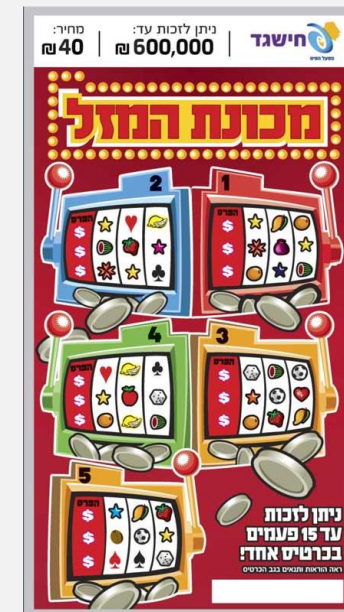


# “Hishgad” scratch cards analysis

**Presented by: Itzhak Davidi**

# Exploration

The project is about "Hishgad" scratch cards. Those scratch cards can be bought in convenient stores in Israel and they provide a small chance to win various amounts of money.



# What is this project about

My goal in this project is to explore and share insights regarding the scratch tickets.

Are some cards possibly better than others regardless of having the same price?

Or maybe cards that are more expensive are better? I will do my best to answer those questions in the next slides. I hope you are excited as I am to see what I've found out! Enough talking let's dive in.

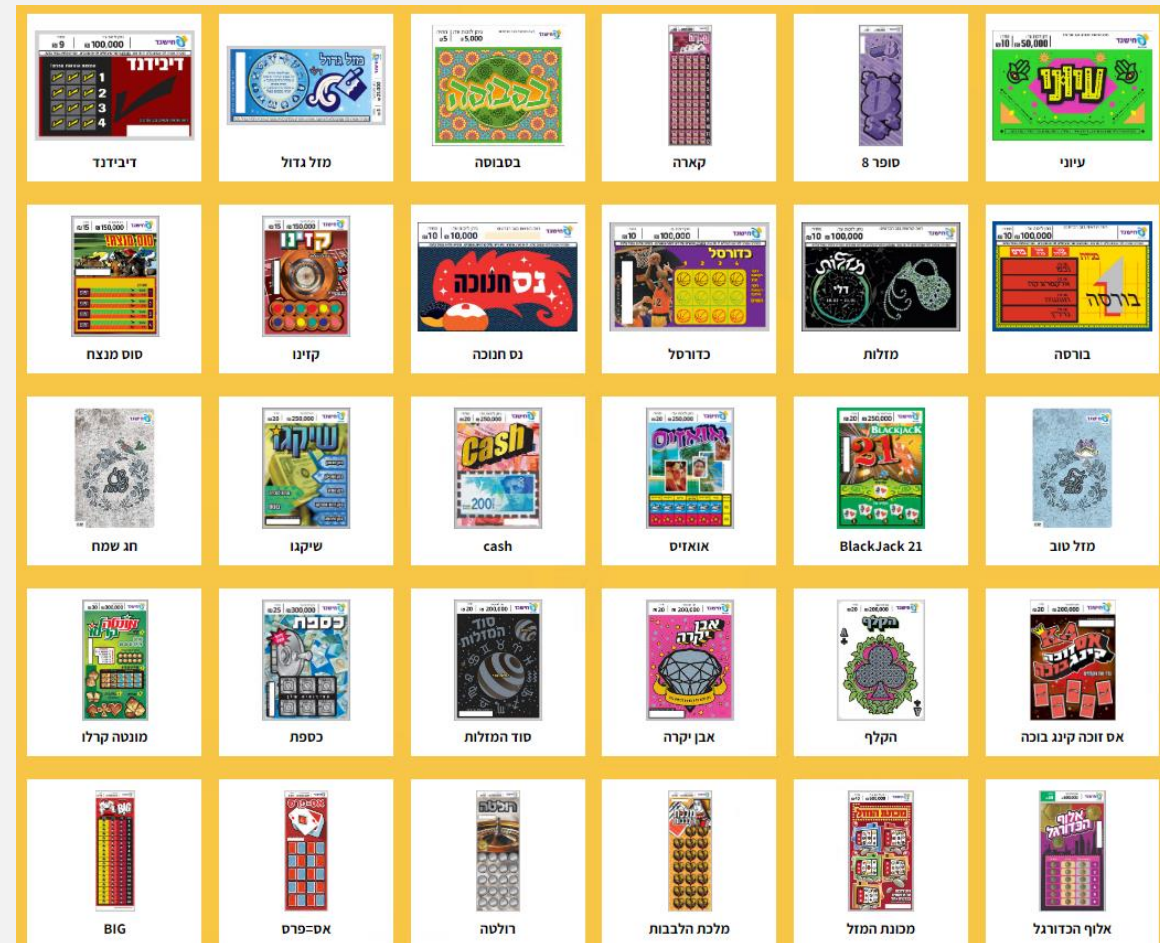


# The methods

R, Excel and VBA used to collect, manipulate and visualize the data.

The data collected by [web scraping](#) each card details such as: name, price, total number of tickets and the chance of winning.

Illustration of how does the scratch card details are shown in the web:



NOTE: that all the data collected at 15/02/2023. Some cards are unavailable due to changes in the amount of the cards published from time to time.

# The Web page

\*Please note that some information is different than what is shown on the web page because the information on the web pages changes over time



## קזינו

מחיר	15 ₪
פרס ראשון	150,000 ₪
מספר כרטיסים בסדרה	4,000,000
סיכויי הזכיה	בפרס הראשון במשחק זה הינם 1:1,000,000 בפרס השני במשחק זה הינם 1:33,333.33 בפרס כלשהו במשחק זה הינם 1:3.46 סיכויי הזכיה הנ"ל נכונים ליום תחילת הפצת הסדרה

- הוראות המשחק
- יש לגרד את הציפוי מעל "גלגל הרולטה" ולחשוף את "המספר הזוכה" המסומן על ידי ה"כדור" שלידו.
