

Mathematical Model to determine the Optimal Solution of a 6-from-40 lottery

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The Problem

The Mauritian lotto is a lottery game with a combination of 6 balls randomly selected out of 40 to determine the winning combination. There are fewer combinations played each time than possible combinations. Playing a big amount when the jackpot is high enough may create a risk-reward asymmetry.

The numbers are irrelevant. Our solution is to find when to play and by how much.

The Game

Let's have a look at the rules and regulations

<https://loterienationale.mu/sites/default/files/RULES%20AND%20REGULATION%202016.pdf>

F. Winning Selections

Subject to the provisions of the applicable Rules and Procedures for the Loto 6/40 Game, a Participant who, in respect of any selection, has three or more numbers which match the Winning Numbers drawn will be entitled to a prize in the highest prize category to which those numbers relate.

Match 3 Category

Means that the Participant has correctly matched three numbers in any one selection from the six Winning Numbers drawn. The appropriate prize category is called MATCH 3 OF 6 NUMBERS ("MATCH THREE").

Match 4 category

Means that the Participant has correctly matched four numbers in any one selection from the six Winning Numbers drawn. The appropriate prize category is called MATCH 4 OF 6 NUMBERS ("MATCH FOUR").

Match 5 category

Means that the Participant has correctly matched five numbers in any one selection from the six

Winning Numbers drawn. The appropriate prize category is called MATCH 5 OF 6 NUMBERS ("MATCH FIVE").

Match 6 category

Means that the Participant has correctly matched six numbers in any one selection from the six Winning Numbers drawn. The appropriate prize category is called MATCH 6 OF 6 NUMBERS ("MATCH SIX").

There are 4 winning categories with the following prize allocations.

G. Prize Pools

- i. Subject to rounding down, the amount allocated by the Operator as approved by the GRA to the prize fund for payment of prize(s) for a Draw ("Prize Fund") shall be 48.5% of the gross fund of Entries into that Draw or such larger amount as shall be determined by the Operator in its sole discretion from time to time.
- ii. The Prize Fund as approved by the GRA shall be split as follows:
 - a. 45% of the gross fund of Entries shall be allocated to pay prizes for a Draw.
 - b. 3.5% of the gross fund of Entries shall be allocated to a reserve fund ("Reserve Fund") to be used to fund guaranteed jackpot amounts or other promotions as shall be introduced by the Operator from time to time.
- iii. As approved by the GRA, except in the circumstances described in paragraph (G)(iv) below, all Match Three category Prizes will be Rs. 100 and will be paid from the Prize Fund.
- iv. The allocation of the Pools Fund to each of the remaining prize categories as approved by the GRA shall be in accordance with the following provisions:
 - a. Prize money allocated to each of the other prize categories will be divided equally by the number of Winning Selections in that category.
 - b. If in any Draw, there are no Winning Selections in the Match Six category the prize monies for this category will be added to the Match Six prize pool for the next Draw.
 - c. If in any Draw, there are no Winning Selections in the Match Five category, the prize money for this category will be added to the prize pool for the Match Four category for that Draw.
 - d. If in any Draw, there are no Winning Selections in the Match Four category, the prize money for this category will be divided equally by the number of Winning Selections for the Match Three category and added to the Rs. 100 Prize for that category.
- v. If the total number of Prizes in all categories, when multiplied by Rs. 100, would exceed the Prize Fund referred to in paragraph (G)(i) above, then the amount by which the Prize Fund is exceeded shall be taken from the Reserve Fund.

H. Loto 6/40 Game – Approximate Odds of Winning and Prize Structure

- i. The following table sets forth the probability of winning and the allocation of the Pools Fund as approved by the GRA.

Number of Winning Numbers selected by Player ("Prize Categories")	Approximate Odds of Winning per Entry	Pools Fund
Match 6 of 6 Numbers	1: 3,838,380	72.32% of the Pools Fund plus the amount not won in the previous Draw in the Match Six category
Match 5 of 6 Numbers	1: 18,816	9.04% of the Pools Fund
Match 4 of 6 Numbers	1: 456	18.64% of the Pools Fund plus the amount not won in the Match Five category for that Draw
Match 3 of 6 Numbers	1: 32	Rs 100 prize payable from The Prize Fund, plus any amount not won in the Match Four category for that Draw
Any Prize	1: 29.92	

Note: “Match 6 of 6 Numbers” is the highest prize category and “Match 3 of 6 Numbers” is the lowest prize category.

ii. The holder of a Winning Selection may win in only one prize category per Entry in connection with the Winning Numbers drawn in each Draw and shall be entitled only to the Prize for the highest prize category won by those numbers in each Draw (regardless of the actual Prize value).

iii. All Prizes will be rounded down to the nearest Rs. 1.

We can already make an assumption here: We can ignore rules G:iv:c and d because of the low likelihood of them taking place. In our model, there are always at least one Match 5 and Match 4 winners, respectively.

Let's look at a concrete example.

https://www.loterienationale.mu/fr/tirages-et-archives?field_date_du_tirage_value%5Bvalue%5D%5Bdate%5D=23+Dec+2017

RÉPARTITIONS DES GAINS

Combinez	Nombre de gagnants	Montants remportés (Rs)
6 des 6	2	6,337,885
5 des 6	83	11,081
4 des 6	3,600	527
3 des 6	54,612	100
Total	58,297	20,953,893

Montant total des ventes: Rs 34,744,200

Montant collecté pour le Consolidated Fund of Mauritius: Rs 8,259,530

For the draw on 23rd of December 2017, the jackpot was Rs 12 million

A total of Rs 34744200 was played.

Date	Jackpot	Total played	Trials	Prizes	M3 Winners	M3 Prize	Pools Fund	M6 Winners	M6 Prize	M5 Winners	M5 Prize	M4 Winners	M4 Prize	Roll-over
Sat, Dec 16, 2017	5,000,000	27,143,220	1,357,161	12,214,449	48,608	4,860,800	7,353,649	0	0	99	664,770	3,653	1,370,720	5,318,159
Sat, Dec 23, 2017	12,000,000	34,744,200	1,737,210	15,634,890	54,612	5,461,200	10,173,690	2	12,675,772	83	919,702	3,600	1,896,376	0
Sat, Dec 30, 2017	18,000,000	43,402,800	2,170,140	19,531,260	69,935	6,993,500	12,537,760	0	0	107	1,133,414	4,904	2,337,038	19,067,308
Sat, Jan 6, 2018	27,000,000	40,932,560	2,046,628	18,419,652	77,961	7,796,100	10,623,552	1	26,750,261	162	960,369	6,027	1,980,230	0
Sat, Jan 13, 2018	5,000,000	26,191,140	1,309,557	11,786,013	47,785	4,778,500	7,007,513	0	0	85	633,479	3,935	1,306,200	5,067,833
Sat, Jan 20, 2018	12,000,000	30,057,580	1,502,879	13,525,911	39,594	3,959,400	9,566,511	0	0	63	864,813	3,830	1,783,198	11,986,334
Sat, Jan 27, 2018	18,000,000	35,838,460	1,791,923	16,127,307	57,843	5,784,300	10,343,007	1	19,466,397	88	935,008	3,919	1,927,937	0

Here's a summary of the games played in December 2017 and January 2018

Hypotheses

Let's look at some more recent numbers since now the game runs both on Wednesdays and Saturdays.

