Monty Hall Game

(For background and discussion: https://en.wikipedia.org/wiki/Monty_Hall_problem)

Suppose you take part in a game show where the prize is a car. You are given ***the choice of 3 doors:*** there is a car behind one door, the other two doors have goats behind them. You pick a door, and the host, who knows what is behind the doors, opens another door to reveal a goat. Then, he asks you: "Do you want to pick the other door or stick to your initial choice?" Is it your advantage to switch the door?

The problem is solved by simulation executed in ***Matlab*** language.
We decide to simulate with 10 000 times.

The result is : If we switch the door, the probability of winning is 66.9%. If we choose to not switch, the probability of winning is 33.1% as in figure 1.

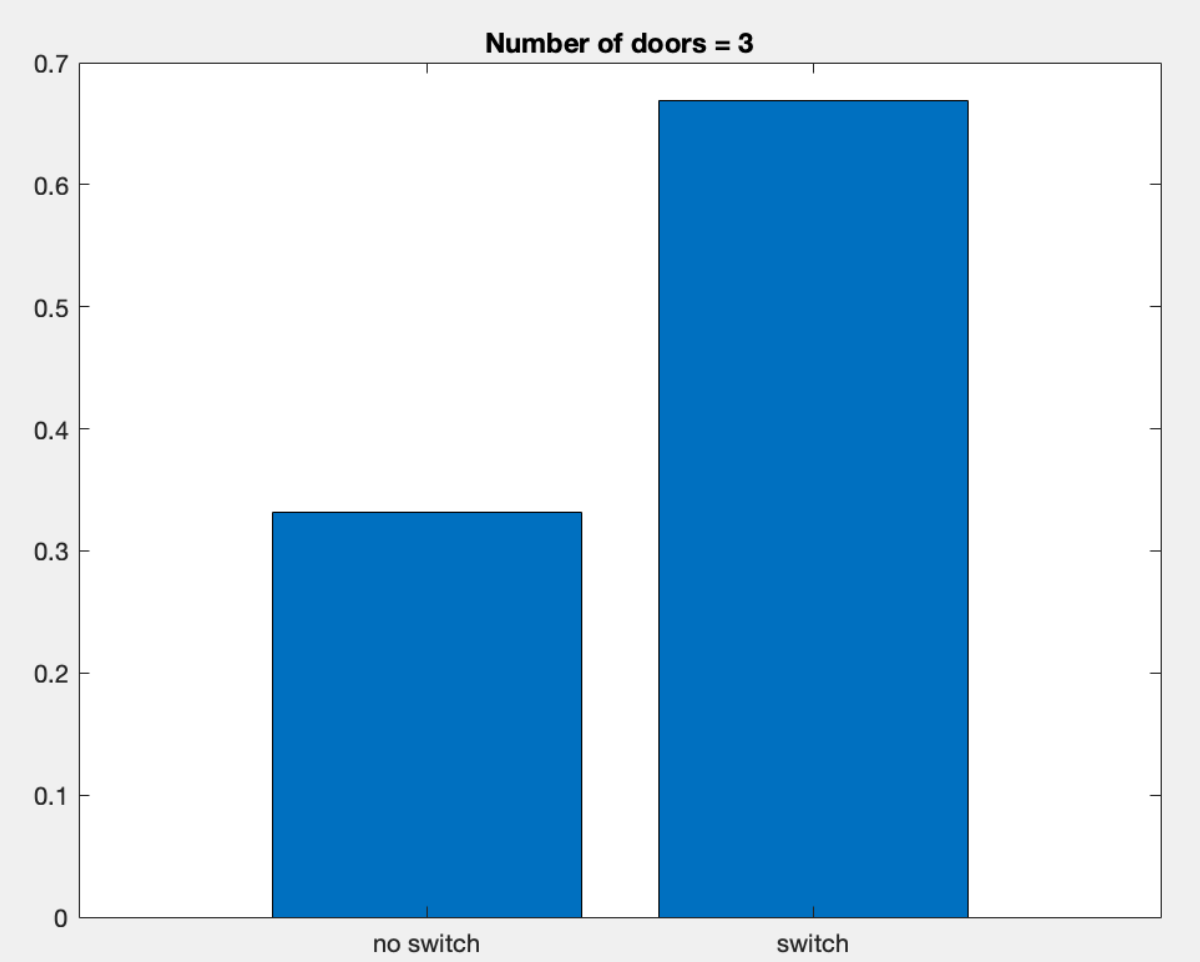

Figure 1.

Similarly, this time, we will ***increase the number of doors to 5 doors***.
The result shows that the probability of winning now drops to 27% but still higher than probability of not switching with 20% as in figure 2.