  - יש לגרד את הציפוי מעל לוח המספרים והפרסים, ז'יטון אחר ז'יטון ולחשוף את המספר הרשום מתחת.
  - אם המספר הרשום בחלק העליון של ז'יטון כלשהו זהה ל"מספר הזוכה" של "גלגל הרולטה", זכית בפרס הרשום באותו ז'יטון מתחת ל"מספר הזוכה".
  - ניתן לזכות עד 5 פעמים בכרטיס אחד!

פרס	מספר הכרטיסים הזוכים בפרס זה
15 ₪	520,000
30 ₪	440,000
50 ₪	124,000
100 ₪	60,000
200 ₪	10,000
500 ₪	1,000
1,000 ₪	720
1,500 ₪	120
150,000 ₪	4

## The data table

The table includes 47 scratch tickets that we will use for our analysis.

The table columns are: price, prize, chance, quantity, and total quantity

The table rows are the tickets

```
# A tibble: 455 x 8
  X prize price net_win chance quantity total_quantity name
  <int> <int> <int>   <int>   <dbl>   <int>       <int> <chr>
1     1     5     5     0 0.16    320000    2000000 מזל גדול
2     2    10     5     5 0.145    290000    2000000 מזל גדול
3     3    20     5    15 0.0155    31000    2000000 מזל גדול
4     4    30     5    25 0.0045     9000    2000000 מזל גדול
5     5   100     5    95 0.0008     1600    2000000 מזל גדול
6     6   500     5   495 0.0001      200    2000000 מזל גדול
7     7 25000     5 24995 0.000005     10    2000000 מזל גדול
8     1    10     9     1 0.12    480000    4000000 ד'בידנד
9     2    20     9    11 0.095    380000    4000000 ד'בידנד
10    3    50     9    41 0.02     80000    4000000 ד'בידנד
# ... with 445 more rows
```

## Exploratory analysis

Our data table consists 455 observations. The most common ticket price is 20 shekels and the most uncommon one is 9

price	n	prop
<int>	<int>	<dbl>
20	168	0.369
10	88	0.193
50	74	0.163
5	34	0.0747
30	31	0.0681
15	18	0.0396
40	12	0.0264
100	12	0.0264
75	10	0.0220
9	8	0.0176