Date	Jackpot	Total played	Trials	Prizes	M3 Winners	M3 Prize	Pools Fund	M6 Winners	M6 Prize	M5 Winners	M5 Prize	M4 Winners	M4 Prize	Roll-over
Sat, Dec 16, 2017	5,000,000	27,143,220	1,357,161	12,214,449	48,608	4,860,800	7,353,649	0	0	99	664,770	3,653	1,370,720	5,318,159
Sat, Dec 23, 2017	12,000,000	34,744,200	1,737,210	15,634,890	54,612	5,461,200	10,173,690	2	12,675,772	83	919,702	3,600	1,896,376	0
Sat, Dec 30, 2017	18,000,000	43,402,800	2,170,140	19,531,260	69,935	6,993,500	12,537,760	0	0	107	1,133,414	4,904	2,337,038	19,067,308
Sat, Jan 6, 2018	27,000,000	40,932,560	2,046,628	18,419,652	77,961	7,796,100	10,623,552	1	26,750,261	162	960,369	6,027	1,980,230	0
Sat, Jan 13, 2018	5,000,000	26,191,140	1,309,557	11,786,013	47,785	4,778,500	7,007,513	0	0	85	633,479	3,935	1,306,200	5,067,833
Sat, Jan 20, 2018	12,000,000	30,057,580	1,502,879	13,525,911	39,594	3,959,400	9,566,511	0	0	63	864,813	3,830	1,783,198	11,986,334
Sat, Jan 27, 2018	18,000,000	35,838,460	1,791,923	16,127,307	57,843	5,784,300	10,343,007	1	19,466,397	88	935,008	3,919	1,927,937	0
Sat, Oct 22, 2022	5,000,000	18,326,440	916,322	8,246,898	26,276	2,627,600	5,619,298	0	0	49	507,985	1,709	1,047,437	4,063,876
Wed, Oct 26, 2022	8,000,000	15,558,220	777,911	7,001,199	26,354	2,635,400	4,365,799	0	0	44	394,668	1,886	813,785	7,221,222
Sat, Oct 29, 2022	13,000,000	23,328,240	1,166,412	10,497,708	39,018	3,901,800	6,595,908	0	0	53	596,270	2,803	1,229,477	11,991,363
Wed, Nov 2, 2022	17,000,000	19,687,860	984,383	8,859,447	33,289	3,328,900	5,530,547	0	0	36	499,961	2,287	1,030,894	15,991,074
Sat, Nov 5, 2022	30,000,000	30,672,240	1,533,612	13,802,508	51,196	5,119,600	8,682,908	0	0	80	784,935	3,554	1,618,494	29,270,553
Wed, Nov 9, 2022	35,000,000	26,952,640	1,347,632	12,128,688	36,252	3,625,200	8,503,488	0	0	55	768,715	2,537	1,585,050	35,420,276
Sat, Nov 12, 2022	42,000,000	36,399,200	1,819,960	16,379,640	55,964	5,596,400	10,783,240	0	0	94	974,805	3,908	2,009,996	43,218,715
Wed, Nov 16, 2022	50,000,000	37,964,200	1,898,210	17,083,890	54,698	5,469,800	11,614,090	0	0	75	1,049,914	3,472	2,164,866	51,618,025
Sat, Nov 19, 2022	60,000,000	48,207,200	2,410,360	21,693,240	60,594	6,059,400	15,633,840	0	0	106	1,413,299	3,808	2,914,148	62,924,418
Wed, Nov 23, 2022	75,000,000	48,299,720	2,414,986	21,734,874	75,690	7,569,000	14,165,874	2	73,169,178	124	1,280,595	5,363	2,640,519	0
Sat, Nov 26, 2022	5,000,000	18,460,320	923,016	8,307,144	33,276	3,327,600	4,979,544	0	0	59	450,151	2,701	928,187	3,601,206
Wed, Nov 30, 2022	8,000,000	18,072,460	903,623	8,132,607	29,634	2,963,400	5,169,207	1	7,339,577	68	467,296	2,563	963,540	0
Sat, Dec 3, 2022	5,000,000	20,040,180	1,002,009	9,018,081	30,962	3,096,200	5,921,881	0	0	46	535,338	1,805	1,103,839	4,282,704
Wed, Dec 7, 2022	8,000,000	18,185,340	909,267	8,183,403	37,877	3,787,700	4,395,703	0	0	65	397,372	2,976	819,359	7,461,677
Sat, Dec 10, 2022	13,000,000	24,598,540	1,229,927	11,069,343	36,197	3,619,700	7,449,643	0	0	50	673,448	2,484	1,388,613	12,849,259
Wed, Dec 14, 2022	17,000,000	21,871,860	1,093,593	9,842,337	27,585	2,758,500	7,083,837	1	17,972,289	43	640,379	1,778	1,320,427	0
Sat, Dec 17, 2022	5,000,000	19,683,160	984,158	8,857,422	30,910	3,091,000	5,766,422	0	0	68	521,285	2,284	1,074,861	4,170,276
Wed, Dec 21, 2022	10,000,000	19,143,040	957,152	8,614,368	33,505	3,350,500	5,263,868	0	0	70	475,854	2,455	981,185	7,977,106
Sat, Dec 24, 2022	25,000,000	31,821,220	1,591,061	14,319,549	49,594	4,959,400	9,360,149	0	0	69	846,157	3,197	1,744,732	24,746,365
Wed, Dec 28, 2022	30,000,000	29,196,120	1,459,806	13,138,254	44,272	4,427,200	8,711,054	0	0	63	787,479	2,849	1,623,740	31,046,200

We can already come to some conclusion:

- More people play on Saturdays compared to Wednesdays
- The average played for a draw has gone down since it has been done twice a week
- More people will play during the holiday seasons
- More people will play if there is a huge addition in the jackpot
- More people play as the jackpot increases

