

Fact or fiction? 'Form' in football

Always back a striker in form to score... or should you? A new book explodes some of the widely held beliefs about the game, as Nick Harris discovers

Wednesday, 8 October 2008

The leading striker at your club – or for your country – has just banged in a hat-trick. He must be in "form", mustn't he? And thus more likely than average to score in his next game as well? No, actually.

According to a new book, the concept of "form" in football is a myth. Analysis suggests that the goalscoring runs of even the supposed "hottest" strikers are no more attributable to a "form streak" than they are to chance.

The book, *Myths and Facts About Football*, draws together academic research from around the world, taking to task widely held notions about the beautiful game. Many intuitive beliefs are shown to be flawed. Teams do not run a greater risk of conceding just after scoring. Home teams in penalty shoot-outs have no advantage.

By subjecting what happens in football to scientific and mathematical tests, economists and psychologists argue that other "football phenomena" are indeed provable. Second-leg home advantage in two-legged cup ties is real. Teams that celebrate goals collectively achieve better results. Penalty takers who shoot down the middle have the best chance of scoring.

"There really is a gap in the understanding of football that could be filled with more rigorous scientific analysis of what happens," says Professor Peter Ayton, a psychologist at City University, London, and one of the book's editors and contributors.

"These days on television, you see discussions about football that are more prominent than the football itself, but most of it is just opinion. My field, psychology, shows judgement, even of so-called experts, shouldn't be trusted on its own. Where you can actually check something with data, why not?"

Professor Ayton accepts that the work of "data fiends" in football is in its infancy, and that only when larger-scale studies on more aspects of the game are completed will it gain wider acceptance. But as one of his fellow "fiends" writes in the book's preface: "Data can tell you far more than commentators, experts, former players or casual pundits. Objective measurement is not just a way to rank and value players, but the only way. A statement made about football that can't be quantified and tested using data is a non-statement.

"Over the next 10 years, managers are going to twig to this. When there are millions of pounds at stake they aren't going to go on valuing players by reading football magazines and watching a video, are they? So we, the data fiends, are going to take over the world... Starting with this book."

Fiction: Strikers have periods of 'hot' form when they are more likely to score

A widely held belief in strikers' "form" was echoed by a researcher's survey of Premier League players, a large majority of whom believed scoring goals increased the chances of goals in the next game. But a statistical analysis of goals "by the 12 leading forwards in the Premiership for 1994-95 and 1995-96 seasons" showed "no significant association" between one goal and another.

For example, Alan Shearer scored in 79 per cent of home games (34/43). But when he had failed to score in his previous home game his rate was 85 per cent (17/20). In other words, his form was "hotter" when he had not scored, although not significantly hotter, statistically. The same pattern was observed for Shearer away from home, and overall. The same analysis was done on 11 other players – Beardsley, Cantona, Fowler, Le Tissier and Sheringham among them – and "none of the associations for any player, home or away, show a pattern of scoring such that players are more likely to score if they scored in their previous game."

Ayton accepts there is a "plausible" logic in the belief in form – in other words, that goals lead to confidence and

goals and a virtuous cycle – but says it is just as plausible to say that goals lead to complacency. The stats show neither. "Form" as a generic concept in football is as likely as "form" for heads or tails in a series of coin tosses.

Fact: Second-leg home advantage exists

Home advantage is a well established phenomenon across many sports, including football. But it is also statistically and significantly true that in two-legged cup ties the overall advantage falls to the team playing at home in the second leg.

Research led by a London-based French academic, Lionel Page, considered 6,182 European ties (12,364 matches) between 1955 and 2006, and found a probability of 53.77 (against an expected 50) that the home team in the second leg wins. The phenomenon, which has declined over time, cannot be attributed exclusively to extra time and penalties in some second legs. One theory is that more is at stake in the second leg and "home advantage" factors (crowd, familiarity with the pitch, referee bias) intensify in the decisive, second match.

Fiction: Teams run a greater risk of conceding just after scoring

The common gesture of a manager pointing urgently to his head just after his team has scored appears to convey a particular need for "cool" and "focus" at such times. But a study of 127 Premiership matches finishing 1-1 between 1994 and 1996 showed teams are no more likely to concede just after scoring than at any other time. The time remaining after the first goal in each of those games was divided in four. If the myth were true, more equalisers should be observed in the first quartile. In fact, that period produced the fewest goals (16.54 per cent), with the highest percentage (31.5) in the fourth quartile.

