An Overview of Illusion of Validity

Qinye Zhao

High School attached to NENU

*Corresponding author. Email: 484860660@qq.com

Abstract. The main topic of this article is the "illusion of validity" and through two experiments: Decision-predition in chess game and NBA game prediction to discuss this theory in real life.Compared to other behavioral economics theories with a large data base, the illusion of validity is still far from real life.The aim of this essay is to elaborate the illusion of validity theory from the perspective of life.The results of the experiments prove that Whether it's ordinary people with no experience in decision-making or experts with the right to speak in a certain field, they will both have this bias(illusion of validity).Either participations have much confidence in the correct rate of their decision-making, or they will not predict the correct results at all.

Keywords: Illusion of validity, Decision-making Confidence, NBA game prediction.

1 Introduction

In recent years, the theory of illusion of validity is applied in many scientific areas, especially in medicine. "Ischemia is not an antecedent of most preterm brain damage" people in medical commodity think that encephalopathy of prematurity is attributed to hypoxia (ischemia), although there is litter evidence to back this point up. Gilles thought the way people describe this illness is overly simplistic, and the term "hypoxia" will limit the options for change when scientists understanding of the etiologies advances (Gilles. F 2017) [1]. But through several researches the author did, this theory (illusion of validity) also can be applied in the real life.

The author is interested in NBA game and liked to predict which team will win the final championship. The author also browse many professional website to see what the experts' prediction. After a long period of experience, the author find the results that experts give are not that right, so the author have incentive to see why expert can not predict right. One of the important reason is the illusion of validity, and then the author come out another question: the illusion that experts have whether appear on the normal people or not. So the participation in the two experiments are different. The first experiment is to analyze normal people's predictions. The second experiment is to analyze experts' predictions. Two experiments make up this theory for the real life application.

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2 Literature review

The illusion of validity is an important part of behavioral economics. Scientists combine the perspective of psychological research with economic science, and it has long been believed that economics and psychology are greatly different in the study of human decision-making behavior: economics holds that external incentives shape people's behavior, while psychology, on the contrary, holds that internal incentives are the factors that determine behavior. In the process of constantly revising the hypothesis of "economic man", scientists saw the defects of the premise of economic rationality, and found that simple external factors could not explain complex decision-making behaviors, thus formally introducing the internal views and research methods of psychology into economics.

Amos Tversky and Daniel Kahneman first mentioned this concept in their 1973 paper "Predictive Psychology." Illusion of validity is a cognitive bias in which a person overestimates their ability to interpret and predict accurately the outcome when analyzing a set of data, in particular when the data analyzed show a very consistent pattern—that is, when the data "tell" a coherent story (Kahneman & Tversky 1973) [2]. Different heuristics and cognitive biases are often intertwined. "a person's tendency to register the frequency of events more than their probability"; "the impossibility of gathering information about alternative assumptions if action is based on a hypothesis"; a "disregard of base-rate information"; and "the self-fulfilling prophecy," or "a behavior manifested in individuals or groups because it was expected."(Dierkes 2001) [3].

3 Methodology

The research include two experiments. The first experiment took place in school. The student Union held a Online chess championship(five-in-a-row). Through questionnaires to collect primary data, let the participants who are audiences predict the outcome of the players and the direction of each game of chess. The second experiment is about Tencent Sports Prediction. The author collect and use the secondary data. The participants are the Tecent Sports basketball commentators. Main methods of the research is positivism and using a lot of data to prove that this theory still holds true in real life. Because this essay assumes that the illusion of validity is true in real life, with the support of data, this hypothesis can be strongly proved. That’s why the author choose positivism as basic of this essay.

3.1 Experiment 1

From 2022 June to July, the students in Changchun experience a long period of lock down due to the COVID-19. The traditional school event Chess Championship was held online. In order to improve audience participation, the researchers designed an original point system similar to sports gambling. The whole project itself is designed to collect correct data：

3.2 Voting Rules

*The ballot must be filled in with decision maker's real English name, otherwise it will be invalid.