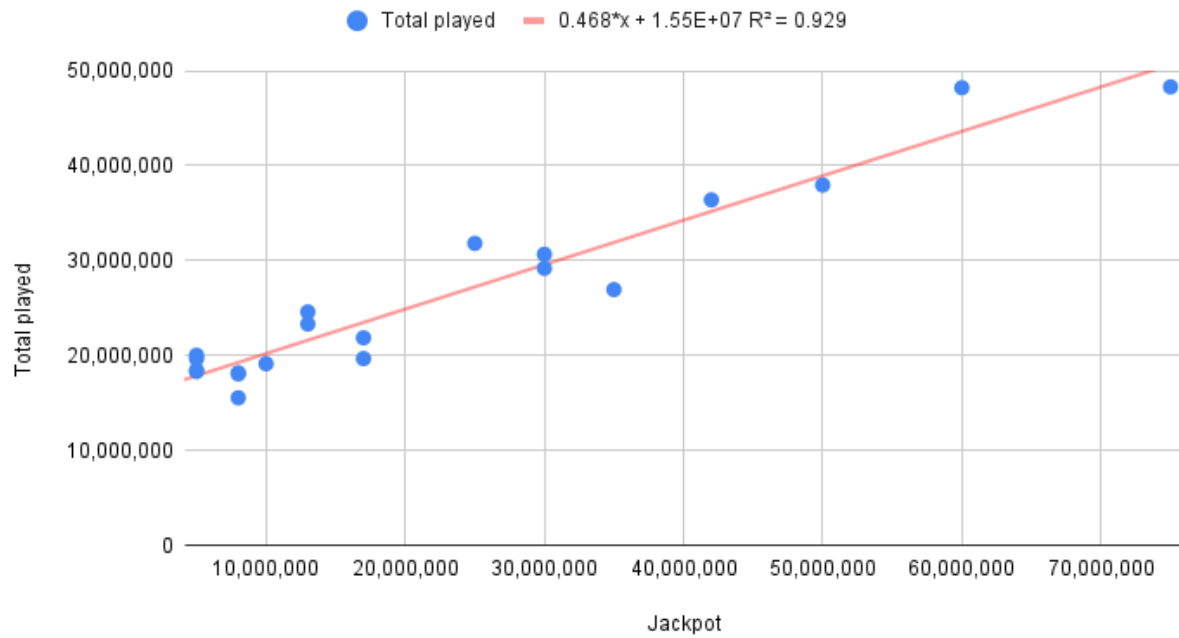
Our first rule should be two play on Wednesdays.

Let's see how much more money on average is played on Wednesdays.

It is about 6% more, which is not much but can still be useful.

We need to find the correlation between amount played and jackpot

Total played vs. Jackpot



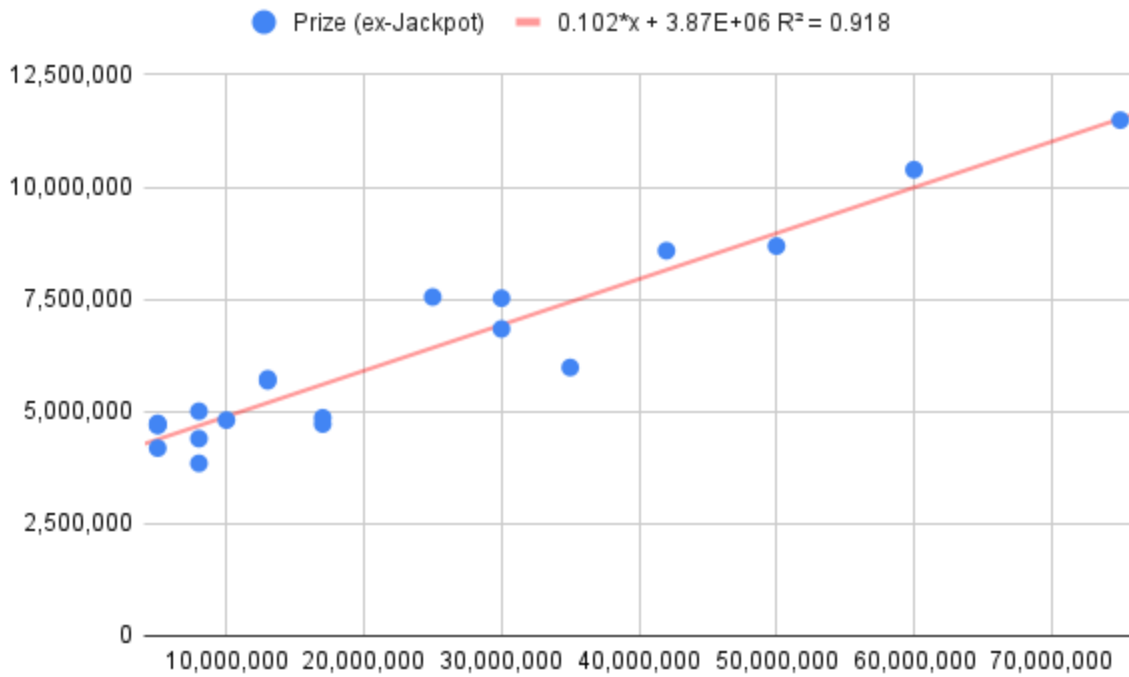
The Total Played is roughly:
 $0.5 * \text{Jackpot} + 15 \text{ million MUR}$

Total played \approx 0.5 X Jackpot + 15 million

We have two rules so far:

1. Play as far as possible on Wednesdays
2. The total amount played formula

Can we find a correlation between amount played and total amount gained (ex-jackpot)

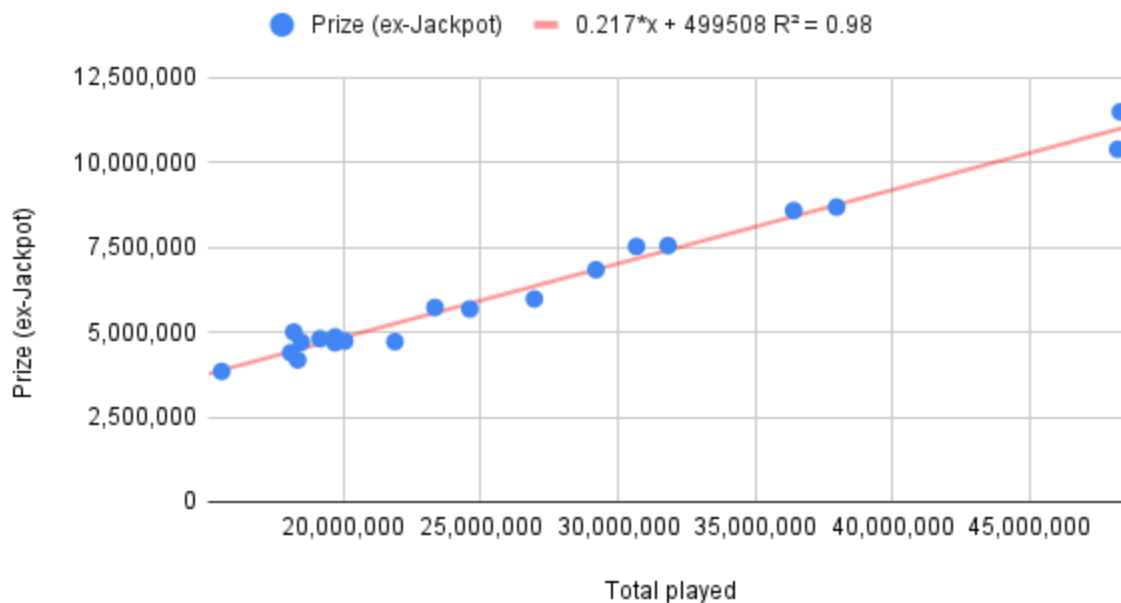


The ex-Jackpot prize is about $0.1 \times \text{jackpot} + 4\,000\,000$

Ex-Jackpot Prize \approx 0.1 X Jackpot + 4000000

Out of curiosity, let's have a look at the correlation between total amount played and ex-jackpot prize

