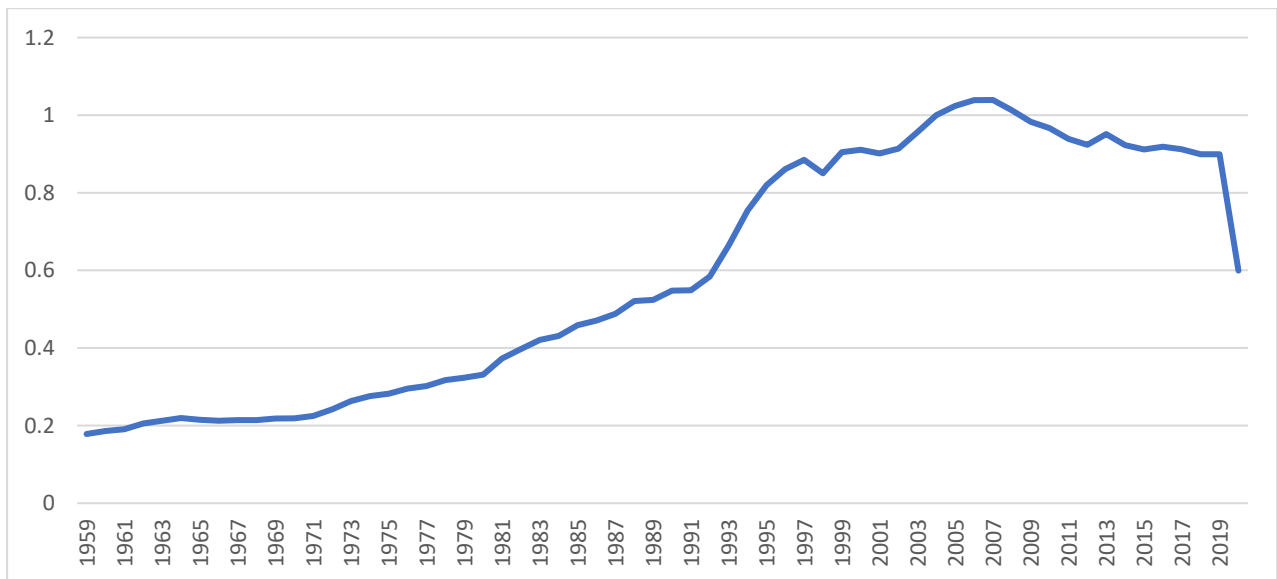
⁴ Figure 8's trend line has an equation of $y = -0.018x + 2.3889$ so that as each year has passed since 1959 real DPI per capita has declined about 0.018% per year on average.

Figure 7. Gambling Expenditures as Percent of Recreational Services



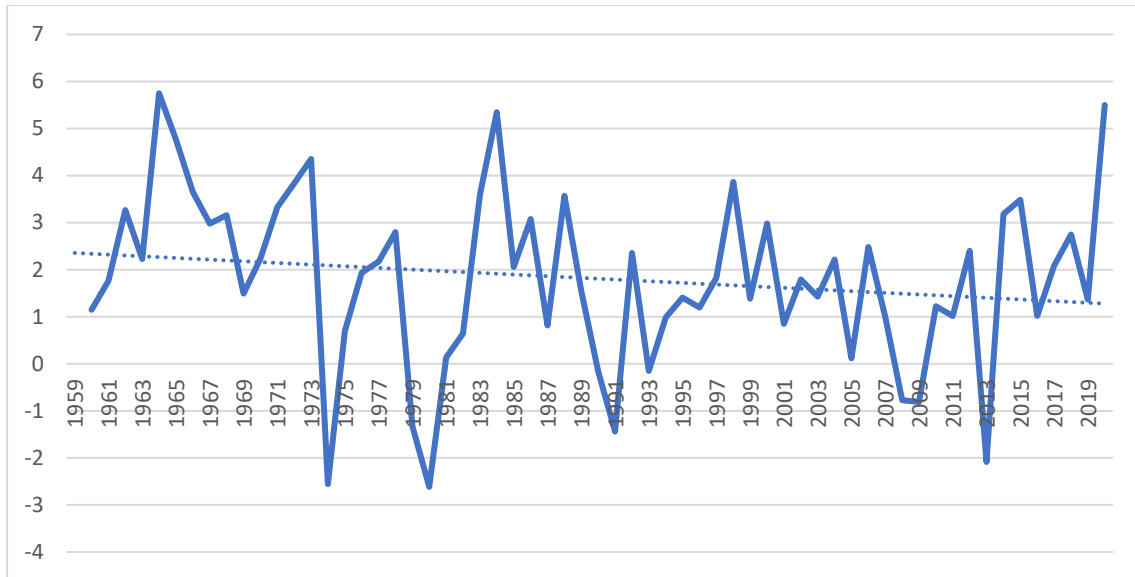
Source: U.S. Bureau of Economic Analysis, Table 2.4.5U. National Income and Product Accounts, Personal Consumption Expenditures by Type of Product, <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&1921=underlying&1903=2017#reqid=19&step=3&isuri=1&1921=underlying&1903=2017> Accessed on June 21, 2021.

