

BIG SIX: A LONGITUDINAL MICRO-STUDY

FIELD RESULTS FROM ONE ATLANTIC CITY TABLE, JANUARY 2007 TO DECEMBER 2010

CENTER FOR GAMING RESEARCH, JANUARY 2011

Executive Summary

Big Six is a minor casino game, but one that has high visibility on most casinos floors. Positioned where it is easily accessible by casual and novice gamblers, the game offers payouts as high as 45 to 1. But all of the bets, particularly, the longshots, have relatively large advantages for the house, ranging from about 11% to over 24%. The game is one of the worst bets on the casino floor for gamblers.

Looking at field results from a single table in an Atlantic City casino over four years, it is clear that this is a wheel that spins predominantly to the house's, rather than player's, advantage. The average win percentage of **42.25%** for the period examined explains why seasoned gamblers avoid this game.

Big Six: The Numbers Don't Lie

There are several variations of Big Six, a table game also known as the "Wheel of Fortune" (it has no relation to the IGT slot franchise branded after the popular game show of the same name). Atlantic City features what might be the most player-friendly rules for the game: the top jackpot pays 45 to 1, instead of 40 to 1, as is standard elsewhere. If players can't catch a break on Big Six down the shore, they aren't likely to beat the game anywhere.

It is always worth testing mathematical and theoretical truths against field results from the real world. Despite the high theoretical edge the house holds over the player in Big Six, it is possible that players could exploit wheel biases or other tricks to beat the house. Should this happen, we would expect to see lower-than-predicted real-world win percentages for the casino.

To test the assumption that real world Big Six is just as bad a game as theoretical Big Six, this study looks at the results from a single table from an Atlantic City casino. This casino was selected because it featured a single Big Six table for the entire period under study, and because it generated a consistently higher drop than other casinos' Big Six tables, generating more action; any trends to be found elsewhere would be more likely to appear here.

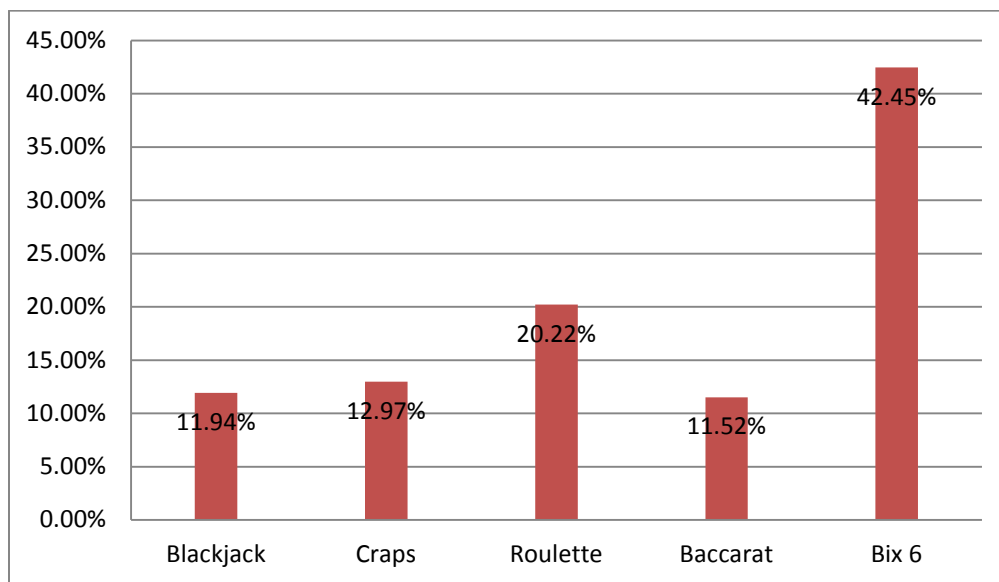
With a monthly win percentage ranging between 32% to 52%, and averaging 42% for the period, the field results support the theoretical observation that Big Six is a game to be avoided.