Prize (ex-Jackpot) vs. Total played

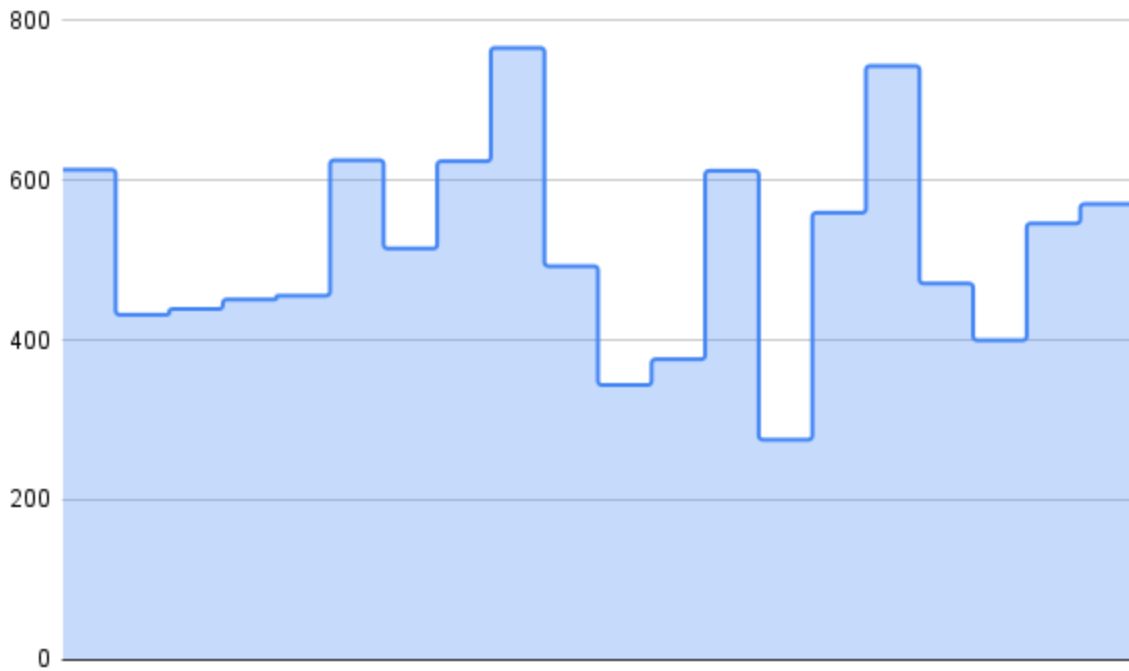


Beautiful correlation between amount of money won as people play

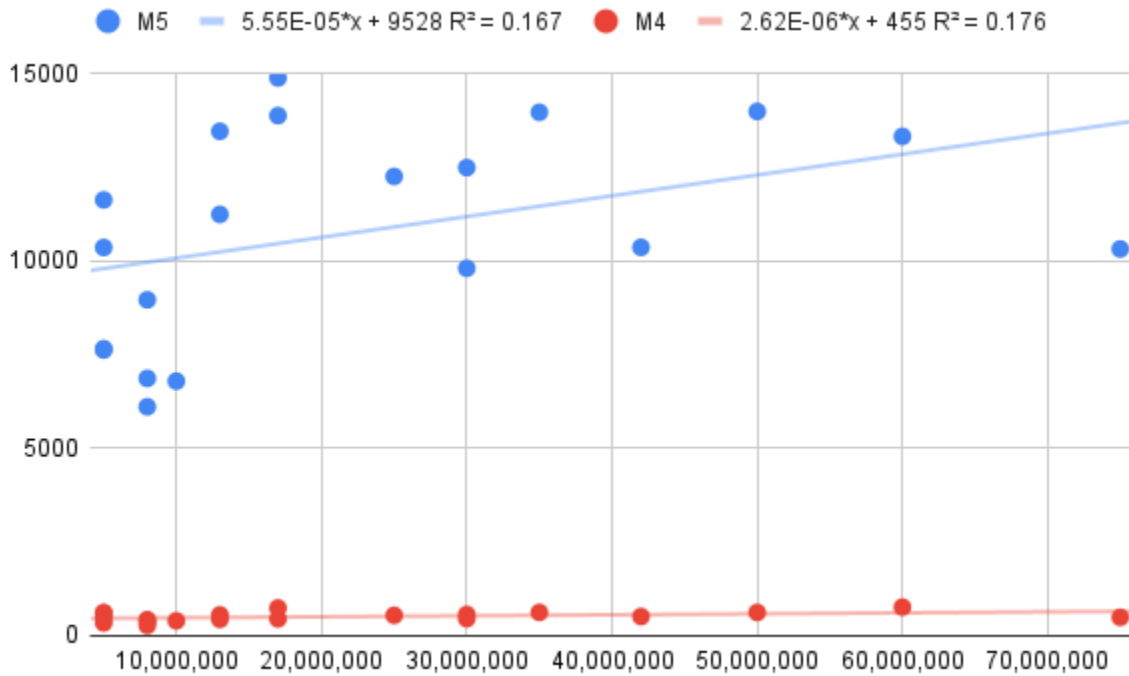
Why are we not including the jackpot in the formula?

It is an unlikely event and what we are aiming for is not win the jackpot but find the amount of money necessary to play to have a high probability of breaking even on the ex-jackpot prizes.

Let's see the average wins per trial for M4 and M5. We will look without M6 first.



The average M4 win is 500.



There doesn't seem to be a correlation between average wins and jackpot

Probably it is because of the difference in size of the data in the x and y axes.

More people playing doesn't mean that the cake will be shared with more people as the size of the cake itself increases.

Therefore, playing on a Wednesday doesn't really have that much of an effect.

What affects the game also are the numbers played. Some numbers are more likely to occur. People have favorite numbers in the single digits. People use numbers less than 31 for their birthdays. All of this is random and we cannot really do anything about it.