Everyone can choose to participate in this program and there are big prizes for the top three

Each decision maker has an initial score of 100 and can vote before each round. The odds are calculated according to the number of votes obtained by the decision maker. The fewer decision makers who support player A, the lower the odds are, if player A wins, the points will double

Only in the first round, each decision maker's vote has the same value, which is 10. In the second round, each decision maker's vote is one fifth of his total score at the end of the last round. If the decision maker finish the first round with 100 points, and then the decision maker's vote in the second round is worth 20 points, and if the decision maker finish the first round with 150 points, and then the player vote in the second round is worth 30 points, and the third round is an all in

In case there are no points available in the second round, the points protection will be enabled in the first round, which means that if the player make a mistake in the first round, the decision maker will not lose points. For example, if the decision maker make a mistake in all ten players in the first round, the decision maker will still have 100 points left. At the end of each round, the decision makers' match results and points ranking will be announced.

The entire points gambling system is divided into two parts, make sure to fill in all the options

* Please make sure to fill in the confidence value option in the last column of the system. (1-10) If you do not fill in the questionnaire, it will be invalid

3.3 Calculation rules

If the decision maker vote for Player T in the first round, and there are 4 for Player T and 6 for player R, then the player's odds are 4 divided by 6 = 0.67, which means that if the player T wins, the decision maker will get 10 plus 10 times (1 divided by 0.67) = 25 points. The odds for R are 6 divided by 4 = 1.5, which means that if R wins, the decision maker will get 10 plus 10 times (1 divided by 1.50) = 17 points (rounded).

Following the example above:

The decision maker vote for T player. If player T loses, then I get 10-10 times (1 divided by opponent odds (1.5 at this point)) = 3 points. The decision maker vote for R player. If player R loses, then I get 10-10 times (1 divided by odds (0.67)) = -5 = 0 (minimum return = input + negative of input)

As you can see, both the voting rules and the counting rules ensure that there will be no complete failure for the students. They can always have points in their account to make continuous decisions. The most important question is the "How confident are you in your decision-making" We will mainly study decision makers' judgments about their confidence in their decisions. Also, the students did not know that they

took part in such an experiements. Students only knew they were participate in a point gambling.

The betting system is divided into two main parts

The first part is the prediction of the players themselves such as

Whether player A will win or player B will win?

Who will be the winner of the first year of high school/sophomore year?

What will be the final score

The second part is about the board itself and has nothing to do with the strength of the players such as

How many pieces will end up on the board that are greater than 30 or less than 30

What is the form of the Five pieces: incline, horizontal or vertical

The first part of the question is all about the strength of the players themselves. The second part of the question is about the situation on the field, which has little to do with the strength of the player. We consider this in terms of the rational man hypothesis in economics, and the decision-makers have less confidence in the second part of the hypothesis than in the first part.

Group	Name	Lose per cent	Part one confidence index	Part two confidence index
D	Sean	10.5	8.9	8.7
C	Zoe	4.75	7.4	6.9
A	Henry	1.56	6.8	7.3
B	James	1.56	7.5	7.5
E	Tommy	1.3	6.5	6.3
E	Ryan	0.77	5.1	5.9
A	Chloe	0.64	5.4	5.3
B	Maggie	0.64	5	5.1
C	Vincent	0.21	4.7	4.5
D	Andy	0.09	5.9	4.6

Fig. 1. Chess Championship Prediction Excel

In fact, the first part of prediction as shown in Figure 1 does have a positive correlation with the strength of the players and the data shows a trend from large to small, and the second part of the forecast is similar to the first part of the forecast. Forecasters are trying to link two unrelated data into a story. The player's own strength can determine the environment on the board, although this special environment has nothing to do with strength. Here the decision maker is disturbed by the illusion of validity The decision maker judges the final situation on the field just by the strength of the player.