## Exploratory analysis

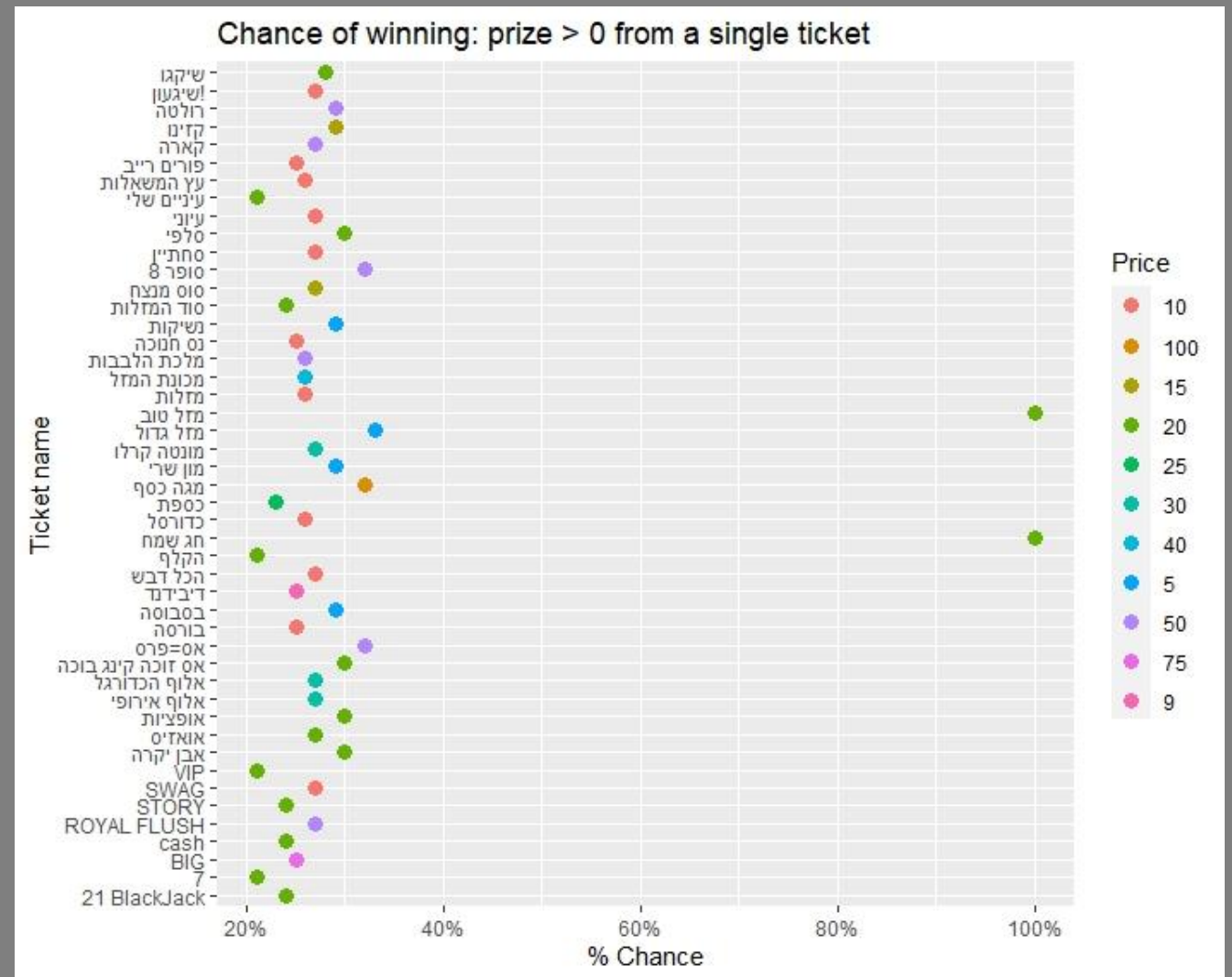
The graph shows the chance of winning something, categorized by color = ticket price

**the two green dots at the right**

**side of the graph represents two**

**cards with 100% chance win rate.**

Hurray! We have found a goldmine, don't we? well, not really.



The graph is overwhelming at first but no worries it will be polished in the next few slides!



## Exploratory analysis

by looking at the data table we find the two green cards we saw earlier have 80.2% chance of losing 10 shekels.

prize	price	net_win	chance	name
<int>	<int>	<int>	<dbl>	<chr>
10	20	-10	0.802	בן זיו
10	20	-10	0.802	מנחם

High chance of actually losing.. Interesting!