How to Play

The odds of winning are as follows

Number of Winning Numbers selected by Player ("Prize Categories")	Approximate Odds of Winning per Entry
Match 6 of 6 Numbers	1: 3,838,380
Match 5 of 6 Numbers	1: 18,816
Match 4 of 6 Numbers	1: 456
Match 3 of 6 Numbers	1: 32
Any Prize	1: 29.92

These are based on a hypergeometric distribution.

Let's ignore M6 for now

Let's focus on breaking even with M3, M4, and M5.

There are some quick ways of playing this game that we should consider https://loterienationale.mu/sites/default/files/multiple_brochure.pdf

Multiple 4

Nombre de combinaisons: 630
Coût de la mise: Rs. 12,600

Nombre de gains de	Sur votre ticket vous avez :			
	4 bons numéros	3 bons numéros	2 bons numéros	1 bon numéro
6 bons numéros	1	-	-	-
5 bons numéros	68	3	-	-
4 bons numéros	561	99	6	-
3 bons numéros	-	528	128	10
Totals	630	630	134	10

Multiple 5

Nombre de combinaisons: 35
Coût de la mise: Rs. 700

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	4 bons numéros	3 bons numéros	2 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	34	2	-	-
4 bons numéros	-	33	3	-
3 bons numéros	-	-	32	4
Totals	35	35	35	4

Multiple 7

Nombre de combinaisons: 7
Coût de la mise: Rs. 140

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	5 bons numéros	4 bons numéros	3 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	6	2	-	-
4 bons numéros	-	5	3	-
3 bons numéros	-	-	4	4
Totals	7	7	7	4

Multiple 8

Nombre de combinaisons: 28
Coût de la mise: Rs. 560

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	5 bons numéros	4 bons numéros	3 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	12	3	-	-
4 bons numéros	15	15	6	-
3 bons numéros	-	10	16	10
Totals	28	28	22	10

Multiple 9

Nombre de combinaisons: 84
Coût de la mise: Rs. 1,680

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	5 bons numéros	4 bons numéros	3 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	18	4	-	-
4 bons numéros	45	30	10	-
3 bons numéros	20	40	40	20
Totals	84	74	50	20

Multiple 10

Nombre de combinaisons: 210
Coût de la mise: Rs. 4,200

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	5 bons numéros	4 bons numéros	3 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	24	5	-	-
4 bons numéros	90	50	15	-
3 bons numéros	80	100	80	35
Totals	195	155	95	35

Multiple 11

Nombre de combinaisons: 462
Coût de la mise: Rs. 9,240

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	5 bons numéros	4 bons numéros	3 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	30	6	-	-
4 bons numéros	150	75	21	-
3 bons numéros	200	200	140	56
Totals	381	281	161	56

Multiple 12

Nombre de combinaisons: 924
Coût de la mise: Rs. 18,480

Nombre de gains de	Sur votre ticket vous avez :			
	6 bons numéros	5 bons numéros	4 bons numéros	3 bons numéros
6 bons numéros	1	-	-	-
5 bons numéros	36	7	-	-
4 bons numéros	225	105	28	-
3 bons numéros	400	350	224	84
Totals	662	462	252	84

Comment réclamer vos gains ?

Si vous avez gagné, signez votre ticket et présentez-le à un détaillant officiel de la Loterie Nationale, pour tout lot d'un montant de Rs. 2,000 ou moins.

Tout lot d'un montant supérieur à Rs. 2,000 doit être réclamé au siège social de la Loterie Nationale, Lottotech Ltd, HSBC Centre, 18 Cybercity, Ebène, 72201, ou à un agent autorisé.

Vous devez vous munir de votre carte d'identité nationale ou de votre passeport.



Winning the loto uses a hypergeometric distribution
https://en.wikipedia.org/wiki/Hypergeometric_distribution

Luckily for us, a Romanian mathematician, Stefan Mandel, already worked on this and won
<https://www.bursa.ro/industria-de-gambling-iulie-1994-primul-si-singurul-interviu-din-pres-a-romaneasca-stefan-mandel-omul-care-a-zapacit-loteriile-67569513>

<https://thehustle.co/the-man-who-won-the-lottery-14-times>

We will try to apply his findings to our situation.

We will use this calculator to help us
<http://www.lottogenie.com/cgi-bin/odds.cgi>

From what we can see, the expected returns on any of the prizes other than the jackpot are low and consequently using this strategy to break even will be a bad idea.

It does make sense to play when the jackpot is big enough for the asymmetric risk-reward.

But how much?

Mandel's strategy of buying all the combinations and only playing when the jackpot was at least 3 times the price of all combinations is based on technical difficulties such as paying investors and logistics.

In our case, we are not playing all the numbers but we can consider combinatorial condensation, that is, not playing numbers that are too "beautiful" such as 1-2-3-4-5-6.

My suggestion is to make use of a combination of the 12 multiples and 4 multiples games to cover all the 40 numbers and avoiding as much as possible "beautiful" combinations.

Let's look at an example.

Our first set of 12 numbers are 4-7-12-16-17-23-25-27-33-34-36-40

Next we play a set of 4 numbers: 1-18-21-30

We are certain that all the combinations generated from the 4 numbers + the two random will be different from our first game.

We make another selection of 12 numbers 2-3-8-14-19-20-24-28-31-32-35-38

The remaining 12 numbers are the last game: 5-6-9-10-13-15-22-26-29-37-39

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40

The total cost for this game is Rs 68040 for a total of 3402 combinations.

This represents 0.25% of the total played in a draw.

This should be preferably be done with a random number generator.

Any of the jackpots are big enough to offset the speculation but it is recommended that it is attempted when the jackpot reaches a very big amount, let's say Rs 50 000 000.

Let's look at some examples if we had any successes with such a combination.

For the last game: 6-9-18-30-31-37 was the winning combination and the best win was an M4 at Rs 570. Bad investment.

In general, this game is not recommended at all.

A better game?

The corporation also provides a 7-from-28 game.

<https://www.lottotech.mu/wp-content/uploads/2022/09/Rules-and-Regulations.pdf>

Let's look at the rules and then, we will compare the two games.

