



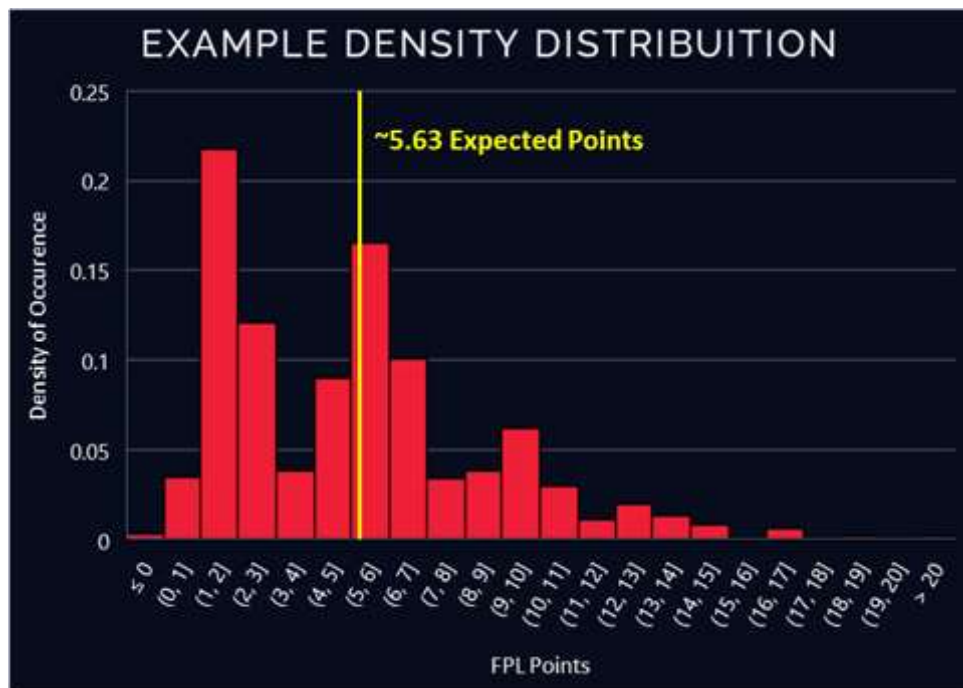
EV (Expected Value) is a concept that has started to gain traction in FPL, while there is a certain hesitancy among many to view the game in numbers this concept is clearly applicable to FPL in much the same way it is applied in Poker and other chance based games.

The aim of this post to help users who may not be familiar with this concept or would like to learn more. This should also aid in the use of the [Massive Data](https://web.archive.org/web/20211016171017/https://fplreview.com/massive-data-planner/) (<https://web.archive.org/web/20211016171017/https://fplreview.com/massive-data-planner/>) & [Implied Odds](https://web.archive.org/web/20211016171017/https://fplreview.com/team-planner/) (<https://web.archive.org/web/20211016171017/https://fplreview.com/team-planner/>) tools on the site- [check out this article for some background on these models](https://web.archive.org/web/20211016171017/https://fplreview.com/2020/02/a-goalscoring-model-more-predictive-than-inferences-from-bookmakers/) (<https://web.archive.org/web/20211016171017/https://fplreview.com/2020/02/a-goalscoring-model-more-predictive-than-inferences-from-bookmakers/>).

What is EV?

The key concept here is the idea that we can estimate the percentage chance of several outcomes before a ball is kicked. For example before a match we might think there is a 50% chance Benjani was going to score 0 goals, 30% chance he would score 1 and a 20% chance he would score two. His mean output can be calculated to be 0.7 goals based on these beliefs.

In terms of FPL points this clearly gets quite a bit more complicated- we need to think about each element that contributes to points and all the risks involved (Gametime, Goal, Assist, Clean Sheet, OG, Cards, Bonus etc.) and assign probabilities to outcomes for each of these elements. Below is a fictitious example of a forward and their probability density distribution for a specific match.



Example Probability Density Distribution

This histogram is the expectation for the player and EV models are really generating this type of prediction for each player.

Rather than think in terms of this clunky graph we can determine the players EV by summing each outcome value proportionally to the probability of the outcome happening- in this case the player has an EV of 5.63pts.