## Exploratory analysis

Filtering the data to show the  
highest chance among all tickets  
reveal that most of the time we  
will breakeven.

The two tickets we saw earlier  
are exceptions.

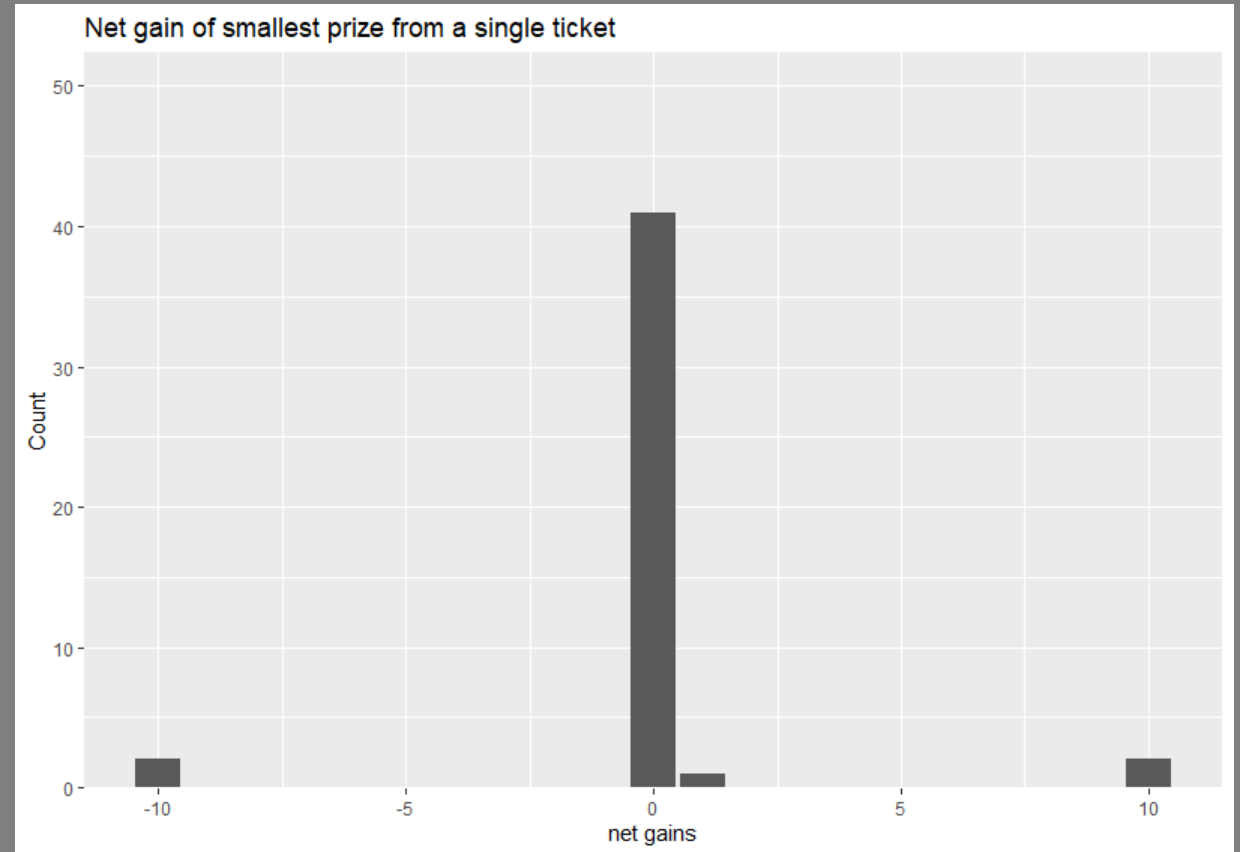
	price	prize	chance	name
	<int>	<int>	<dbl>	<chr>
1	5	5	0.16	חזל גדול
2	9	10	0.12	דיבידנד
3	10	10	0.12	בורסה
4	10	10	0.12	חזלות
5	10	10	0.112	כדורסל
6	10	10	0.126	נס חנוכה
7	15	15	0.13	קזינו
8	15	15	0.12	סוס מנצח
9	20	10	0.802	חזל טוב
10	20	20	0.104	21 BlackJack

High chance but no win..

