Sports Betting

By GEORGE IGNATIN

ABSTRACT: This article discusses the type of people who wager on sports events and the reasons they gamble. It describes different types of bets on sports events, how betting lines are set, and the odds and probabilities involved. It examines in detail the difficulties in estimating the amounts of money wagered illegally in this country, and, after describing the nature of bookmaking operations, it concludes that total dollar amounts wagered with bookmakers are usually underestimated while the net income of bookmakers is typically overestimated.

George Ignatin is an associate professor of economics at the University of Alabama, Birmingham. He received his Ph. D. from the University of Texas in 1969. His major research interests are in labor and manpower economics, and he has written a number of scholarly articles on the economics of sports and sports betting. In addition to his academic work, he writes a column for the Village Voice.

PEOPLE have been gambling on a wide variety of activities for thousands of years. In the United States today, large numbers of people bet relatively small amounts of money with friends on the outcome of sporting events; on the same events, a small number of persons bet a large amount illegally with bookmakers.

Gambling on sporting events involves large amounts of money—just how large may be impossible to determine, because most sports betting is illegal. Legal betting in Nevada has increased dramatically in the last decade;[1] and, judging by television, radio, and newspaper coverage, sports gambling is now considered part of the American way of life. Betting on football almost certainly involves the largest amount of money, followed by betting on horse racing, baseball, and basketball, in that order. Betting on hockey, although probably increasing at the fastest rate, presumably still involves a small amount of money. Bookmakers also accept bets on a very small number—fewer than 10 a year—of highly publicized boxing matches.

Gambling markets for baseball, football, and basketball exist in all large cities in the United States, even though it is illegal to bet on these sports anywhere except Nevada.[2] The proposition has not been tested systematically, but gambling on sporting events probably increases with the number of persons in the area and the amount of interest in sporting events, which is a function of the number of local teams and television coverage. Thus, as the number of teams in professional sports leagues increases along with expanded television broadcasts and coverage—due to increasing penetration of cable—it seems reasonable to assume that illegal sports gambling will also increase.[3]

IS GAMBLING RATIONAL?

Despite evidence that gambling, particularly on sports, is ubiquitous, economists long have considered gambling irrational, while psychologists think it is at best neurotic. The standard view in economics is, briefly, that because of the law of diminishing marginal utility, the additional utility that might be won, even on a fair bet, is always less than the utility that could be lost.[4] In addition, most economists, after assuming that there is no utility involved in the act of

1. According to data supplied by the Nevada State Gaming Control Board, between 1975—the first full year after the federal gambling tax was reduced from 10 percent to 2 percent of handle—and 1979, the horse racebook handle increased from less than $41 million to $116 million, and the sports handle—excluding horse racing—increased from $41 million to $258.7 million. In 1973—the last full year before the tax cut—the horse handle was $16 million, and the sports handle was less than $4 million.

2. It is also legal to bet on sports in Montana and Washington, but the only type of legal bet involves a sports pool with a maximum wager of $1 and a maximum possible win of $100. In addition, gambling debts cannot be enforced in state courts.

3. "Casual," or nonsystematic, interviewing methods tend to substantiate these conclusions. Bookmakers have mentioned to me on numerous occasions that televised games get much heavier play than nontelevised games; for similar views, see Larry Merchant, *The National Football Lottery* (New York: Holt, Rinehart and Winston, 1973), pp. 6-7; and H. Roy Kaplan, "Sports, Gambling and Television: The Emerging Alliance," *Arena Review* 7(1):4-7 (Feb. 1983).

4. Daniel Bernoulli, "Exposition of a New Theory on the Measurement of Risk," *Econometrica,* 22:23-26 (Jan. 1954; originally published in 1738 in Latin); for a full discussion, see George Ignatin and Robert Smith, "The Economics of Gambling," in *Gambling and Society,* ed. William R. Eadington (Springfield, IL: Charles C Thomas, 1976).

gambling, agree with Adam Smith that, in many gambles, the odds are against the amateur gambler; therefore

> a substantial economic case [can] be made against gambling . . . it involves simply sterile transfers of money or goods . . . [which] absorb time and resources. When pursued beyond the limits of recreation . . . gambling subtracts from the national income.[5]

