

- 1 **Gambling:
An Irrational Behavior?**
- 2 **Prevalence of gambling**
 - ✓ Gambling is legal in 48 states (not UT or HI) - up from 2 (NJ/ NV) in 1980.
 - ✓ Gambling losses increased from \$10.4 billion in 1982 to \$54 billion in 1998 (Wynne & Shaffer, 2003).
 - ✓ Slot machine income comprises more than 60% of all dollars generated by gambling in the state of NV.
 - ✓ Many states use lotteries to balance their budgets.
 - ✓ Let's look at some of the forms of gambling that have been studied.
- 3 **Lottery tickets**
 - ✓ Lotteries are more popular with the working class and poor (a regressive tax?).
 - A comparison of Ohio lottery winners and the general population revealed:
- 4 **Lottery tickets**
 - ✓ Lotteries are more popular with older than younger people
 - A comparison of Ohio lottery winners and the general population revealed:
- 5 **Why is the lottery more popular with less educated and older?**
 - ✓ Explanation 1: Prospect theory
 - Decreasing marginal utility of money for the wealthy makes them risk-averse. Poor on steeper part of curve.
 - More interested in insurance than gambling.
 - Doesn't explain age effect.
 - ✓ Explanation 2: Temporal discounting
 - Discounting of delayed rewards is greater with age because of greater uncertainty about future.
 - But, elderly discount at a smaller rate!
 - Doesn't explain wealth effect.
 - Unless, those with higher discounting rates are less likely to earn good salaries....

- ✓ Some combination of both?
 - Plus something else? Elderly have short time frame and more disposable income.

6 **States develop a strategy...**

- ✓ Forrest et al. (2002)
 - Lottery players are attracted to big pots regardless of odds.
 - Lottery players are less likely to play if people aren't seen to be winning.
 - So, states created multi-state lotteries to increase pots and number of people playing.
 - By increasing number of people playing, they increase the likelihood that someone will win and create media coverage.
 - Recall role of media in skewing frequency judgments.

7 **Lotto versus lottery**

- ✓ Lotto - you get to pick your own numbers.
 - Picking will not change your probability of winning.
 - But, picking can reduce the likelihood of sharing.
 - Most people select middle numbers and numbers without repeating digits (Alcock & Dickerson, 1986).
- ✓ Illusion of control
 - Picking contributes to illusion (Langer...)
 - Numbers generated by “special” methods (e.g., astrology, based on dates/names) receive higher ratings of likelihood (Goodman & Irwin, 2006).
- ✓ By picking the same numbers, people become entrapped.
 - People think that they are getting closer and are afraid to “switch strategies” midstream.

8 **Slot machines**

- ✓ *The* major source of income at casinos.
 - Small profit margin, but high volume.
 - Faster playing encouraged by replacing coin slots with bill feeders and arms with buttons.
- ✓ Games are typically pure chance (no skill).
 - Part of the attraction for casual gamblers - it is an “even playing field.”
 - Only 12% of players say that the way that they play has an

influence on wins.

- BUT, Dixon has found that people's behavior while playing indicates otherwise - *superstitious behaviors*.

9  **Illusion of control - Stopping device**

✓ Ladouceur & Sevigny (2005).

– Experiment 1 - Controlled playing time

- Phase 1 - standard slot machine play; Phase 2 - touching screen at any time would stop the game. Played 30 times in Phase 2.
- 57% of participants believed that they could control game outcomes when using a stopping device.
- 41% though that skilled use of the button would alter outcomes.
- 26% believed that the stopping device enhanced their probability of winning.

– Experiment 2 - Participants play as long as they wanted

- People who could play the machine with the stopping device played twice as many games (41) as those who played the standard device (21).
- 32% reported that stopping dev. increased chances of winning.

10  **Reasons for playing slots**

✓ Most slot machine players indicate reasons other than making money.

– Social interaction, entertainment, excitement/thrill.

✓ Behavior indicates otherwise (Walker, 1992).

– People report beliefs that they have skill or special knowledge in picking an outcome.

– They discount losses as being caused by factors beyond their control but wins as evidence that their system is working.

11  **Irrational thinking and slot machines**

✓ Players avoid “cold” or “hungry” machines (Caldwell, 1974).

– Players talk to their machines.

– Most players take precautions to prevent others from playing “their” machine.

✓ Verbalizations while playing are usually irrational.

- 70% include the gambler's fallacy, personification of the machine ("it's making me mad on purpose"), and illusions of control (Gaboury & Ladouceur, 1988).

- ✓ Occurs much more often for slot machines (70%) than for video poker (59%) and video games (12%).

12 **Near-wins...**

- ✓ In slot machines, feedback is not dichotomous (win/lose) but graded (win/lose/ near-win).

- ✓ However, a near win is still a loss!