Sometimes people may wonder how a predictive model can be good if they never predict a player will score 20+ points, despite the fact that this happens in reality. This is a core misunderstanding of EV- the idea isn't that this player will magically score 5.63pts, it's that his mean outcome is 5.63pts and that may contain for example a 0.5% chance of 20+ points. Effectively the prediction is truly the plot shown above.

Does the shape of this distribution matter?

Generally players in similar roles with similar points expectations will have extremely similar distribution shapes- with 'longer tail' picks sometimes preferred as a method of increasing potential relative variance. Assuming equal EV- Sterling would be a 'longer tail' player compared to de Bruyne for example, this is because de Bruyne would be likely to get more goal involvements but be dominated by assists, while Sterling would be focused on 5pt goal events- it's more likely to go very well or terribly for him. This is a means of increasing potential relative variance (ie. things going especially well/badly by chance relative to other users).

The differences are quite subtle however and a far more meaningful of way controlling relative variance is through Effective Ownership (EO) in which truly drastic differences can exist. I would suggest that for predictive modelling we can focus on EV and EO rather than worrying about who is

more likely to score 20 points. Worth noting the idea of upside chasing could equally be called downside chasing and should really be labelled relative risk.

A scenario where 'relative risk' mattered was found in the final GW last season- Chess genius Magnus Carlsen picked the lower EO captain (but similar EV) relative to his competitors while top 10 in the world. While his mean EV didn't stand out his chance of finishing 1st increased (as did his chance of having a relatively bad GW). As things turned out his GW went sour as his captain was dropped- but for this circumstance this was a fantastic move. Finishing 1st in meaningful while ending anywhere from 5th to 15th wouldn't be a big deal for many and as a strategic genius it is no surprise that Magnus made this kind of move.

It is rare to end up in that specific scenario, for more typical situations relative risk just creates a higher opportunity for things to go very, very well or very, very badly (we can't control which direction it moves in however).

Why is EV useful?

Simply put FPL is a game of chance and numbers- we can't control where the ball goes and there is no pre-determined outcome we can rely on. We need to determine the best model we can of the values and risks involved.

While we may be expert on certain teams or players (more than just watching the highlights) it is hard to really have an expert understanding of all 600+ players in the league and calibrate our understanding well. However what we can do is assign an objective expectation to all players- an EV model.

If we determine a player is at 5.63EV we would think twice about taking a 4 point hit to replace him with a 6.00EV player or perhaps it helps alert us to a particularly weak player in our squad and points to a high EV replacement. This can also assist with deciding who to start/bench. Of course we don't need to rigidly stick to EV and it is suggested to factor in personal belief.

Generally in FPL we find ourselves trying to make marginal calls with limited information- without some ability to think numerically we can find ourselves shuffling between an endless grey area of justifiable options trying to find reason or confirmation for a specific choice, or simply taking a hit because it feels like the right thing to do.

Beyond this if we have modelled the pool of players in terms of EV we can run optimisation algorithms (such as in the Transfer Suggestor Tools) which can aid us in squeezing out every bit of EV that we can.



Example of fplreview.com EV Planning Tools

EV also opens up a way to review our past strategy. In the same way a numerical modeler may be drunk on their own model (thanks to [@wee-rogue](https://twitter.com/wee_rogue) (https://web.archive.org/web/20211016171017/https://twitter.com/wee_rogue) for that great phrase) people have a tendency to be drunk on their own mind-models/eye-test too- doubly so as there is no back-testing or record of error. What we can do is use tools such as the [Season Review](https://fplreview.com/season-review/) (https://web.archive.org/web/20211016171017/https://fplreview.com/season-review/)- underlying metrics provide cleaner feedback than noisy FPL points and can let us know if the methods we are applying are truly succeeding or failing.

ExPeCtEd VaLuE iS WoRtHIEsS

The most common complaint for EV models is that the outcome was different. For example picking Gary Breen was the "right" captain choice because he got the most points and Thierry Henry was the "wrong" choice because he got sent off despite having a particularly good fixture and great recent

performances. This is the wonderful land of hindsight bias. A decision should be judged by the available context at the time, particularly when the outcome is known to be heavily impacted by random events- just like in Poker you need to weigh up the risk and simply accept the outcome.