The evidence, however, shows that extremely large numbers of persons bet on sporting events. Sports bettors tend to be urban, male, and middle class. They are much more likely than nonbettors to attend nightclubs, bars, operas, lectures, and museums; engage in active team sports; go to movies or theaters, and sport events; drink alcoholic beverages, engage in active nonteam sports, and read newspapers or magazines. They are less likely than nonbettors to engage in church activities and home improvement or watch television. Sports bettors spend more time and money than nonbettors on recreation and vacation.[6]

People bet on sporting events for a variety of reasons that can be grouped into two general economic categories—investment and consumption. "Consumption" refers to those bets made to increase the utility, or satisfaction, a person receives from watching a sporting event; "investment" refers to those activities undertaken in order to increase wealth. Thus persons who bet on football games do so to make the game more exciting and because they believe they are more likely to win the bet than lose it. Both motives may be present at the same time, although consumption may be more important for games the bettor intends to watch. As bettors increase the number or frequency of their bets for consumption purposes, they become aware of the investment aspect.

When bettors were asked why they gambled, the study *Gambling in America* found,

> The most frequently mentioned reason for betting with friends was "to have a good time." The reason most frequently mentioned for betting with bookies was the "challenge." "Excitement" was given as a reason more often for friendly betting while "to make money" was given as a reason for bookie betting.[7]

However, it should be noted that such objective data are not persuasive to some psychologists. Bergler argues that

> the gambler feels some need to appear rational in the eyes of society. He offers, therefore, "rational" explanations for his gambling. The two most familiar are: "I do it to make money," and "I enjoy the thrill of the game."[8]

HORSE RACING

Relative to other sports, horse racing has a greater number of legal betting markets, but a smaller number of illegal markets, in large part because the odds are determined after the fact by the bettors. Racetracks use a pari-mutuel system, in which a computer totals the bets on all horses, subtracts the share going to the state and the track—usually between 16 and 20 percent—and then divides what is left among the winning bettors. This method guarantees that

5. Paul A. Samuelson, *Economics,* 10th ed. (New York: McGraw-Hill, 1971), p. 425n.

6. Commission on the Review of the National Policy toward Gambling, *Gambling in America* (Washington, DC: Government Printing Office, 1976), pp. 297-326.

7. Ibid., p. 326.

8. Edmund Bergler, *The Psychology of Gambling* (London: International University Press, 1958), p. 5.

the track and the state will make money. Illegal bookmakers have no such guarantee: they pay track odds regardless of the amounts wagered with them. If there are a large number of horse players, such as in Nevada, New York, and Chicago, bookmakers will bear little risk of losing. However, if there are only a small number of horse players, such as in Mississippi or North Dakota, a bookmaker bears a much larger risk.

The amount of money bet legally on horse and dog racing is quite large, but has not been growing rapidly. Between 1972 and 1981, pari-mutuel revenues for all states increased by only 31.6 percent despite high rates of inflation and the entrance of Connecticut into the field in 1976. Indeed, California, Connecticut, and Florida accounted for 96 percent of the total increase in revenues. Moreover, the data overstate the amount bet on horse racing. In some states—for example, Florida and Alabama—more money is bet on dog racing than on horse racing; and in some states—for example, Florida—more money is bet on jai alai than on horse racing.

FOOTBALL, BASEBALL, AND BASKETBALL

The most common sports bet is the straight bet: a bet on one team to beat another team. Because it is fairly simple to predict which team will win a game—sportswriters regularly pick 60-65 percent winners—most straight bets involve points or odds. In football and basketball favorites are minus points, and in baseball they are minus odds. For example, if the lines makers install a football team as a 7-point favorite (F − 7) the other team—the underdog, D—receives, or is plus, points (D + 7). For bettors on F to win, F must beat D by more than 7 points; for bettors on D to win, D must win the game or lose by fewer than 7 points. If F wins by exactly 7 points the bet is a tie, or "push."

In addition, bettors must "lay" or "put up" $11 to win $10. Thus, to break even, a bettor must win 11 out of 21 bets, or 52.38 percent of the bets. The bookmaker's "edge," which is called "vigorish" or "juice"—the percentage of the total amount bet that the bookmakers wins if bettors are right 50 percent of the time—is $1 out of every $22—4.55 percent—put up by bettors or $1 out of every $20—5.0 percent—risked by bookmakers.