13 **More on near-wins**

- ✓ Effect of near-wins

- Recall that people interpret near-wins in sports betting as "I would have won if only...."

- In slot machines, the near-win gives the impression that you are "close to winning."

- Inflates your judged degree of success.

- Cote et al. (2003) exposed slot machine players to 27% near wins or 0% near wins.

- Those experiencing near wins played 33% more games.

- Recent work by Habib & Dixon is finding that brain activity for near wins mimics that for a win.

14 **Slot Machines and Random Ratio Schedules**

- ✓ Slot machines are programmed to deliver on a random ratio schedule.

- Constant probability of winning.

- ✓ Madden et al. (2005) found twice as much responding by *rats* when they're on an RR rather than a FR.

- Effect was pronounced with high FR/RR requirements.

- ✓ Why?

15 **Madden et al. (2007)**

- ✓ May be related to average delay to reinforcement.

- ✓ With longer delays, value discounted.

- ✓ With FR, the delay is constant but with RR delay is random.

- ✓ Average *discounted* value is much higher for RR when reinforcement is rare.

16 **Video poker**

- ✓ Unlike slot machines, in video poker the gambler can influence

the outcome.

- ✓ The edge to the house is in the 4% to 10% range *if you play optimally*.
- ✓ Regular players showed twice as much irrational verbalizations than non-regulars.
 - Personification of the machine, swearing at the machine, irrational explanations of losses.

17 **Video poker addiction**

- ✓ Because of the possibility for skill to influence outcome, people are more likely to play to improve that skill.
 - In a study by Hunter (1990), 95% of female Vegas gamblers and 74% of male Vegas gamblers seeking help with a gambling problem reported gambling on video poker.
 - These gamblers were relatively skillful at the game.

18 **Poker**

- ✓ Very little research on table poker (any???)
- ✓ Issues are different because you play against others and thus can take advantage of less skillful players.
 - However, house rakes the pot.
- ✓ Possibility for bluffing, little rule-following (by good players), and complex dynamics of multiple opponents make it difficult to learn.
 - Feedback is ambiguous.

19 **Sports gambling**

- ✓ Skill component creates problems similar to those seen in video poker.
 - Over 40% of problem gamblers in treatment list a game of skill as their major problem (Rush & Shaw-Moxam).
 - Problem gamblers often have an inflated sense of their own skill (Toneatto et al., 1997).
 - Books on gambling systems contribute to this problem (even for non-skill games like lottery).
- ✓ Odds are set by house (statistical models) and others' bets (longer odds for teams receiving few bets).
 - House again takes a rake.

20 **JDM phenomena in gambling...**

- ✓ Temporal discounting

- Delayed consequences of gambling are discounted relative to the immediate benefits.

- ✓ Wins are remembered better than losses.

- Slot machine players tend to pause more after a win or near-win than after a loss (Dixon & Schreiber, 2002).

- ✓ Overconfidence bias

- In gambling, this is usually reflected in poor assessment of the skill component of the games and overconfidence.

- Goodie (2005) examined overconfidence rates for general knowledge questions.

- People also bet on their answers (fair bet - EV= \$100).

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More examples....

- ✓ Illusion of control

- A study by Dixon showed that people bet more when they get to choose their roulette numbers.

- Casinos feed this by posting how frequently numbers have hit at each table (lotteries, too!).

- ✓ Contingency judgment

- Casinos overemphasize winning outcomes.

- ✓ Overestimation of rare events (Prospect theory).

- Low probability events like winning a lottery or a slot jackpot are overestimated by players.

- ✓ And, of course, the gambler's fallacy....

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Pathological gamblers show... (Goodie et al., 2007)

- ✓ Heightened overconfidence,

- ✓ Myopic focus on success (i.e., biased sampling of the world resulting in over-reliance on the *a cell inter alia*),

- ✓ Greater propensities for risk taking (steeper discount rates, steeper curves in prospect theory).

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Gambling is a huge money maker

- ✓ States rake in 30-50% profits on state lotteries.

- ✓ Illinois casinos generate huge profits

- \$1.8 billion in 2005.

- 87% from elec. gambling devices (rest - table games)

- Produces tax income so little incentive to control.

- Total to local governments: \$0.1 billion
- Total to state government: \$0.6 billion

✓ On-line gambling (illegal in U.S.)

- Because of immediacy (don't need to drive to casino), on-line gambling exacerbates the problems.
- They also track people's behavior and change the odds (profiling). Not legal in casinos.

25  **Take-home message**

- ✓ Best way to make money gambling is to own a casino, run a lottery, be a bookie, run an on-line gambling site, or run a state.
- ✓ The only way to consistently make money playing is to play against others who have less skill than you do.
 - Be sure that you truly are more skillful.
 - Is it ethical to take advantage of others' stupidity without offering a service in return?