While specialist models such as the ones on this site exist and may or may not be of interest to you, the fact is any decisions we make are based on this concept even if we don't explicitly calculate it. How else do we determine that we want to bring in Shola Ameobi for Yakubu, there is clearly an expectation of greater value but perhaps in a less explicit way- effectively we are using a 'mind-model', though the inputs to that model may range from expert understanding to comically poor ideas and anything in between.

If you are not interested in statistical modelling or using existing EV models the ability to think numerically or at least have an awareness of these concepts should be useful for FPL when weighing up decisions.

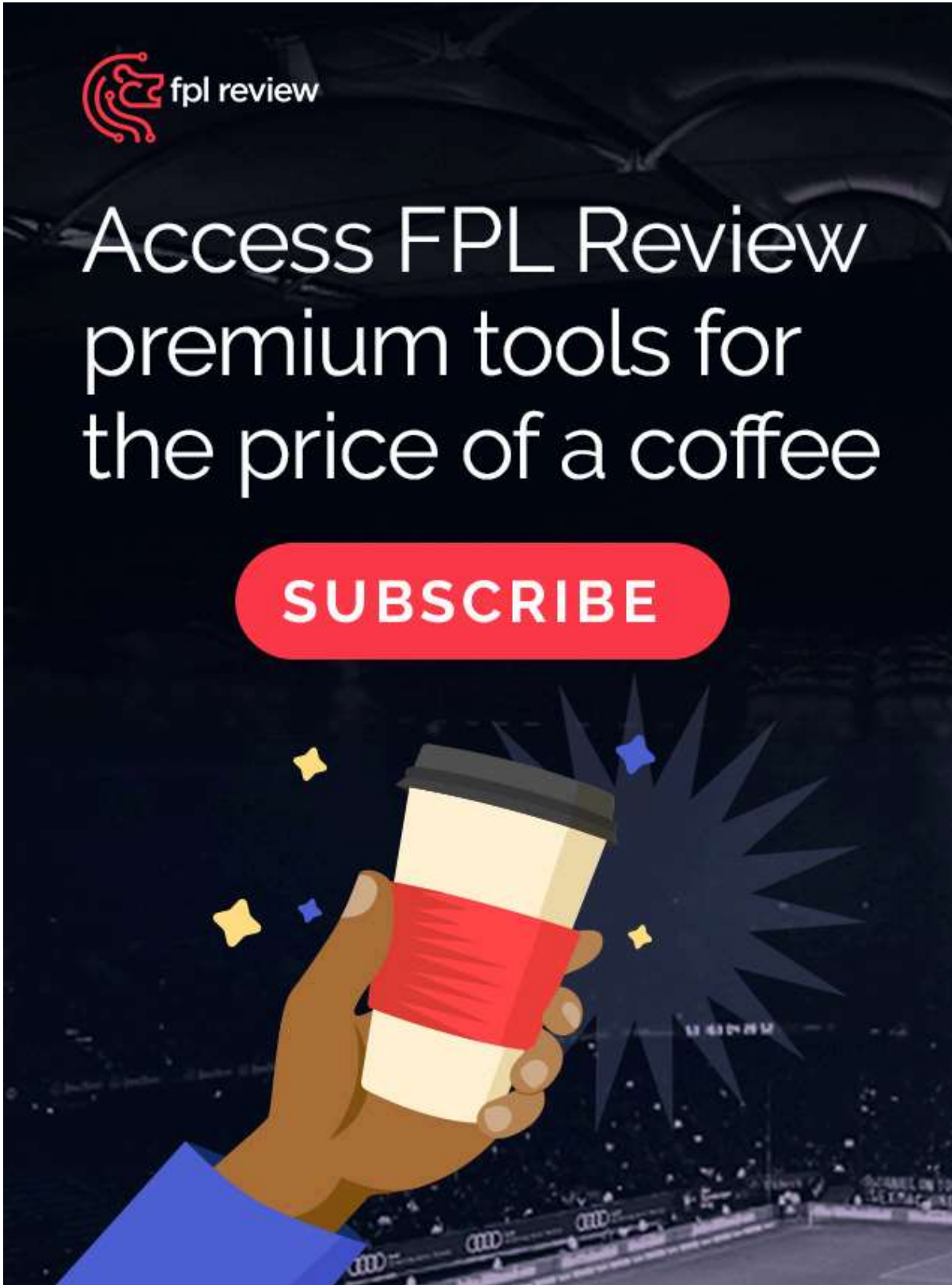
Conclusion

To end I'll share an interesting tidbit @wee-rogue

(https://web.archive.org/web/20211016171017/https://twitter.com/wee_rogue) passed on a while back. One of the original definitions for EV made by mathematicians was actually the term "mathematical hope"

(<https://web.archive.org/web/20211016171017/https://twitter.com/DrElleOBrien/status/1328486023660265472/photo/1>).