Fact: Goalkeepers dive too often for penalties, as opposed to standing still, which is more effective

Two German economists, Wolfgang Leininger and Axel Ockenfels, suggest that the very nature of the penalty kick altered when Johan Neeskens became the first player in a truly high-profile match – for the Netherlands in the 1974 World Cup final – to shoot down the middle, as opposed to one side. He scored.

This "clever innovation" was then successfully replicated by Czechoslovakia's Antonin Panenka in the final of the 1976 European Championship.

To simplify a hugely complicated subject, the perception of the "penalty game" shifted from being two-strategy (left or right) to three (middle as well), and the theoretical chances of success for strikers rose. One study of 459 penalties in France and Italy from 1997-2000 (Chiappori et al, 2002), showed that kicking down the middle, on average, has the highest success rate, of 81 per cent, against 70.1 per cent success aiming to the right corner, and 76.7 per cent to the left. But the convention of "right or left" holds sway, generally. A separate study by two Israeli academics suggests staying in the centre of the goal might enhance a goalkeeper's chances of making a save.

In a study of 286 spot-kicks, they observed that goalkeepers who stayed in the middle saved a much higher proportion of kicks aimed at the middle compared to keepers making dives for shots placed to the sides. But to simplify again, numerous studies suggest an "action bias" in goalkeepers: they would rather move and fail to save than stay put and fail, even knowing that staying put might be a better strategy.

Fact: Teams who celebrate goals collectively achieve better results

A psychological study of scorers' behaviour following each of 125 goals in the Israeli Premier League in 1992 assessed where the player immediately went (crowd/coach/team-mates), his destination (off field/toward crowd but not off pitch/where most team-mates were) and number of players making contact with the scorer.

"Post-scoring behaviour was found to be a fairly good predictor of team success," the researchers found. Whether cohesion equals success, or vice versa, needs further study, although coaches are advised that post-scoring behaviour can provide "useful information about the players' attitude towards the team".

Fiction: Taking the lead just before half-time makes a win much more likely

An analysis of Premiership games between August 1992 and October 1995 showed that 355 matches had a 1-0 scoreline at half-time. A survey of Premier League players showed that footballers had a belief that scoring just

before half-time was better than earlier in the game. But the researchers say: "The time when that goal was scored doesn't have any effect on the game; rates of win, lose or draw hardly vary at all [statistically] as a function of when the first goal was scored."

However, while this study suggests that success via late first-half goals is myth, Professor Ayton also cites a larger, more recent study, of almost 20,000 games, that suggests a discernible, but not large, advantage in scoring just before half-time.

Fact: Player performance is strongly affected by relative income

Or in other words, when a player's salary rises (or drops) relative to his team-mates' pay, his performance improves (or declines). German and Swiss economists demonstrated this by studying goals, assists and ball usage (and salaries) of players at 28 clubs in the German *Bundesliga* between 1995 and 2004. The "robust findings" show the relationship is not simply that "better players earn more" but that the "causality runs from pay to performance, not the other way round". Willingness to perform, as in many jobs, depends on relative pay.

Fiction: Starting a penalty shoot-out is an advantage

A study into performance under pressure examined 95 penalty shootouts in the German FA Cup between 1986 and 2006. The results found "no grain of truth" in the idea that taking the first kick in a shoot-out held any advantage. Nor did home teams fare any better, statistically, than visitors. The researchers said: "It is particularly noteworthy that the relative frequency of the home team winning in a shoot-out, is, in fact, considerably smaller than the frequency of home teams winning in a match during the regular season... 'choking' could influence penalty conversion of home team players negatively."

'Myths and Facts about Football: The Economics and Psychology of the World's Greatest Sport', edited by Patric Andersson, Peter Ayton and Carsten Schmidt (Cambridge Scholars Publishing), will be published on 1 November. Paperback £12.99; hardback £39.99. Available via www.c-s-p.org, at amazon.co.uk, or order in any bookshop (ISBN 9781847186225)