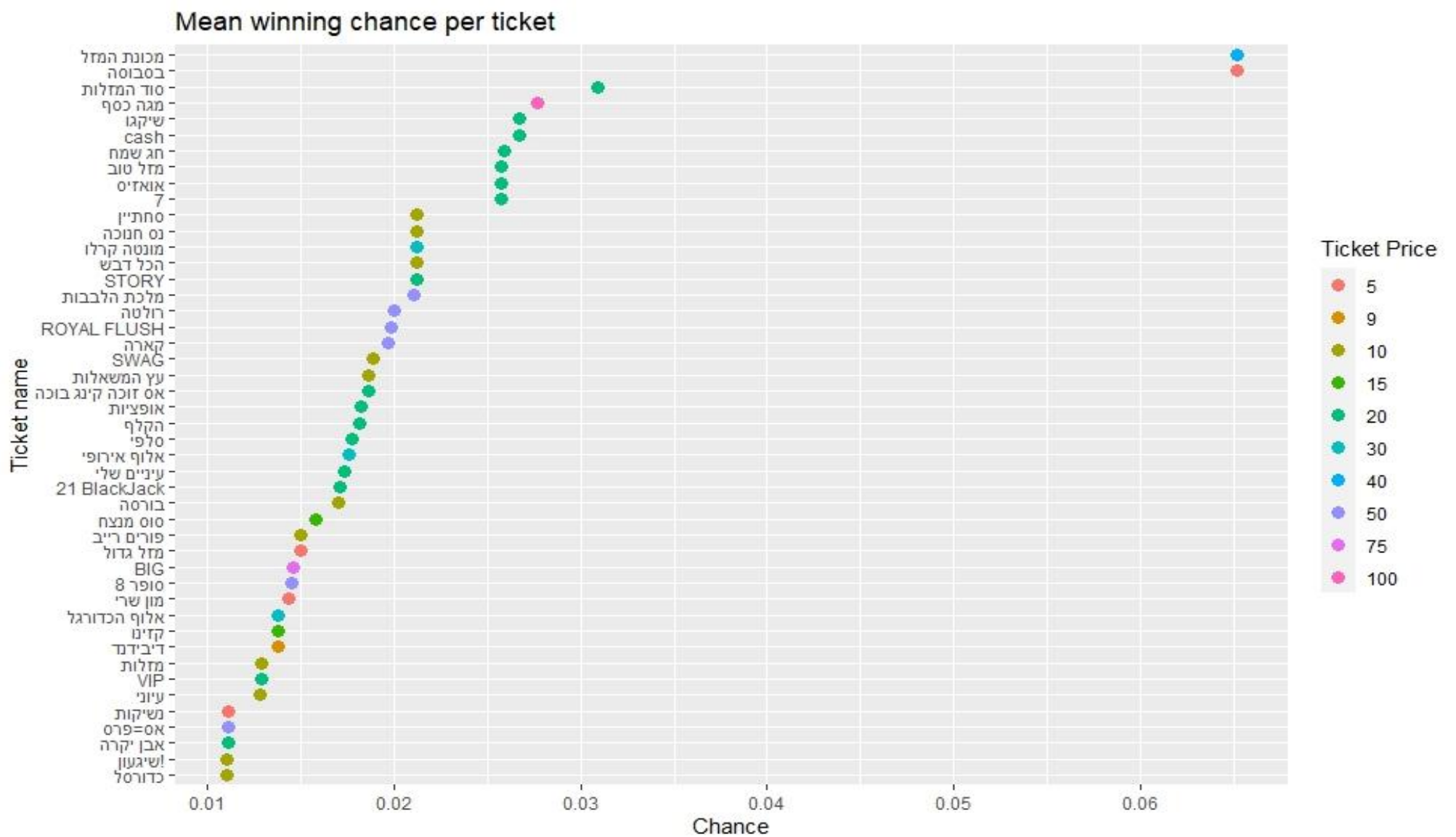
## Exploratory analysis

We can see that most of the cards that have a high win chance are not profitable.

