

Predicting Lotto Numbers

Evidence on the Law of Small Numbers in the Field

Claus Bjørn Jørgensen (Copenhagen), Sigrid Suetens (Antwerpen), and

Jean-Robert Tyran (Copenhagen)

Abstract

When predicting next week's lotto numbers, one guess is as good another because lotto numbers are truly random. All numbers are equally likely to be drawn, and this is independent of which numbers were drawn earlier. We use a unique data set from Danish Lotto to investigate the Law of Small Numbers (LSN) in the field. The LSN refers to a tendency to overgeneralize from small samples to distributions. The LSN comes in two guises: According to the Gambler's Fallacy, people believe that Lotto numbers that happened to be drawn recently are less likely to be drawn in the near future. According to the Hot Hand Fallacy, people believe that Lotto numbers that were drawn frequently in the past are "hot" and are therefore more likely to be drawn in the future. While there is considerable evidence for the existence of LSN in the laboratory, little is known about LSN in the field.

Lotto data provide an interesting testing ground for the LSN because playing Lotto is a naturally occurring activity undertaken by many people, the Lottery is an excellent random device, and the stakes involved are substantial. Our data set is unique because we can track individual choices over time (panel data).

The empirical analysis shows that both types of fallacies exist among Lotto players. We find that the two biases are not mutually exclusive, but depend on the time-horizon in the way predicted by recent behavioral theory.