This humble term is one I'm sure most FPL EV modelers can relate to, best of luck in your search for mathematical hope!



The advertisement features a dark background with a faint image of a football stadium at night. In the top left corner is the 'fpl review' logo, which consists of a red stylized 'f' and 'r' icon followed by the text 'fpl review' in white. The main text, 'Access FPL Review premium tools for the price of a coffee', is written in a large, white, sans-serif font. Below this text is a prominent red button with the word 'SUBSCRIBE' in white, uppercase letters. At the bottom, there is an illustration of a hand holding a white coffee cup with a red sleeve. The cup is surrounded by several small, colorful stars (yellow, blue, and orange) and a large, dark blue starburst effect. The background of the entire advertisement is a dark, atmospheric image of a football stadium at night, with the Audi logo visible on the advertising hoardings.

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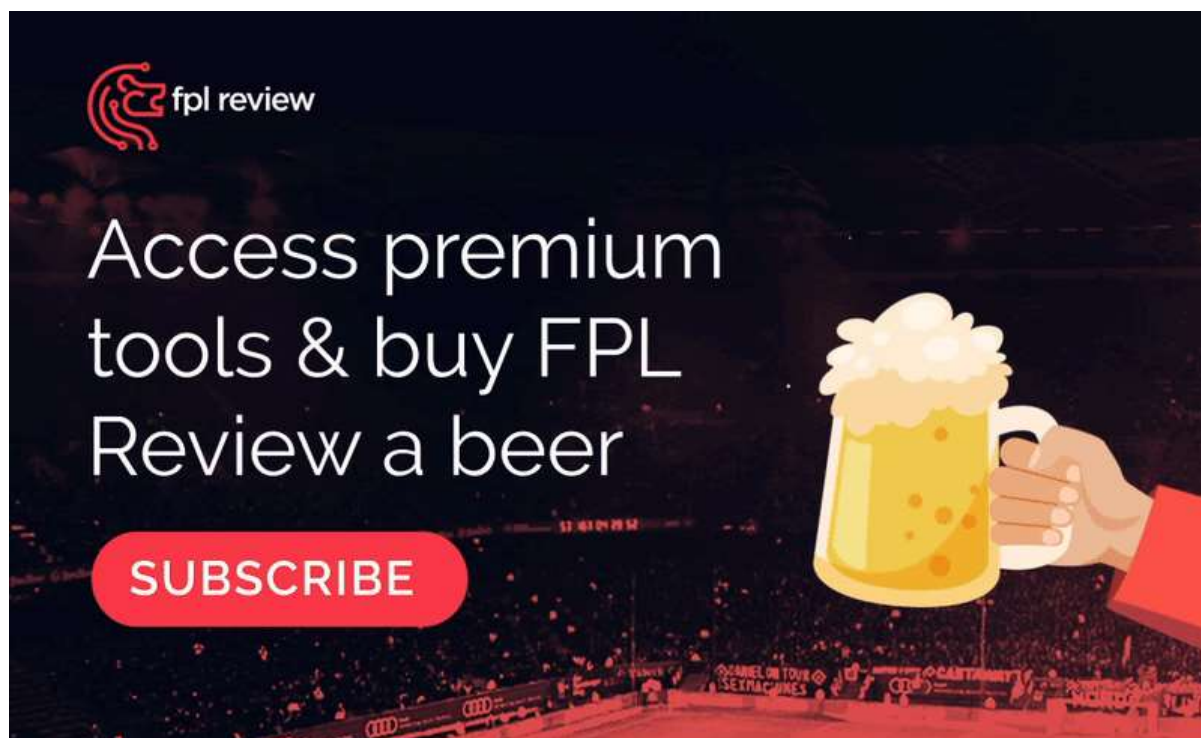
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