The typical, straight baseball bet involves an odds or money line, rather than a pointspread. The bettor "lays" or "gives" odds, or a "price." If F is a 3-to-2 favorite, the price is F minus 1.50, or F is called a 50-cent favorite. This means that a bettor on F must put up $150 to win $100, and a bettor on D must lay $100 to win $140. This is called a 10-cent line, because there is a "10-cent"—that is, a $10—difference between what the bettor on F puts up and what the bookmaker puts up when a person bets on D. Legal betting in Nevada involves a 20-cent line: if the bettor on F risks $140 to win $100, a bettor on D puts up $100 to win $120. This has resulted from the fact that the U.S. government taxes legal bets at 2 percent of the amount put up by the bettor.[9]

9. When a person puts up $14 to win $10 on F, the bookmaker must pay the government $.28, and when a person puts up $10 to win $12 on D, the bookmaker must pay $.20 in taxes. If $10 are bet on each team, the bookmaker must pay $.48 to the government, and he or she wins $2, for a net of $1.52 if D wins. If F wins, the bookmaker still pays the $.48 tax and breaks even on the two bets. However, because F is a 40-cent favorite, F is likely to win about 57 percent of the time. Thus the

Because a bookmaker's risk decreases as the number of bets increases and the size of the maximum dollar bet decreases relative to the total dollar volume of bets, the 10-cent line has been typical in illegal baseball markets where there tend to be a very large number of relatively small bets on a large number of games.

Some bookmakers use a variant of the point-spread line for baseball games in which one team is a top-heavy favorite. Instead of being F – $2.80, the line will be F – 2½ runs, D + 2 runs. If F wins by exactly 2 runs, the bookmaker wins one bet and ties the other. Recognizing how profitable such a method is, some bookmakers use point spread lines any time F is greater than a 40-cent favorite, using a simple discrete formula: if F is between 1.40 and 1.90 to 1, they make the line F – 1½, D + 1; if F is between 2.00 and 2.50, they make it F – 2, D + 1½; and if F is greater than 2.50, they make it F – 2½, D + 2.

There are also bets on "totals"—the total number of points scored by both teams. The bettor can bet either "over" or "under." If the total line is 35, a persons who bets over is betting that the two teams will score more than 35 points. Thus it is possible to have two bets on each game: one bet on whether Team A will beat Team B by at least X points and a second bet on whether the two teams will score more or less than a total of Y points. Although total bets recently have become more common in football and basketball, they have been used for years in baseball, where they may be as important as straight bets.

expected value of the two bets to the bookmaker is about $.45. An illegal bookmaker, using a 10-cent line and not paying the 2 percent tax, would make $2 if D wins and break even if F wins, for an expected value of $.86.

COMBINATION BETS

Bets can also be made on combinations of teams. There are three types of such bets: parlays, turnarounds—also called "turns" or "reverses," and teasers.

A parlay is a bet that two or more teams will beat the line. If any of the teams on the parlay loses to the line, the parlay loses. With most bookies, a two-team parlay pays off at 13 to 5 odds; that is, a bet of $5 wins $13 if both teams win. Three-team parlays pay off at 6 to 1, and four-team parlays pay off at 11 to 1. Parlays of more than four teams are not common except on parlay cards, which usually pay much worse odds than do bookies.

A turnaround is a bet in which a bettor bets on two teams. A $100 turn involves a bet of $110 to win $100 on team A, and, if team A beats the line, a bet of $110 to win $100 on team B, plus a bet of $110 to win $100 on team B and, if team B beats the line, a bet of $110 to win $100 on team A. If both A and B beat the line, the bettor wins $400; if both lose, the bettor loses $220; if one wins and one loses, the bettor loses $20. Thus, a $100 turn is approximately equivalent to a bet of $220 to win $200 on team A plus $220 on team B.

A teaser is a parlay in which the bettor can take more points or lay fewer points than the line, but sacrifices odds to do so. A two-team, 6½-point football teaser allows the bettor to add or subtract 6½ points to or from the line, but the bettor must lay $11 to win $10 and both teams must win for the bet to win. To break even on 6½-point teasers, a bettor must win 72.37 percent of the games. A two-team, 6-point teaser is an even-money bet: $10 wins $10. Three-team, 6-point teasers pay 9 to 5 and four-team, 6-point teasers pay 3 to 1. To

break even on 6-point teasers, a bettor must win slightly less than 71 percent of the games. There are also two-team, 7-point, three-team, 10-point, and four-team, 12-point teasers. Basketball teasers now have only 4 points.