F. Prize Pools

- i. Subject to rounding down, the amount allocated by the Operator as approved by the GRA to the prize fund for payment of Prize(s) for a Draw (“Prize Fund”) shall be 55.20% of the gross fund of Entries into that Draw for the 7/28.
- ii. The Prize Fund for the 7/28 Game as approved by the GRA shall be split as follows:
 - a. 48.2% of gross fund of Entries shall be allocated to pay prizes for a Draw; and
 - b. 7% of the gross fund of Entries shall be allocated to a reserve fund (‘Reserve Fund’) to be used to fund guaranteed Prize amounts or other promotions as shall be introduced by the Operator from time to time.
- iii. As approved by the GRA, except in the circumstances described in paragraph (F)(iv) below, all Div 4 category Prizes will be at Rs 100 and will be paid from the Prize Fund.
- iv. The allocation of the Pools Fund to each of the remaining Prize categories as approved by the GRA shall be in accordance with the following provisions:
 - c. Prize money allocated to each other Prize categories will be divided equally by the Number of Winning Selections in that category;
 - d. If in any Draw, there are no winning selections in the Div 1 category, the prize monies of this category will be added to the Div 1 prize pool for the next draw or roll down to Div 2 or lower division as determine by the Operator.
 - e. If in any Draw, there are no Winning Selections in the Div 2 category, the Prize money for this category will be added to the Prize Pool for the Div 3 category for that Draw.
 - f. If in any Draw, there are no Winning Selections in the Div 3 category, the Prize money for this category will be divided equally by the Number of Winning Selections for the Div 4 category and added to the Rs 100 Prize for that category.
- v. If the total Number of Prizes in all categories, when multiplied by Rs 100, would exceed the Prize Fund referred to in paragraph (F)(i) above, then the amount by which the Prize Fund is exceeded shall be taken from the Reserve Fund.

Approximate Odds of Winning and Prize Structure for 7/28

Prize Tier	Odds	Pools Fund
Div 1	1 : 1,184,040	70 % of Pool Fund
Div 2	1 : 8,054	8 % of Pool Fund
Div 3	1 : 268	22% of Pool Fund
Div 4	1 : 25	Rs 100 prize payable from the Prize Fund, plus any amount not won in the Div 4 category

- vi. All Prizes will be rounded down to the nearest Rs. 1.
- vii. The Operator has the right to change the Prize Structure and Prize value of the Loterie Vert Game. Any change shall be publicly announced by the Operator prior to in advance of the effective date.

For this one, there is no known jackpot from the beginning. It depends on the amount played, although for the last game, they fixed it at Rs 5 million because of new year.

There is a guaranteed jackpot of \$ 1million.

The rollover is not to the jackpot of the following weeks but to the lower prizes.

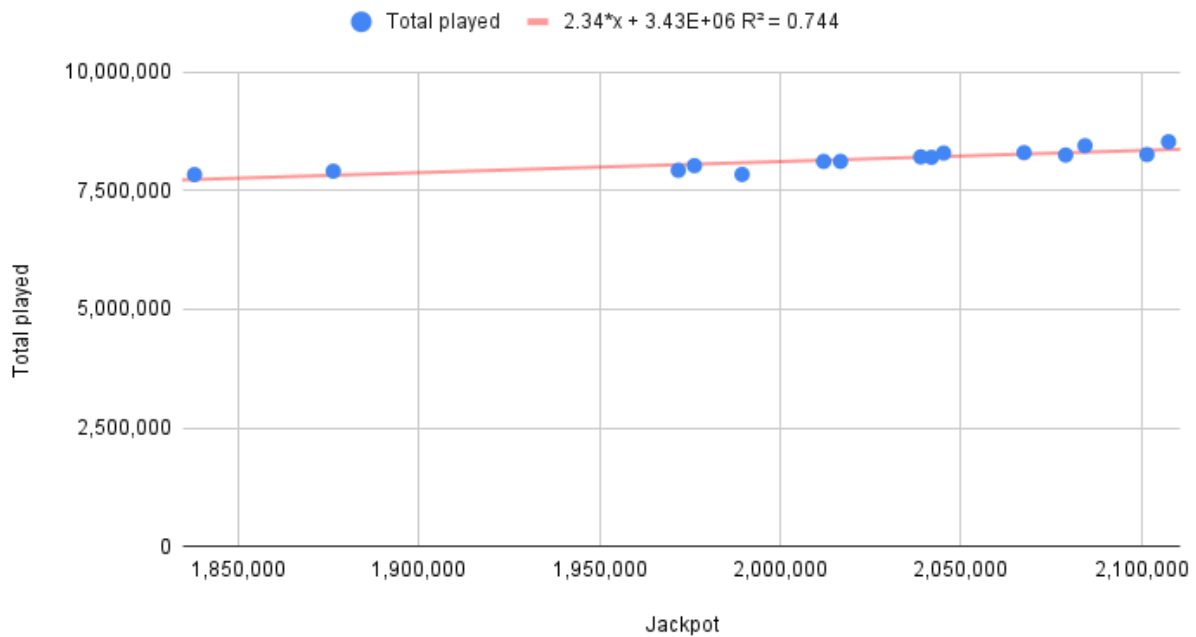
It is to be noted that this game costs Rs 30 instead of Rs 20.

Let's look at some examples.

Date	Jackpot	Total played	Trials	Prizes	M4 Winners	M4 Prize	Pools Fund	M7 Winners	M7 Prize	M6 Winners	M6 Prize	M5 Winners	M5 Prize	M6	M5	M7
Fri, Sep 16, 2022	2,038,933	8,206,560	273,552	3,955,562	10,428	1,042,800	2,912,762	0	0	27	2,271,954	904	640,808	84,146	709	0
Fri, Sep 23, 2022	1,976,292	8,021,730	267,391	3,866,474	10,432	1,043,200	2,823,274	0	0	27	2,202,154	977	621,120	81,561	636	0
Fri, Sep 30, 2022	2,107,490	8,525,520	284,184	4,109,301	10,986	1,098,600	3,010,701	0	0	38	2,348,346	1,064	662,354	61,799	623	0
Fri, Oct 7, 2022	2,084,370	8,441,850	281,395	4,068,972	10,913	1,091,300	2,977,672	0	0	34	2,322,584	1,107	655,088	68,311	592	0
Fri, Oct 14, 2022	2,101,501	8,255,280	275,176	3,979,045	9,769	976,900	3,002,145	0	0	32	2,341,673	902	660,472	73,177	732	0
Fri, Oct 21, 2022	1,876,368	7,905,240	263,508	3,810,326	11,298	1,129,800	2,680,526	0	0	46	2,090,810	1,214	589,716	45,452	486	0
Fri, Oct 28, 2022	1,989,479	7,836,540	261,218	3,777,212	9,351	935,100	2,842,112	0	0	27	2,216,848	860	625,265	82,105	727	0
Fri, Nov 4, 2022	2,016,719	8,112,090	270,403	3,910,027	10,290	1,029,000	2,881,027	2	2,016,719	33	230,482	915	633,826	6,984	693	1,008,360
Fri, Nov 11, 2022	2,045,258	8,286,300	276,210	3,993,997	10,722	1,072,200	2,921,797	1	2,045,258	41	233,744	996	642,795	5,701	645	2,045,258
Fri, Nov 18, 2022	2,012,054	8,110,710	270,357	3,909,362	10,350	1,035,000	2,874,362	0	0	32	2,242,003	979	632,360	70,063	646	0
Fri, Nov 25, 2022	1,837,966	7,833,540	261,118	3,775,766	11,501	1,150,100	2,625,666	1	1,837,966	57	210,053	1,187	577,647	3,685	487	0
Fri, Dec 2, 2022	2,079,011	8,245,260	274,842	3,974,215	10,042	1,004,200	2,970,015	0	0	14	2,316,612	859	653,403	165,472	761	0
Fri, Dec 9, 2022	2,041,896	8,197,290	273,243	3,951,094	10,341	1,034,100	2,916,994	1	2,041,896	28	233,360	997	641,739	8,334	644	0
Fri, Dec 16, 2022	1,971,834	7,923,870	264,129	3,819,305	10,024	1,002,400	2,816,905	0	0	27	2,197,186	892	619,719	81,377	695	0
Fri, Dec 23, 2022	2,067,505	8,295,390	276,513	3,998,378	10,448	1,044,800	2,953,578	0	0	30	2,303,791	984	649,787	76,793	660	0