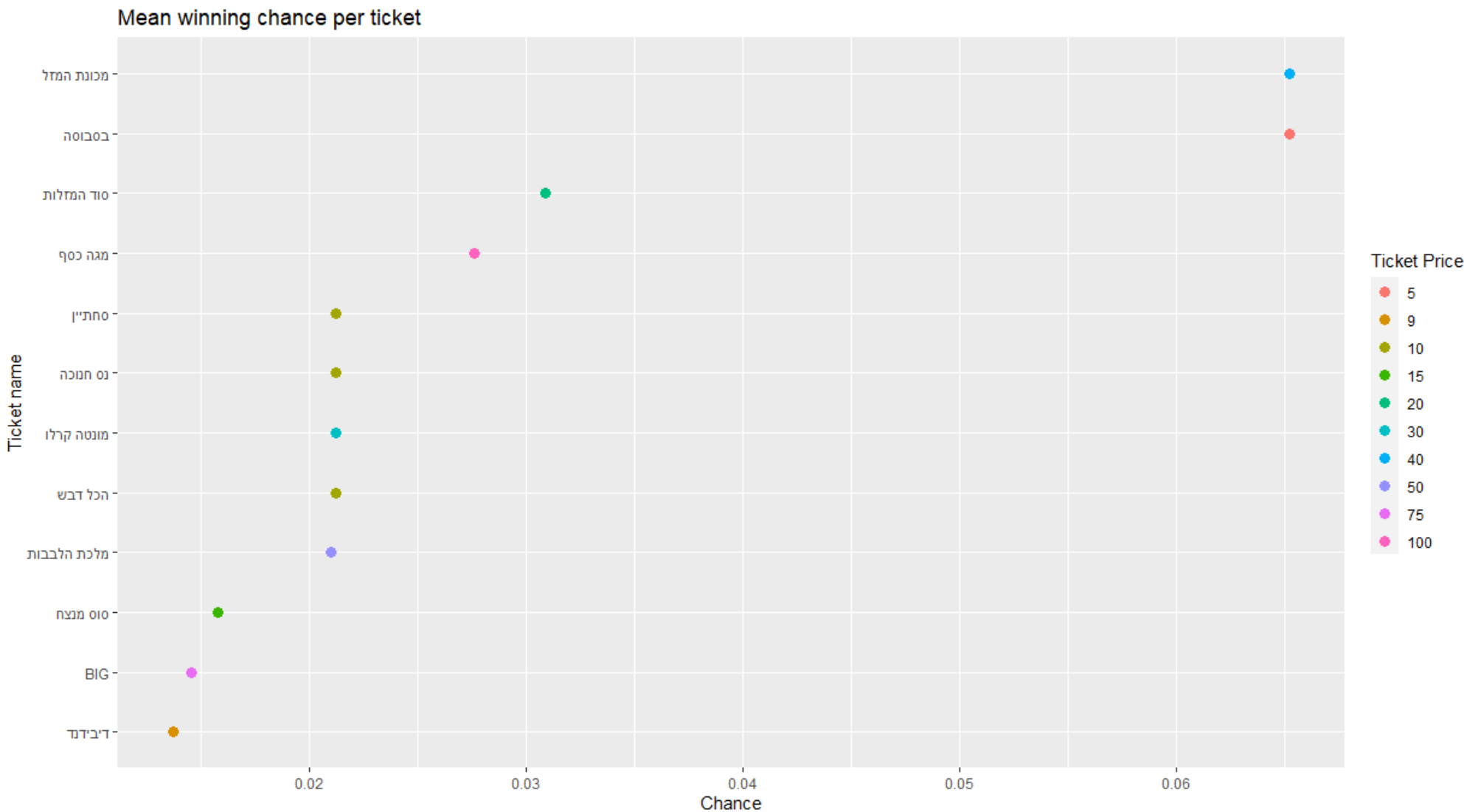
So which card has better chance to make a buck?



This graph represents the mean chance of ending with a positive return from all the tickets.



In this graph, I've made it easy for you to see the cards with the highest chances to make a profit on average among all tickets.



# Conclusion

We have found that cards with the same price have different chances of winning, and some of them are better options than the others on average.

Now you know the secret, So the next time you buy a scratch ticket remember which card gives you better chances and..good luck!

Thanks for watching!

