

Statistics predict France and Germany as UEFA EURO favorites

May 31 2016



Univ.-Prof. Dr. Achim Zeileis. Credit: University of Innsbruck

When Europe's best national football teams kick off the UEFA EURO 2016 on June 10th, host France and World Cup Champion Germany will, mathematically speaking, also be the odds-on favorites as statisticians headed by Achim Zeileis from the University of Innsbruck show. By applying their statistical model based on bookmakers' odds, the researchers previously correctly predicted the 2008 EURO final and Spain as the 2010 FIFA World Cup Champion and the 2012 EURO Champion.

There is a high probability that the friendly game between France and Germany, which took place in Paris on 13 November 2015 was abruptly interrupted by the terror attacks, will be replayed as a [tournament](#) match at this year's EURO semifinal. The winner of this match will most likely play against Spain in the final as the results of a study carried out by statistician Prof. Achim Zeileis from the University of Innsbruck and his two colleagues Dr. Christoph Leitner and Prof. Kurt Hornik from the Vienna University of Economics and Business (WU Vienna) show. The scientists have applied a [statistical model](#) that proved reliable in forecasting the results of the last two EURO and FIFA World Cup events: the bookmaker consensus model. To forecast the winner, the academics obtained long-term [winning](#) odds of 19 online bookmakers, which, in combination with complex statistical models, allow for the simulation of all possible courses of the tournament and results. According to this model, France will be the most likely winner of the tournament with a winning probability of 21.5 percent, closely followed by Germany with a winning probability of 20.1 percent. The defending European Champion Spain follows, after some gap, with 13.7 percent, while England and Belgium are the "best of the rest" with lower winning chances of 9.2 and 7.7 percent respectively.

Spain will lose in the final

The bookmaker model also allows the prediction of the likely teams for

the final game, by simulating the whole tournament 100,000 times and assessing who will proceed from the group-phase to the round of 16, the quarter and semifinals and eventually to the final. "In all models, France and Germany are determined the clear winners within their group.

Therefore, it is much more likely that these two teams will meet in the semifinal rather than in the final - the winner of the semifinal will most likely play against Spain," explains Zeileis. Because of high uncertainty, due to the high number of teams and new tournament rules - 24 teams instead of 16 start off the tournament - predicted probabilities for particular pairings decrease compared to general winning predictions: The probability that France and Germany play against each other in the semifinals is higher (7.8 percent) than playing in the final (4.2 percent). Since both teams are estimated to be equally strong, with France having a very small lead, the probability to meet Spain in the final is 5.7 percent for France and 5.4 percent for Germany. Both teams are estimated to win against Spain with a probability of 56.3 percent for France and 55.8 percent for Germany.

Bookmaker knowledge and statistical expertise

"The bookmakers want to make money and, therefore, base their odds on the most realistic results. They not only take historical data into account but also the tournament draw and short-term events such as injured players," says Zeileis. This system is an excellent basis for the model developed by Zeileis, Leitner and Hornik. "We still have to adjust the quoted odds of the bookmakers for profit margins before we can derive probabilities." The quoted winning odds show general winning probabilities for each team. In addition, the statisticians calculate the probability of each team to meet and win against another team. Together with the expectations of the bookmakers, the pairwise winning probabilities are added to the computer model, which then runs a simulation of every possible course of the tournament. "Compared to other models, ours has the advantage that it also yields 'survival'

probabilities of each team over the course of the tournament," explains Zeileis. However, he also adds: "We are still a long way from predicting the outcome with 100 percent certainty." For example, at the FIFA World Cup, 2014 Brazil was considered the odds-on favorite by both the researchers' statistical model and the bookmakers but the team lost the semifinal against Germany; and they also predicted Spain to play in the semifinal. "It is in the very nature of predictions that they can be wrong, otherwise soccer tournaments would be very boring. We only deliver probabilities and not certainties." Thus, we can still look forward to an exciting football tournament until the final whistle blow.

More information: Predictive Bookmaker Consensus Model for the UEFA Euro 2016: [EconPapers.RePEc.org/RePEc:inn:wpaper:2016-15](https://econpapers.repec.org/RePEc:inn:wpaper:2016-15)

Provided by University of Innsbruck

Citation: Statistics predict France and Germany as UEFA EURO favorites (2016, May 31)
retrieved 25 April 2024 from

<https://phys.org/news/2016-05-statistics-france-germany-uefa-euro.html>

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