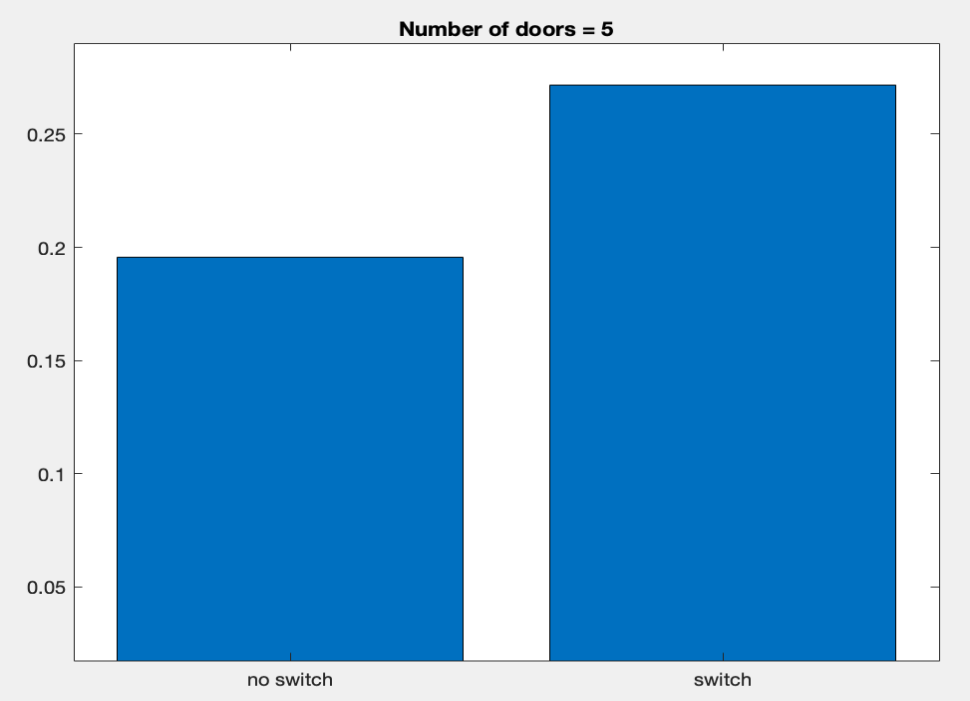

Figure 2

Finally, we ***increase more the number of doors here to 10***. The probability now drops to 11% for switching door choice and 10.3% winning for not switching the door as in figure 3.

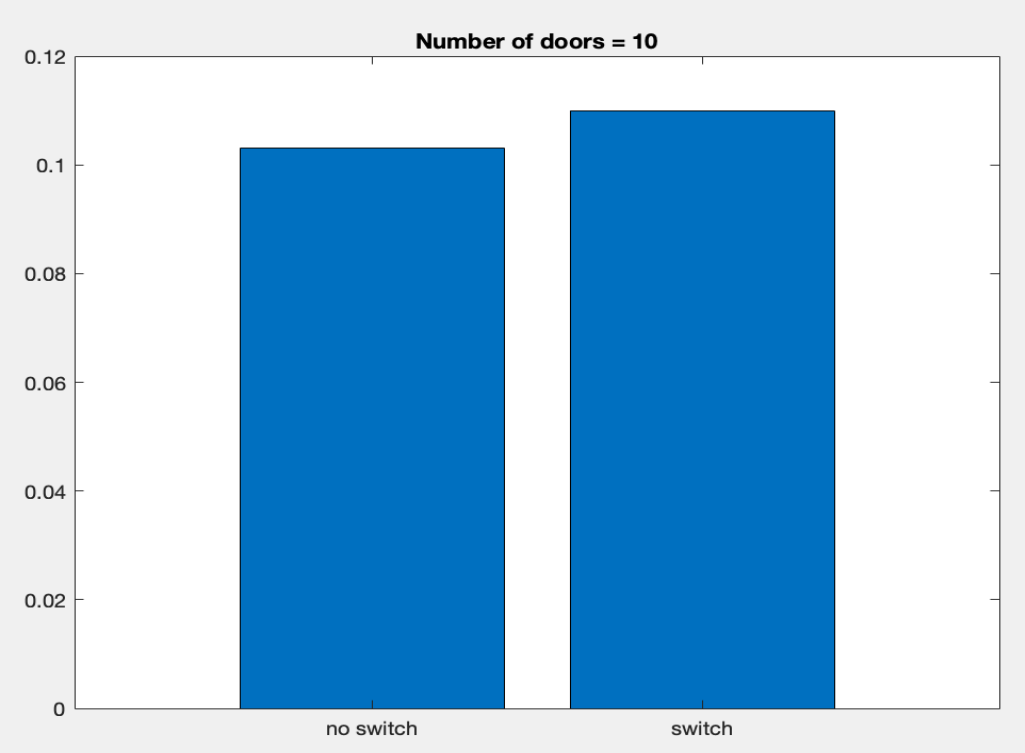

Figure 3.

We can easily notice the more doors, the lower probability of winning for both choices and the gap between them also gets smaller.