Figure 8. Gambling as Percentage of DPI



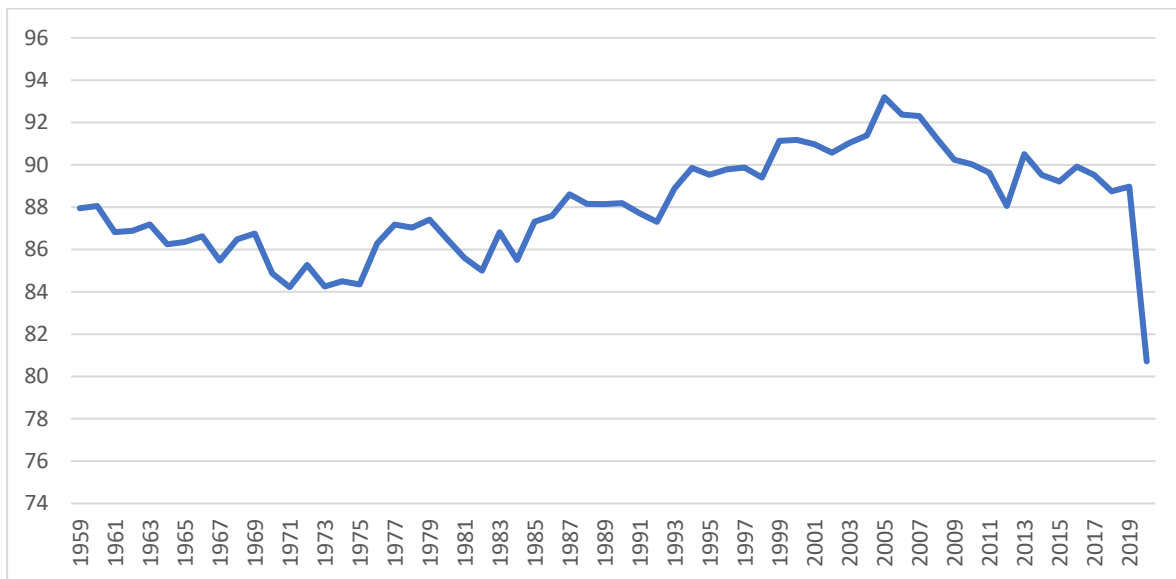
Source: U.S. Bureau of Economic Analysis, Table 2.1. Personal Income and Its Disposition, <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&1921=survey&1903=58#reqid=19&step=3&isuri=1&1921=survey&1903=58> Accessed on June 21, 2021.

Figure 9. Growth in Real DPI per Capita



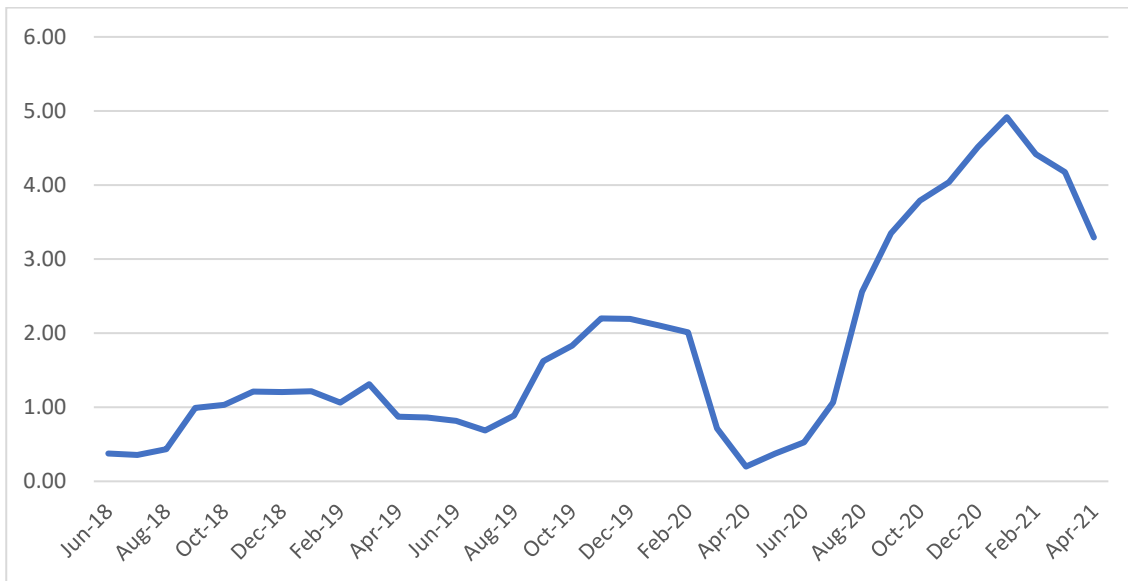
Source: U.S. Bureau of Economic Analysis, Table 2.1. Personal Income and Its Disposition, <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&1921=survey&1903=58#reqid=19&step=3&isuri=1&1921=survey&1903=58> Accessed on June 21, 2021.