It is commonly assumed that parlays and teasers are sucker bets.[10] However, there is a question as to who the suckers are. Ten years ago basketball teasers allowed bettors to move lines five points. The lines were so good that approximately 74 percent of the college games fell within five points of the line, and that meant that a random selection would have won more than 54 percent of the teasers played.

The reason parlays appear to be bad bets is because of an assumption that bettors will be right exactly 50 percent of the time. If that assumption is correct, then a number of straight bets will lose less money than will parlays involving the same amount of money. But if bettors are right 53 percent or more of the time, two- and three-team parlays will win more money than will a set of straight bets.[11] Moreover, as the predictive ability of bettors increases, the advantages of betting parlays increases.[12]

10. Larry Merchant says, "I regard [a] two-team parlay as terminal cancer. . . . Parlays are get-rich bets that make you poor." Merchant, *National Football Lottery,* pp. 50-51.

11. The break-even percentage for two-team parlays is .5270. For three-team parlays, it is .5228, which is less than the break-even percentage—.5238—for straight bets. For four-team parlays, the break-even percentage is .5373.

12. If bettors are right 60 percent of the time, 100 straight bets of $100—$110 to $100—will win $1600, but 100 two-team parlays—$100 to $260—will win $2960, 100 three-team parlays—$100 to $600—will win $5120, and 100 four-team parlays—$100 to $1100—will win $5552.

SETTING LINES

A mythology has grown up about the method by which lines are set in Las Vegas. According to Larry Merchant, the *deux ex machina* was Bob Martin who, based on his profound personal knowledge of football, would set a preliminary, or "outlaw," line, which a small group of knowledgeable bettors—"pros"—could bet as early as the Monday morning before—that is, five or six days before—the games were to be played. Martin would then adjust the line and release it to the general public Tuesday morning. This probably was the way pro football lines were set before the mid-1970s. However, Martin's expertise did not extend to other sports, and with the large increase in the number of sports books in Nevada coupled with Martin's legal difficulties, it now appears that the method used to establish lines is less personal and romantic and more systematic.

There are at least four Nevada books that appear to have their own handicappers. Those books establish and post lines, some as early as Sunday night for the following weekend. Then all books compare the posted lines and make slight adjustments but essentially arrive at a consensus near the average of the posted line. From then on lines are adjusted according to money bet.

Each handicapper probably uses a different implicit method, using numerous factors with different weights. But the overriding consideration is an estimation of how the betting public will handicap the games and, more important, how the public will bet. Specific factors for football and basketball are

—relative strengths of the teams, including records against previous lines;

—home court advantages;

—"momentum," that is, recent performance and winning or losing streaks;

—injuries;

—specific match-ups, for example, the addition of points to a team with a good passing game playing a team with a weak secondary;

—performance in recent national television broadcasts, where a team that plays well is overrated by bettors; and

—"public" teams—those on which the betting public likes to bet, such as the Dallas Cowboys—or home teams. Thus bettors in Los Angeles like to bet on Dallas, and they like to bet on the Los Angeles Rams when the Rams are doing well, but they bet against the Rams when the Rams are doing poorly. The Rams, Dodgers, and Lakers—all teams from Los Angeles—are Las Vegas's home teams and therefore tend to be overrated by bookmakers.

Baseball has roughly the same group of criteria with one important additional element: baseball lines are established, in large part, by the relative qualities of starting pitchers. Handicappers compare opposing pitchers' performances at home and on the road using relative earned-run averages, won-lost records, momentum, specific historical match-ups—that is, how well a pitcher has pitched against the opposing team in past years—and how well the opposing teams do against left- or right-handed pitchers.

AMOUNTS BET

Determining the amount of money wagered illegally on sports obviously will be very difficult. Specific objective data do not exist. There are two methods that can be used to make estimates, but both methods have serious flaws.[13] The first method would take data on legal gambling in Nevada and make extrapolations based on reasonable assumptions. Assumptions would have to be made about the extent of illegal sports betting in Nevada, the percentage of legal sports bets made by non-Nevada residents, and whether out-of-state persons who bet legally in Nevada bet illegally in their home states. The variance in these assumptions would be enormous, yielding multipliers as low as 20 or as high as 300.