Comparing Big Six to other casino games is instructive. Drawing on a study of Nevada hold percentages from 1992 to 2009 (CGR Report *Nevada Table Games: Historical Hold Percentage Variations*), it is

possible to see how Big Six fares next to such popular games as blackjack (twenty-one), craps, roulette, and baccarat.

Seeing that the game holds almost four times as much as baccarat and blackjack, there should be no questions about why high rollers pass Big Six by.

Big Six vs 2004-09 Nevada Winning Percentages for Four Popular Games



In the Atlantic City casino studied, Big Six accounted for less than half of one percent of total table revenues, far below games with better odds. One month’s results are instructive:

December 2010: Total Win, Percentage of Table Game Win for Selected Games

Game	Win	% of Table Game Win
Blackjack	5,217,256	32.59%
Craps	2,709,269	16.92%
Roulette	1,362,613	8.51%
Big Six	67,045	0.42%
Baccarat	703,558	4.39%
All Table Games	16,008,759	100.00%

Even though they are playing negative expectation games, the majority of gamblers can tell a good bet from a bad one—and place their money accordingly.

All data is taken from monthly gross revenue tax returns for the casino in question, filed with the New Jersey Casino Control Commission.

Raw data is on the following page.

Big Six Win & Handle by Month, January 2007-December 2010

Month	Win	Handle	Win%	Month	Win	Handle	Win%
Jan-07	91,717	195,126	47.00%	Jan-09	57,646	164,663	35.01%
Feb-07	92,750	188,835	49.12%	Feb-09	73,205	160,197	45.70%
Mar-07	99,949	194,208	51.46%	Mar-09	67,562	169,602	39.84%
Apr-07	88,537	182,643	48.48%	Apr-09	60,810	147,479	41.23%
May-07	74,434	183,663	40.53%	May-09	60,439	164,274	36.79%
Jun-07	85,933	176,311	48.74%	Jun-09	69,810	151,057	46.21%
Jul-07	84,886	208,992	40.62%	Jul-09	79,308	178,997	44.31%
Aug-07	93,739	214,358	43.73%	Aug-09	82,169	186,694	44.01%
Sep-07	55,157	155,184	35.54%	Sep-09	63,867	156,452	40.82%
Oct-07	52,935	149,538	35.40%	Oct-09	66,185	145,250	45.57%
Nov-07	77,557	173,000	44.83%	Nov-09	67,282	154,488	43.55%
Dec-07	80,646	164,742	48.95%	Dec-09	69,245	170,140	40.70%
Jan-08	66,646	161,131	41.36%	Jan-10	73,522	163,729	44.90%
Feb-08	63,913	193,163	33.09%	Feb-10	63,313	139,370	45.43%
Mar-08	94,863	204,095	46.48%	Mar-10	79,935	213,540	37.43%
Apr-08	70,826	155,121	45.66%	Apr-10	84,035	173,098	48.55%
May-08	61,187	149,318	40.98%	May-10	64,934	175,759	36.94%
Jun-08	47,272	146,679	32.23%	Jun-10	72,001	153,670	46.85%
Jul-08	72,393	176,951	40.91%	Jul-10	77,267	193,474	39.94%
Aug-08	73,190	199,442	36.70%	Aug-10	69,998	193,068	36.26%
Sep-08	64,295	130,114	49.41%	Sep-10	72,330	158,457	45.65%
Oct-08	54,203	135,009	40.15%	Oct-10	62,892	144,391	43.56%
Nov-08	52,182	146,422	35.64%	Nov-10	57,009	162,485	35.09%
Dec-08	50,054	126,041	39.71%	Dec-10	67,045	143,129	46.84%
Total	3,411,073	8,073,549	42.25%				

Definitions

Win is the total amount retained by the casino after paying off winners, in US dollars

Handle is the amount wagered by players, in US dollars

Win % is the win or hold percentage, i.e., Win divided by Drop.

Questions? Contact: Dr. David G. Schwartz, Director | phone (702) 895-2242 | dgs@unlv.nevada.edu

Preferred citation:

David G. Schwartz. *Big Six: A Longitudinal Micro Study*. Las Vegas: Center for Gaming Research, University Libraries, University of Nevada Las Vegas, 2011.