Figure 10. PCE as Percentage DPI



Source: U.S. Bureau of Economic Analysis, Table 2.1. Personal Income and Its Disposition, <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&1921=survey&1903=58#reqid=19&step=3&isuri=1&1921=survey&1903=58> Accessed on June 21, 2021.

Figure 11. Per Capita Sports Gambling



Source: Waters, M. Legal Sports Report. *US Sports Betting Revenue and Handle*. <https://www.legalsportsreport.com/sports-betting/revenue/> Accessed on June 2021.

Recent Gambling Innovations

As an antidote to the decline of the popularity of live horse racing, instant racing or historical horse racing (HHR), which uses a slot machine type device that uses the results of past horse races to determine results and winnings to patrons, has become popular over the last 15 years or so. Yet revenues for this are already included as pari-mutuel wagering, and so if anything, HHR has only prevented horse racing wagering from appearing less than what it would be otherwise. In fact, in Kentucky, HHR now accounts for at least two-thirds or more of pari-mutuel wagering revenues as the number of actual races held per year continues to decline in the state and throughout the US (Kentucky Horse Racing Commission, 2019; Lambert, 2022).

The popularity of esports, online poker, and major league and collegiate sports gambling has climbed dramatically over the last few years, especially as sports gambling, which includes esports gambling, has become legal in more and more states since mid-2018. McGowan gives projections that show that sports gambling can yield millions of dollars in tax revenues for participating states (McGowan, 2014). Figure 11 shows the growth of total sports gambling dollars on a per capita monthly basis from June 2018 to April 2021 as the number of states offering sports gambling went from one (Nevada) in 2018 to over 20 states as well as the District of Columbia by 2021. The number of states legalizing sports gambling is forecasted to continue to climb (American Gaming Association, 2021) and as of

publication, numbers 30. The gambling amounts show peaks and valleys during any given year with gambling revenues climbing during football season and Major League Baseball’s World Series and then peaking around the time of the National Football League (NFL) playoffs and the Super Bowl during December and January of each year. They then decline until college basketball’s National Collegiate Athletic Association (NCAA) playoff tournament held in March of every year. All legal gambling outside of lotteries, charitable gaming, and pari-mutuel wagering is grouped by the BEA under casinos.⁵ Therefore, despite the gains shown in Figure 11, these amounts are already embodied in the graph in Figure 2, which means that sports gambling will have to continue to grow dramatically to make up for inflation adjusted casino revenue declines over the last 15 years or so. However, sports gambling could also take away revenues from other gambling outlets as the growth of lotteries and casinos have taken away revenues from pari-mutuel wagering (Lawrence & Thalheimer, 1999; Thalheimer & Ali, 2008; Lambert, 2022) or as online gambling has taken consumers away from attending “bricks and mortar” casinos (Philander,

⁵ Please see the appendix for a copy of an email note from the US BEA clarifying this. The author can furnish or forward the actual correspondence upon request.

2011).^{6, 7} As Srinivasan and Lambert (2017) mention, the stagnation in casino gambling revenues probably has negatively impacted local and state government coffers, and this in turn affects state budget decisions. Gambling taxes, like cigarette, alcohol, and other excise taxes, are usually a small part of any state's overall budget, yet they are important for funding many programs such as counseling for gambling addictions, equine health research (from pari-mutuel wagering taxes), and sometimes college scholarships (through lottery proceeds). Having gambling taxes earmarked for these programs spares having their funding come from general sales, property, or income taxes. If gambling tax revenues diminish, such programs would have to be cut or tax revenues to continue them would have to come from general funds.