The second method consists of asking a random sample of persons how much they bet illegally. There are at least three important problems with this method. First, it may not be possible to get a random sample that includes those persons who bet large amounts of money illegally. Such persons make up a very small percentage of the population; they may have abnormal life-styles that make it difficult for interviewers to find them; and they might not grant interviews. Second, persons who do grant interviews might lie. Finally, bettors might not realize how much they bet. All three of these criticisms indicate that surveys will underestimate the amount of illegal sports betting.

There have been at least two attempts to use the latter method. The first, a

13. Law enforcement officials regularly make estimates based on undisclosed methods. Since these officials have an economic interest in overestimating and do not discuss their methods, such estimates have little usefulness.

1972 study by Oliver Quayle and Company, estimated that $688 million was wagered on sports in New York City, $464 million illegally.[14] The second, *Gambling in America,* estimated that in 1974 $2.5 billion was wagered illegally on sports in the United States.[15] Because residents of New York City are much more likely to bet illegally than other Americans, it can be assumed that the estimates are roughly in the same ball park.

The second study estimated that the average annual amount of money bet per bettor at sports books in 1974 was $623.[16] Although this was the highest amount shown for any gambling activity, it is incredibly low for at least four reasons. First, bookmakers talk about their so-called small players, who bet quarters—that is, $25—and half-dollars —$50. If one such small player bet only $25 per game on only one-fourth of the baseball games played in a season and never bet on totals, he or she would still have wagered $13,162.50, $14,478.75 if juice is counted. If that small player bet $25 on every game and every total, he or she would have wagered $105,300, $115,830 if juice is counted, just on baseball. There are betting lines for almost as many college basketball games as for college baseball, while pro basketball has about half as many as pro baseball.

Second, if a bookmaker, operating alone, wins 4.5 percent of each bet made, and needs to win $30,000 a year to stay in business,[17] he or she would have to handle $660,000 per year. This means the bookmaker would have to have 1059 average customers. If it takes 15 minutes per week per customer to settle up—pay off and collect—the bookmaker would need more than 264 hours per week in addition to the time spent on the telephone.

A typical illegal bookmaking operation involves two people who divide up the jobs of giving out lines, taking bets, moving lines, totaling the tickets—that is, figuring out how much each bettor won or lost the previous night—and settling up. If only $70,000 is needed to meet expenses and keep the two people in business, the operation would have to take in $1.5 million, or the amount 2472 average bettors would wager. Since 1974, inflation has caused incomes and prices approximately to double, so the operation would need only 1236 customers. But it is doubtful that a small, two-person operation could service more than 100 customers, or that bookies make only $20,000 per year. If the operation won $100,000 per year from 100 customers, each bettor would have had to wager $22,000 per year, which is more than 17 times greater than the inflation-adjusted estimates of the *Gambling in America* survey.

Third, few if any bookmakers will accept a bet of less than $10, and most

14. Oliver Quayle and Company, "A Study of Betting on Sports in New York City," in *Legal Gambling in New York: A Discussion of Numbers and Sports Betting* (New York: Fund for the City of New York, 1972), p. 31.

15. Commission on the Review of the National Policy toward Gambling, *Gambling in America,* pp. 94-95.

16. Ibid., p. 105.

17. This is a very low estimate: out of that $30,000, expenses must be paid. Merchant reports that in 1971, "a bookie in suburban Boston . . . with two clerks . . . grossed approximately $7,300,000, handled $4,645,000 himself and laid off $2,655,000." His gross win was $214,500, his "operating costs, including $20,000 in bad debts, came to about $60,000. He made $155,000 in profit." Merchant, *National Football Lottery,* pp. 136-37.

will not accept bets of less than $20. There are some who will not accept bets of less than $100. Bookmakers also will not continue dealing with customers who make fewer than 5 or 10 bets per week. If a sports bettor takes 12 weeks of vacation a year and makes only 5 bets per week at $10 per bet, he or she would wager $2000.