3.4 Experiment 2

The NBA season begins in mid-October and is divided into regular season and playoffs. The regular season is a round-robin format, with each team completing 82 games; The regular season ends the following April. The top eight teams in each con-

ference qualify for the playoffs that follow. The final round of the playoffs, also known as the Finals, pits the two league champions against each other for the NBA's highest honor, the championship.

Since 2015, Tencent Sports has changed from being the few remaining non-heavy games after only CCTV and Sina have been selected in the past to having the exclusive broadcast rights of new media of the event. In addition, Tencent will also have the broadcast rights to all games of the NBA's 30 teams and other network platforms to play NBA authorization. It is the most professional sports platform in China. The author is a person who often watches the NBA. At the beginning of each season, Tencent Sports invites more than 30 basketball commentators and players to predict the MVP of this year's NBA, the East champion, the West champion and the final champions. Through the data, the author supposed that their predictions can be said to be no different from random guessing.

Tencent NBA 2021-2022 NBA championship predictions

Wang Los Angeles Lakers	Wang Los Angeles Lakers	Zheng Milwaukee bucks	Li Milwaukee bucks	Shi Milwaukee bucks
Xu Milwaukee bucks	Guan Milwaukee bucks	Shen Golden State Warriors	Peng Miami Heat	Wu Miami Heat
Duan Brooklyn Nets	A Brooklyn Nets	Yang Brooklyn Nets	Wang Brooklyn Nets	Su Los Angeles Lakers
Zhao Brooklyn Nets	Guan Brooklyn Nets	Kong Brooklyn Nets	Liu Brooklyn Nets	Wang Brooklyn Nets
Wang Brooklyn Nets	Shen Brooklyn Nets	Kou Brooklyn Nets	Wang Brooklyn Nets	Wu Brooklyn Nets

Fig. 2. 2020-2021 Season Tencent Sport NBA prediction

They will only consider how many stars a team has and give their judgments. In 2020-2021 season,23 critics said at the beginning of the season that the Brooklyn Nets would win a championship and 11 who said Milwaukee The Deer will win the championship But as we all know, the Bucks were eliminated by the Celtics in the quarterfinals, and the Nets only stopped in the first round and were also eliminated by the Celtics.. After the Nets were eliminated, all the experts re-predicted that the Phoenix Suns would win the championship but they were upset by the Dallas Mavericks .Not just this year, the author compared their forecasting records over the past four years, and there are very few experts who are right. It is no different from guessing.

They ignore important factors on the basketball court, such as referee's racial discrimination (Price.J & Wolfers. J 2010) [4] and injuries. However, on social media such as Weibo and Tencent Sports, the commontators are extremely confident. They believe in predictions and make time-wasting predictions again and again.

3.5 Defects of the experiments

The amount of data for the experimental example is too small. The first experiment was attended by only thirty people. The experimental data in the second part is derived from different kinds of media, and the amount of data is also small. In Experi-

ment One, decision makers' predictions about their confidence in making decisions may be influenced by the school's environment. In random interviews after the game, the decision makers explicitly mentioned the irrationality of this option and they did not take other factors into account when making the decision.

4 Conclusion

From the two experiment, the first thing people should understand is that wrong predictions are inevitable because the world is unpredictable, and then people know that don't put too much faith in experts' predictions. Don't have high expectations for long-term predictions made by experts because there is a lot of subjective emotion.

Meanwhile, people can see the illusion of validity has individual effect. For the individual, in response to the unpredictability of the world they live in. People construct narratives that provide coherent explanations for random events [5]. The people fill in the gaps as needed, the less information they have, the easier it is to be confident and then write a satisfying story, the illusion that leads people to believe they know more than we really do satisfy the vanity and forget the fact that they are "ignorant" People's predictions often influence the decisions they make. When individuals feel particularly confident in a prediction, they may be more inclined to make important decisions based on it. This can have unfortunate effects as individuals' forecasts often prove to be inaccurate.

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