Here the jackpot is dependent on the amount played,

Total played vs. Jackpot



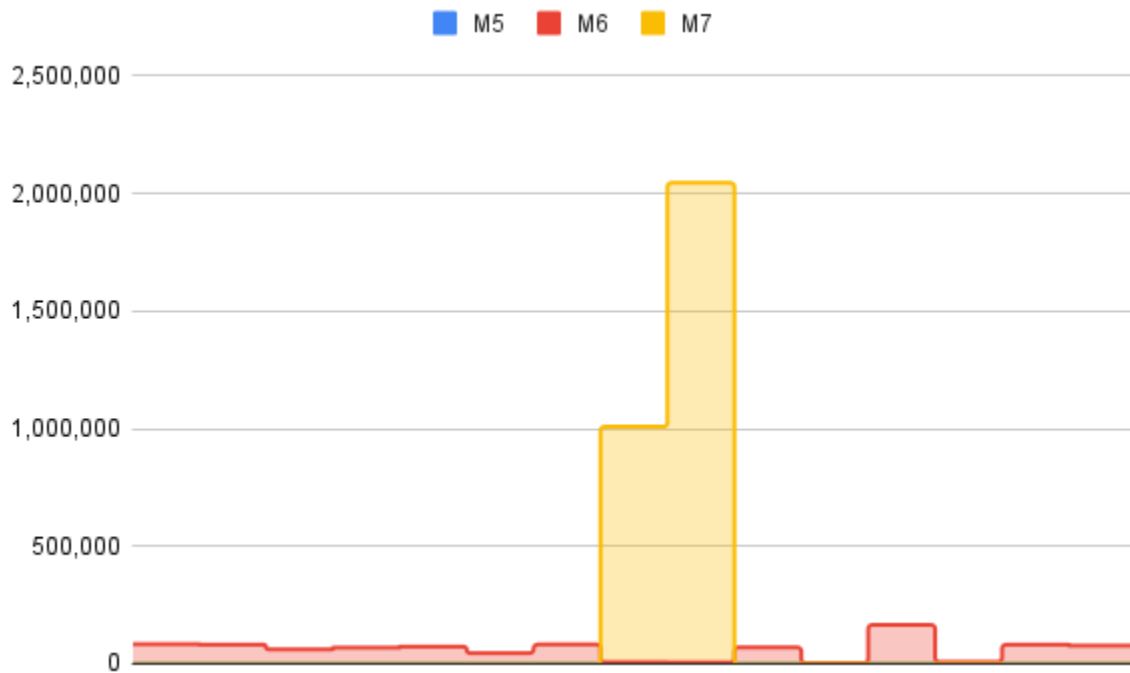
The chart doesn't make much sense as the jackpot is the dependent variable.

Let's compare the probability of winning of the two games side by side.

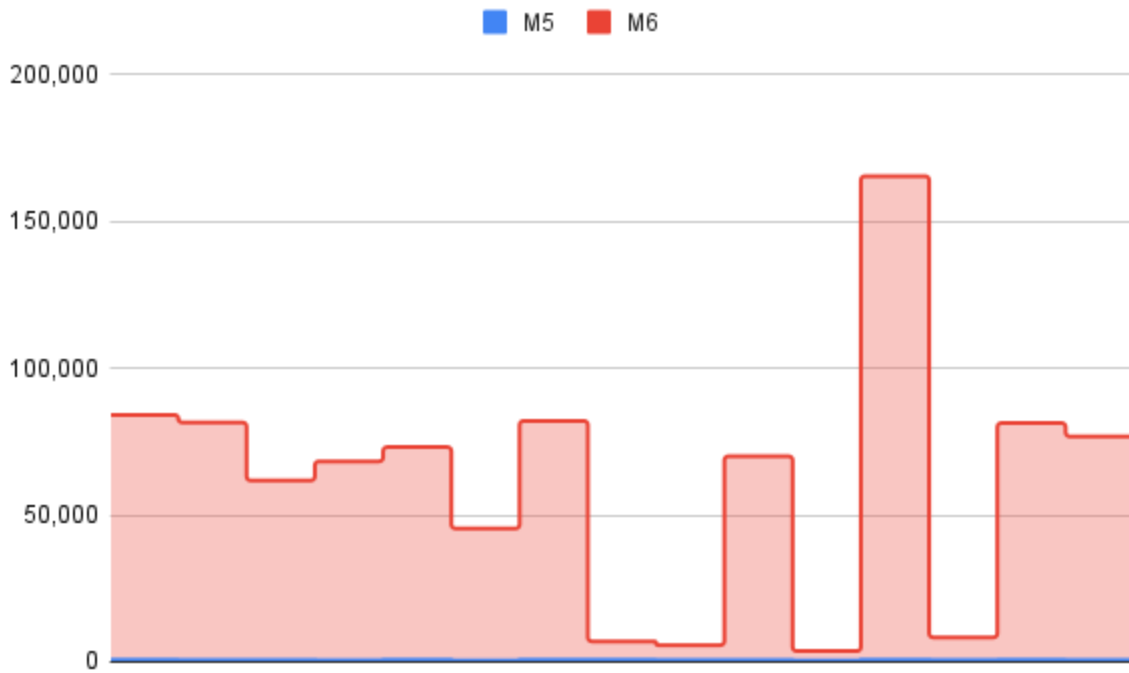
	40/6	28/7
Jackpot (M6/M7)	3,838,380	1,184,040
M5/M6	18,816	8,054
M4/M5	456	268
M3/M4	32	25

It is certainly easier to win this game.