The Quayle study found that so-called heavy sports bettors accounted for 97 percent of all dollars bet on illegal football and basketball through bookmakers and 95 percent of all such baseball bets.[18] "Heavy sports bettors" were defined as "the 5 percent of the population who report betting 500 dollars or more in the last year on football, basketball, and baseball combined."[19] The average amount bet by heavy bettors in 1972 dollars was $806 on football, $538 on basketball, and $496 on baseball. However, if moderate sports bettors—the 8 percent of the population who bet between $100 and $499 total, but less than $50 illegally—and light sports bettors—the 12 percent of the population who bet less than $100 total and less than $1.20 illegally—are counted, then the average yearly amount bet illegally was only about $310.

The most plausible explanation for these discrepancies is that the two studies are picking up a large number of persons who, even though they admit to betting illegally, are not, in fact, placing bets with bookmakers. Most likely, they ask friends who bet regularly with bookmakers to place bets for them.

Finally, it seems highly likely that the two surveys missed a very small number of persons who make a very large number of extremely large bets. Bookmakers have discussed players who bet $10,000 and $20,000 on each of 5 to 10 football games per week. One bookmaker told me of a person who bets $3000 on almost every baseball total. A bet of $3000 on 80 percent of the baseball totals in one season would amount to more than $5 million, $5.56 million with juice included. A bookmaker with one such huge player and 50 small players who bet only $25 per game on one-fourth of the baseball games and totals would handle $6.37 million worth of baseball bets, $7 million with juice.

POLICY IMPLICATIONS

It is likely that both *Gambling in America* and the Quayle study underestimated the total amount of illegal sports betting in the United States, although it will be impossible to estimate the actual amount within reasonable limits.[20] Luckily, there is no overriding public need to make such estimates; what is important is how much is earned by bookmakers and whether governments can capture some of those earnings.

Bookmakers do, in fact, earn their money. Even if their work is not particularly grueling or time-consuming, it is highly risky. Bookmakers face three different types of risk. First, because their activities are illegal, they risk being arrested and having their funds and property confiscated. Second, bookmakers have extremely high bad-debt ratios. Third, if bettors, on average, are right more than 50 percent of the time, bookmakers can lose money. Thus, if bettors are right 51 percent of the time, a

18. Oliver Quayle and Company, "Study of Betting," pp. 14, 23, 28.

19. Ibid., p. 2.

20. Peter Reuter, *Disorganized Crime: The Economics of the Visible Hand* (Cambridge, MA: MIT Press, 1983), pp. 21-33.

bookmaker with a total handle of $1.1 million will have a gross win of only $29,000, out of which he or she will have to pay bad debts and expenses. If bettors are right 52 percent of the time, a bookmaker with a total handle of $4.4 million will have a gross win of only $32,000.

Because sports betting involves opinions and not necessary probabilities, such winning percentages are not impossible. Indeed, because heavy bettors often deal with numerous bookies—sometimes in different areas of the country—and get to choose among lines that usually vary by one point and can vary by as much as four to five points, such percentages may even be likely. Thus, although bookmaking probably involves huge amounts of money, the net profits to bookmakers are, probably, quite small. Government attempts to capture some of those profits will therefore produce a small amount of revenue.[21]

Unfortunately, there is general agreement that "gambling is the greatest source of revenue for organized crime."[22] Thus, by implication, sports gambling is assumed to involve large amounts of profits for organized crime. Often it is argued that such profits are used to finance the purchase and distribution of narcotics.

Such arguments involve three mistakes: an assumption that because there is a huge amount of sports betting there must be a huge amount of profit; a fallacy of decomposition that what is true for some types of illegal gambling—for example, numbers—is true for illegal sports betting; and a convoluted assumption that narcotics operations are not profitable enough to generate the funds necessary for their continued operations. The last assumption, if true, would lead to the conclusion that organized crime deals in narcotics not for the money, but for the fun.

21. George Ignatin, "Taxing Peter to Spite Paul: The Effects of Taxes and Regulation on Sports Gambling," in *The Gambling Papers: Proceedings of the Fifth National Conference on Gambling and Risk Taking* (Reno: Bureau of Business and Economic Research, University of Nevada, 1982).

22. President's Commission on Law Enforcement and Administration of Justice, *The Challenge of Crime in a Free Society* (Washington, DC: Government Printing Office, 1967), p. 188; Humbert S. Nelli, *The Business of Crime* (New York: Oxford University Press, 1976).