Possible Reasons for Gambling's Stagnation

So what can possibly be the causes of gambling's stagnation or possible decline? Part of the problem is a change in consumer preferences toward gambling as noted by Welte et al. (2015) and Hwang (2015). These scholars emphasize the smaller amounts spent by younger gamblers than their predecessors in other generations, although gambling is still more popular among younger males than among women and middle aged and older consumers according to Welte et al. (2015). Bokunewicz's (2016) study shows less interest in general by millennials toward most forms of gambling. Meanwhile the number of "problem gamblers" or those with a gambling addiction are claimed to have plateaued over the last 20 years or so as gambling in the US has proliferated, a phenomenon that has been found in other nations as gambling venues have increased (Welte et al., 2015). However, some disagree and assert that as gambling opportunities have expanded, especially sports gambling, the number of problem gamblers could actually increase in the US over time (Adelson, 2022).

Another potential contributing factor to the decline in gambling activity is the fact that the "hold percentage", the rate of establishments' withholdings from gamblers' winnings for business operating expenses, taxes, etc., has gone up over the last few decades, which in turn lessens gamblers' winnings. Therefore, any increases in hold percentage due to possible tax increases may be contributing to a

decrease in gambling activity. Srinivasan and Lambert (2017) along with others (Thalheimer & Ali, 2003; Navin & Sullivan, 2007; Dadayan, 2015) find that higher state tax rates on casinos in certain states depress casino revenues and their corresponding tax remittances to state governments. This is primarily because greater casino hold percentages lower patron attendance and overall gambling.⁸ This is because gambling is price elastic, and lower winnings by patrons because of higher hold rates effectively raise the price of gambling to patrons. These papers also note that casino proliferation helps to increase overall state tax revenues but at the expense of lower revenues per casino, which has a negative effect on the industry and implies a saturation effect among casinos in different regions. Unfortunately, not much data exists for a comprehensive hold rate (operating expenses, profits, taxes, etc.) for all forms of gambling across all states, and so to assess the impacts of hold, and even specifically the taxes on gambling institutions, is difficult to assess at the aggregate level.⁹

Additionally, as noted above, real disposable personal income and its slower growth has been described as a factor affecting overall gambling revenues, and the importance of DPI to gambling is mentioned in various articles (Nichols, 1998; Thalheimer & Ali, 2008; Marionneau & Nikkinen, 2018; Lambert 2022). And finally, if labor force participation rates drive macroeconomic real household income and real disposable personal income, the claim by some that declining growth in DPI is partially due to declines in labor force participation rates across all groups, especially younger males aged 16-24 (Hipple, 2016) needs to be examined too.

Unfortunately, the research for this paper could not find data that indicates spending on gambling by different age segments over time or overall, nor could it find average hold rates for gambling over time in the US. Again, one of the main purposes of this paper is to examine and assess long term trends in gambling, and no real trend data could be found for these factors that could be possibly affecting real gambling expenditures over time. Nonetheless, there is data for US labor participation rates and real disposable personal income per capita over the last several decades that can be used to assess how these variables correlate with per capita real gambling expenditures. Furthermore, if labor force

⁶ Regarding state and local economic development efforts, gambling has been found to have mixed results according to Eadington (1999) whereas Walker (2007) claims positive impacts. Walker and Jackson (2007) find few long-term net benefits for casinos, however. Guell (2010) claims that tax revenues from casinos often fail to live up to the expectations of state and local governments and that any additional spending on gambling in a locality harms spending on restaurants, theaters, and other forms of recreation through a substitution effect. Collins (2003, pp. 113-117) claims that most of the money spent on new forms of gambling, or those forms previously prohibited in certain jurisdictions, almost always comes at the expense of previously existing forms of local gambling.

⁷ The possible saturation of different forms of gambling hurts each establishment within a given region but apparently maximizes tax revenues for state and local governments (Srinivasan & Lambert, 2017). This paper examines gambling from a US economy wide perspective, so gambling outlet saturation should boost, not hinder, aggregate gambling spending.

⁸ Thalheimer and Ali (1995) find that higher tax rates also depress pari-mutuel wagering.