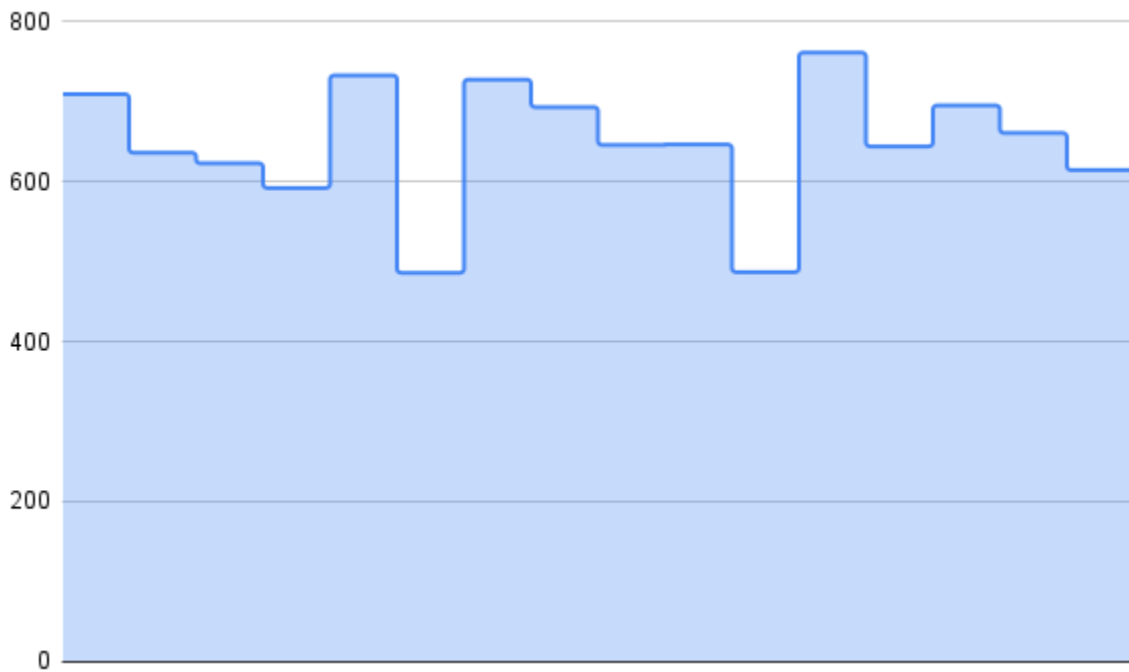
And even winning M6 can be worth it as in most cases, M7 is not won and the jackpot is rolled down.



The M6 gains are considerable, unless M7 is won.



The average gain for M6 is about Rs 60 000 including jackpot going to M7.



For M6, it is about Rs 650.

Let's compare the two games with expectations.

	40/6	Average Win	Expectation	28/7	Average Win	Expectation
Jackpot (M6/M7)	3,838,380		0	1,184,040		0
M5/M6	18,816	10000	0.531462585	8,054	60000	7.449714428
M4/M5	456	500	1.096491228	268	650	2.425373134
M3/M4	32	100	3.125	25	100	4
			4.752953813			13.87508756
Percentage Profit			-76.24%			-53.75%

We did not consider the first prizes.

The expected losses are much lower in the 28/7 games.

If let's say we are playing the 40/6 game if the jackpot is Rs 50 million.

	40/6	Average Win	Expectation	28/7	Average Win	Expectation
Jackpot (M6/M7)	3,838,380	50000000	13.02632882	1,184,040	2000000	1.689132124
M5/M6	18,816	10000	0.531462585	8,054	60000	7.449714428
M4/M5	456	500	1.096491228	268	650	2.425373134
M3/M4	32	100	3.125	25	100	4
			17.77928263			15.56421969
Percentage Profit			-11.10%			-48.12%

In the first game, the jackpot is everything.

But it is very unlikely that you win it if you play with little money.

Playing the 28/7 Game

This one too offers multiple games.

<https://www.lottotech.mu/jeux-multiples/>

Multiple 5				
Division	Match			
	5 No.	4 No.	3 No.	2 No.
7 out of 7	1			
6 out of 7	42	3		
5 out of 7	210	60	6	
4 out of 7		190	76	10
Total	253	253	82	10

Multiple 6				
Division	Match			
	6 No.	5 No.	4 No.	3 No.
7 out of 7	1			
6 out of 7	21	2		
5 out of 7		20	3	
4 out of 7			19	4
Total	22	22	22	4

Multiple 8				
Division	Match			
	7 No.	6 No.	5 No.	4 No.
7 out of 7	1			
6 out of 7	7	2		
5 out of 7		6	3	
4 out of 7			5	4
Total	8	8	8	4

Multiple 9				
Division	Match			
	7 No.	6 No.	5 No.	4 No.
7 out of 7	1			
6 out of 7	14	3		
5 out of 7	21	18	6	
4 out of 7		15	20	10
Total	36	36	26	10

Multiple 10				
Division	Match			
	7 No.	6 No.	5 No.	4 No.
7 out of 7	1			
6 out of 7	21	4		
5 out of 7	63	36	10	
4 out of 7	35	60	50	20
Total	120	100	60	20

Multiple 11				
Division	Match			
	7 No.	6 No.	5 No.	4 No.
7 out of 7	1			
6 out of 7	28	5		
5 out of 7	126	60	15	
4 out of 7	140	150	100	35
Total	295	215	115	35

Multiple 12				
Division	Match			
	7 No.	6 No.	5 No.	4 No.
7 out of 7	1			
6 out of 7	35	6		
5 out of 7	210	90	21	
4 out of 7	350	300	175	56
Total	596	396	196	56

Let's use the same concept as before with a combination of the 12 and 5 games.

This time we use a random generator.

1-3-4-6-8-9-10-15-16-17-18-19-22-25

Then, we select 5 numbers: 2-7-12-13-27

We have 11 numbers remaining. There is one which will fall in two sets. Choose any one and consider it your lucky number.

You can have other combinations to have all the 28 numbers but this one increases the number of different number combinations.

And the remaining 12 numbers: 5-11-14-15-20-21-23-24-26-27-28

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28		

The total cost of the game is Rs 43350 with 1445 games.

This represents about 0.5% of total played each week with the 0.12% of the possible combinations.

You have about twice access to the game with less money speculated and higher probability of winning.

If you speculated the Rs 68040 from the 40/6, it is about 0.8% of the total played.

Let's look at some examples of the above combination.

Last game, you would have won an M4, a mere Rs 100.

This game is better than the 40/6 but it is only speculation.

Conclusion

- Playing either game is speculation and should only be done with money that one can afford to lose
- Playing the 28/7 game is much better than the 40/6
- The aim should not be on the jackpot as the smaller gains can be worth it too.
- There are way to increase the odds of winning like not choosing “beautiful” combinations and trying to play as many different numbers as possible.

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