# Making Lottery Games Social

Mobile communication gives us the ability to connect with people and act on information like never before, yet what is there to say about lottery games? Modern lottery apps let us check whether our tickets have won, and in some places we may even be able to buy tickets. But lottery play is basically each of us individually, against the impersonal state administration. Yet, people do organize pools to play collectively. The fact that people do this, despite considerable inconvenience, shows both the power of peer support and expectation, and a willingness among players to share good fortune.

My goal in developing new lottery games has been to harness the power of peer expectations and players' willingness to share, to add a real social dimension to lottery play. Modern communications will help, but only after we provide something that is missing: a reason for you, as a player, to care about what I, as a player, do. This requires changes in the way games are defined, and in the way the lottery handles information. These systematic changes turn out to be patent-protectable.

You, as a player will care about what I, as a player do, if I can help you win. I can help you win, if you are willing to co-operate and share. This is the social value proposition that is built into games of my design. It is new in lottery games, but of course ancient and fundamental in human behavior. This value proposition rides between the poles of individualism and collectivism -an area of tension and therefore emotion and engagement.

Lottery games have prizes that are defined as *pari mutuel* -that is, share and share alike among all winners- or *set* – that is, payable in full amount to each winner. Usually smaller prizes are set, and big prizes are *pari mutuel*. Games can have prizes all set, all *pari mutuel*, or a mixture of the two.

In a lottery game that has all set prizes, there is no reason for you to care what I do. I cannot help you win, and we do not have to share anything. Many lottery games have all set prizes.

A key insight is that set-prize games can be made social by defining an *additional prize* that is shared among all wagers that specify the most popular choice among the possible plays, or the ***most chosen path.*** Suppose that in a lottery game there are 2187 possible plays or paths, defined by choosing among the symbols "rock, paper, scissors" seven times. The lottery chooses one path, and those wagers that beat the lottery each time (according to the traditional rules) are each paid the top prize. But now the lottery may also identify a different path that is the most chosen path, because it has more wagers in this drawing than any other. To each of these wagers, the lottery pays an equal share from a set-aside prize pool – say, 5% of receipts. Depending upon how many wagers share in this pool, it may be a very significant amount of money, or a negligible amount.

Now, I cannot help you win the top prize, but if we cooperate by choosing to play the same path, we may capture shares of the ***most chosen path*** prize, while still playing for the top prize. We players thus have an incentive to co-operate among ourselves at a certain scale- enough to win, but not so much as to make each share of negligible value. The lottery may help to frame the scale of cooperation by defining a minimum payable value for the shared prize, and an alternate disposition of the funds if the most chosen path is overpopulated. How will we co-operate? Bring out the mobile phones: it's just a matter of us being peers, having expectations, and being able to communicate easily. I wasn't going to play, but I will if you ask me.

In lottery games that have really big top prizes, that top prize is *pari mutuel*. I don't really want to share it, so I don't want us to play exactly the same path. But we could agree to play separate wagers in the same drawing, and share the spoils if we win big. This is the basis of the workplace pools in lotto games. These only happen when someone organizes the work of collecting the money, keeping records, buying the tickets, and collecting the winnings. The inconvenience of all this is a barrier that limits the scale of cooperation, and counterbalances the positive potential of peer-supported play.

Workplace pools, when they win anything, usually win amounts that are negligible when shared. The pool organizer will often play these winnings forward by using them to buy tickets in a future draw. If I participated once when we won something, and we played that money forward, don't I deserve to share in the big jackpot if we win next time? This is the sort of question that gets settled in court, if a big win happens. Negative emotions around this sort of outcome generally do not support playing in groups.

The lottery can bring clarity to this situation, and make it easy for people to organize cooperative pools of any size, by changing the way it structures its games. The lottery drawing that determines the outcome must be done in two stages, separated by a time interval during which each player can communicate a choice. Think of the first stage as a qualifying game, and the second stage as the final. The top prize is won only by wagers with the best possible result in both the qualifying game and the final. Having the best possible result in the qualifying game guarantees a prize, regardless of what happens in the final. However, even the worst result in the qualifying game does not preclude a win in the final. During the time interval between the qualifier and the final, every player is a sure or potential winner, and every player has a choice. Those who are not in the running for the top prize may elect to buy a multiplier against their eventual winnings, that will be determined by the final. Those who are in the running for the top prize have a more interesting choice: whether to join a cooperative pool, made only of sure winners. The default choices (recorded by the lottery in the absence of communication from the player to the contrary) are not to multiply, and not to pool.

The cost of admission to the pool is half the eventual value of one's ticket. The benefit of the pool is an equal share all the winnings thus contributed by all the members. A player who chooses to pool usually increases his prize by a large factor, even if no one wins the jackpot, because of shared next-tier prizes. A player who wins the jackpot keeps half, and also takes an equal share from the pool.

Now, if you and I as players are both facing the choice whether to pool, it is because we played exactly the same path in the qualifying game. And we may have agreed to do that, along with our shared social network of hundreds, because someone suggested it using mobile communication. It was easy – and now we are all sure winners of something and facing an interesting choice- will we share? Emotion and engagement abound. Information and opinion are sought. The lottery provides updated information via mobile: how many have joined? How many more could join?

More likely, you and I are facing a lesser choice- whether to buy the multiplier. If we played the same path in the qualifying game, we have the same choice now. And I may be curious what you will do, and what other people are doing, so I turn to the mobile device again. The lottery tells me what others are doing, and how to buy a multiplier if I want it.

To summarize: if lotteries reconfigure their games so that players have incentive to communicate, co-operate, and share, some players will apply their communication and social skills to take advantage of this and in doing so, boost engagement with the games.