⁹ US Federal government taxes on gambling winnings by patrons are withheld at most casinos, lottery organizations, and race tracks if the winnings are over a certain amount such as at least several thousand dollars or more (\$5000 as of 2020). At the same time, gambling losses are often deductible on federal income taxes (US Internal Revenue Service, 2021). Taxes on institutions are usually passed on to patrons in the form of lower payouts on gambling winnings.

participation rates have gone down because of so many of the members of the baby boomer generation retiring, less labor force participation among women, less among teenage and younger workers, and less among men in general (Canon et al., 2013). Therefore, if real disposable personal income has gone down as a result of lower labor force participation overall, then one reason for less millennial gambling could be their lower labor participation rates and lower, real DPI (and this could be the same for all ages or generational groups).

At the same time, if real DPI is growing more slowly over the last two decades than in the past, then any increases in hold rates would be more difficult for gambling consumers to accept. That is, the concept of real DPI captures the notion of gambling consumers being able to contend with actual or effective price increases such as higher prices for minimum bets or lower payouts on patron winnings on gambling. As real DPI stagnates, it becomes more difficult for consumers to accommodate price increases for recreational goods such as gambling. Finally, the decline in the interest in gambling, especially among younger consumers, could be a symptom of declines in real DPI per capita. That is, if real DPI income per capita is declining, then interest in gambling among different demographic groups would also be declining.

Hypothesis Testing and Results

The following two hypotheses are offered as a way to assess long-run gambling growth and stagnation:

1. Younger males are gambling less than their cohorts from previous generations because fewer participate in the labor force, and so this has caused gambling revenues to tumble over the last twenty years or so. Young male (ages 16 to 24) participation rates in the labor force from 1959 to 2020 (US Bureau of Labor Statistics (BLS), 1959-2020) are used as proxies for young male consumer spending. US BLS numbers show this age group's participation rate peaking in 1979 at around 75% and falling to 56% by 2019.^{10, 11}
2. Lower gains in real disposable personal income per capita over the last two decades versus previous decades have led to lower expenditures on gambling.¹² DPI is cited in the literature as a key determinant of gambling and other forms of entertainment spending, and so one would

expect that slower growth in real DPI could lead to lower growth in real gambling expenditures per capita. The log of the values of inflation adjusted, per capita DPI as used in Figures 8 to 10 are used for this variable (US BEA, 1959-2020).

Table 1 shows the results of using these two factors to predict inflation adjusted, per capita gambling expenditures from 1959 to 2020. Even when observations are dropped for the Covid-19 pandemic year of 2020, the results do not change much regarding the model. See Table A1 in the Appendix. Because of problems of serial correlation, Newey-West standard errors are used. No signs of collinearity are detected with no variance inflation factor greater than 5.0. All of the variables are in natural log form so as to do some sensitivity analysis of how a change in the independent variables correlate with the dependent variable. An augmented Dickey-Fuller unit root test indicates stationarity in the dependent variable of the natural log of real gambling expenditures per capita, and so further modifications of the dependent variable are not necessary.

The variable for young male labor force participation rates is not statistically significant, yet the one for real disposable income is significant at an alpha of 5%. The overall explanation of variance in real gambling expenditures per capita is around 94%, which is a strong result. It appears that a 1% increase in real DPI per capita is associated with a 3.13% increase in real gambling expenditures per capita, on average and all else held constant. This result shows that at the aggregate level, gambling is a luxury or superior good in that its income elasticity in this case, 3.13, is greater than 1.0. This is consistent with much of the gambling literature cited in this paper (Thalheimer & Ali 1995, 2003, 2008) and in findings in two other nations by Davies (2015). One would expect that the lower the increase in real DPI, the lower the increase in real gambling expenditures. Therefore, the lower increases or occasional decreases in real DPI over the last two decades or so have resulted in slower or negative gambling growth as opposed to the greater and more positive growth in the 1960s and through to the 1990s.

¹⁰ The US BLS has data on expenditures per different demographic groups, one of which is age groups, from surveys of households. These only go back to 1989, however, and for each year given it is not possible to pinpoint spending according to gender, and spending on gambling is not listed (US BLS Consumer Expenditures Survey, 1989-2019).

¹¹ Staying in school longer is one reason given for the low employment rates. Young, male college students may bet heavily on sports, yet, if many of them are not working jobs as in the past, one would still expect their spending to be less than what would have been the case in the 1960s and 1970s.

¹² And not just gambling. Nichols (2017) notes how consumer spending on many forms of entertainment declined from 2002 to 2015 when adjusted for inflation.

Table 1. Regression Model

Dependent Variable	Natural log of inflate on adjusted, per capita gambling expenditures	
Independent Variables	b (Newey-West SE)	
Intercept		-10.45
Ln Labor Force Participation Rate, Males, Age 16-24		0.488
	(0.405)	
Ln Inflation Adj. Real DPI		3.13*
	(0.127)	
Adj. r-square	0.943	
n=62		
p<0.05		

Conclusion

The exploratory work done for this short paper/note shows some support for the notion that stagnating disposable personal income in the US has caused slow growth and/or some decline in aggregate real gambling expenditures over the last 15 years or so. A shortcoming of the paper is the inability to find a variable that would replicate the spending habits of young males, those who are thought to be the biggest consumers of gambling services and products. Additionally, the impact that higher hold rates may have on gambling expenditures over time is another item missing from the paper because of a lack of comprehensive, national database on hold rates, although as argued above, strong gains in DPI could/should offset any increases in hold rates at gambling outlets. Weaker gains or even losses in DPI would make it more difficult for patrons to accommodate any increases in gambling holds, and so the real DPI variable possibly captures some of the effect of greater holds driving away gambling customers.

Nonetheless, the evidence presented in this brief analysis suggests that slowing or even declining rates of increases in real DPI have hindered the gambling industry in terms of real growth either a few years before or since the Great Recession of 2007-2009. For horse racing and casinos, the sluggish growth appears to have started before the recession. All of this is despite an economic recovery that lasted until the pandemic of 2020.

Although government statistics show a recovery period from mid-2009 until March of 2020, there has been stagnation in US wages and income since the mid to late 1970s. There is a large volume of writings on the causes of this that is too long to list here (see Lambert & Kwon, 2015, among many others). Among the reasons for the stagnation are the decline in union membership among US workers; the offshoring of jobs that were

located in the US; the automation of many jobs that used to require human workers; the falling productivity of most US workers; the decline in US capital investment; and the growth of laws giving employers greater strength in the labor market. These factors along with rising household debt and higher costs of living (especially in the areas of health care and higher education) have made things more difficult over time for more households despite rising corporate profits. These topics are beyond the scope of this paper, yet they can offer some explanation as to why real DPI is not increasing as it did during earlier eras.

Sports gambling, already being factored into overall gambling spending by being counted in the revenues for casinos, therefore probably only offers a hope to resuscitate gambling if real DPI begins to grow at higher rates again and as long as it does not take away an equal share of gambling from other forms of gambling. The literature reviewed for this paper indicates that the latter scenario is highly likely, and given the economic record of most of the 21st Century so far, the former appears unlikely unless something causes incomes to rise at higher rates.

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Thomas E. Lambert is an applied economist with the College of Business at the University of Louisville and has mostly taught economics, equine administration, and business statistics there the last several years. Before that he taught public policy and public administration for the Master of Public Administration program at Northern Kentucky University for 5 years. He has also taught business and economics courses for IU Southeast and Simmons College of Kentucky. Professor Lambert has done research and published in the areas of economics, gambling, and public policy over the last 23 years or so, and his publications have appeared in *Social Science Quarterly*, *Economic Development Quarterly*, the *Journal of Economic Issues*, and the *Cambridge Journal of Economics* among others.

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Appendix 1.

PCE <PCE@bea.gov>
 Thu 6/24/2021 6:14 PM
 To:



Cc:





CAUTION: This email originated from outside of our organization. Do not click links, open attachments, or respond unless you recognize the sender's email address and know the contents are safe.

Thank you for your inquiry. Any gaming that does not fall under a pari-mutuel type betting system (e.g. horse races) or state and local or tribal lotteries will be under casino gambling, this includes Esports and online poker gambling. To be clear, the estimates only capture regulated gaming, any illegal gaming is not estimated and not included in the estimate.

The estimates for gaming are generally calculated using aggregated data. The BEA does not have estimates at a disaggregated level for Esports or online poker.

Please let us know if you have any further questions.


 Section Chief, Business and Consumer Services Branch
 Expenditure and Income Division
 Bureau of Economic Analysis


Appendix 2. Table A1. Regression Model without Year 2020

Dependent Variable	Natural log of inflate on adjusted, per capita gambling expenditures	
Independent Variables	b (Newey-West SE)	
Intercept		-9.36
Ln Labor Force Participation Rate, Males, Age 16-24		0.221
	(0.332)	
Ln Inflation Adj. Real DPI		3.15*
	(0.128)	
Adj. r-square	0.956	
n=61		
p<0.05		