

Player Folk Index: a New Tool for Measuring the Social Media Reach of Football Clubs and Players

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May 31, 2022

1 Outline

On-field data in football is a given, with statistics available on every kick of the ball and players' physical performance stats. However, there is also a rich and largely untapped pool of off-field data; namely, players' online footprints. A popular player on social media can translate into strong and lasting ties with fans around the world, particularly when the player represents a diaspora. For example, over an observation period of the Scottish Premier League (SPL) during the 2020-21 season, Australia represented the second largest generator of YouTube traffic for Hibernian FC. A main driver of this was the presence of Australian players Jackson Irvine and Martin Boyle, with respective Twitter followings of 11.7k and 21.1k and Instagram followings of 26k and 24.6k.¹

Across and within teams and leagues, there is inconsistent social media presence. For example, in the Scottish Premier League (SPL), 44.4% of players have a verified Instagram account and 36.7% have a verified Twitter account. Within the SPL, for teams with more financial resources these figures are as high as 93% and 50%, while for SPL teams with fewer resources, the figures are 17% and 20%. These disparities are only exacerbated when comparing English Premier League (EPL) players' online footprints: 87.5% of players have a verified Instagram account and 63.6% have a verified Twitter account (i.e. roughly double the proportions in the SPL). Inconsistent social media presence across teams translates to fewer opportunities to expand markets, which creates a cyclical widening gap. Further to this, there is little tracking of off-field data in a focused, consistent way, and the scant data that is available is not publicly accessible.

In this paper, we detail the methodology behind the Player Folk Index (PFI), a novel metric that calculates a player's online reach compared to their on-field value. Players with a higher PFI have a higher 'folk appeal', with online popularity driven by factors additional to their sporting ability (e.g. media appearances outside the sport, engagements with fans online etc). We also provide a novel dataset combining players' transfer values, social media reach, PFI scores, and other demographic statistics. This approach can provide value to football clubs in several ways. It provides a key link between the club and fans and measures players' reach into international audiences. Furthermore, this methodology can fill gaps in a club's social media strategy in terms of measuring which players to interact with and which players may be high-value transfer targets by considering both their on-field and off-field contributions to a club. This may be highlighted by the noise made around shirt sales following Cristiano Ronaldo's 2021 transfer to Manchester United, which provided the club not only with a leading goalscorer but also the most followed Instagram account and fifth most followed Twitter account in the world^{2 3 4}

Due to personal affiliation with the University of Edinburgh, this approach was originally built using SPL data mined in December 2021.

¹Analysis conducted by the University of Edinburgh Data-Driven Innovation network

²<https://www.skysports.com/football/news/11667/12400586/cristiano-ronaldo-new-manchester-united-no-7-smashes-shirt-sale-record-and-causes-media-frenzy>

³<https://socialblade.com/twitter/top/100>

⁴<https://www.socialtracker.io/toplists/top-50-instagram-users-by-followers/>

2 Player Folk Index

Most followers of a football team (and indeed most followers of any sport team) will quickly recognise the idea of players having ‘folk appeal’, and could think of a player whose popularity with fans is driven by factors beyond their on-field sporting ability. Whether due to their length of time at the club, the character of their on-field performances, a sense of humour in media appearances, or international appeal due to their nationality, such players represent an important resource for the clubs in the online space. They can also act as a conduit in social media campaigns, such as kit launches and season ticket sales. Clubs are already paying for a player’s on-field performance, and off-field popularity is an added contribution that may not be fully priced into current transfer costs. In this section, we explain the component parts of the following key metric definition for the Player Folk Index (PFI):

$$\text{PFI}_i = \frac{1000 * \text{Reach}_i}{\text{Value}_i} \quad (1)$$

The scale factor of 1000 is to give more readable output, and means that the PFI measures the number of followers generated per £1000 spent on the player.

2.1 Calculating Value

A player’s value to their team is implicitly given by their transfer value. In theory, there are limitations in defining players’ values by transfer cost. First, transfers only take place at most twice a year. Some players may also stay at clubs for many years and thus will not have an up-to-date transfer value. Fortunately, much work has been done by industry analysts and observers to estimate players’ current transfer values, with this data publicly available on various websites. One popular option is provided by the team at Transfermarkt⁵. Transfermarkt provide extensive data on squad depth, player market value, player nationality, player position, and player age. As well as the depth of data, Transfermarkt provide a very large quantity of data, with information generally available for every team in at least the top five divisions in most countries with a football pyramid. Henceforth, we use the latest estimated transfer value on Transfermarkt as a proxy for a player’s true value for PFI calculations.

2.2 Calculating Reach

In contrast with calculating value, calculating a player’s online reach provides several challenges. We primarily seek a measure of how many active online followers a player has across social media, which immediately poses three questions:

1. **Which online platforms do we measure?** There are many social media platforms that football players use, with the popularity of services changing rapidly over time. To create a meaningful index, we based online followings on two platforms in particular: Twitter and Instagram. This pairing provides several appealing features: cross-generational appeal, clear lists of followers, high adoption by footballers internationally, and frequent high-engagement posts. It is also possible to obtain historical follower data on both platforms, thus allowing us to construct historical PFI estimates in future work.⁶
2. **How do we compare followings across platforms?** If a player has 100,000 Instagram followers and 100,000 Twitter followers, how do we calculate their total reach? Reporting a figure of 200,000 (i.e. additive) is incorrect, as a large number of users will follow the player on both sites. To our knowledge, no work exists to provide an estimate of this overlap: the logistical challenges of calculating our own estimate are currently insurmountable, as even for a small sample of Instagram followers we would have to manually search the entire list of Twitter followers for a match, which may be rendered impossible by missing profile pictures, multiple users with the same name, and different handles across the two sites. Therefore, we use the maximum number of followers across the two sites, as the player has an overall audience that is at least this large.

⁵<https://www.transfermarkt.co.uk/>

⁶An unaddressed limitation here: other platforms may be more popular in other countries (e.g. Weibo in China). As the focus of this paper is to develop PFI for the UK and European football markets, such considerations will likely have minimal impact on the end result. However, as we expand this approach, additional global social media channels will be incorporated into analysis

3. **How do we define active followers?** If a player is making multiple posts with high engagement levels, then the player's reach is more valuable than another player making few posts with dormant follower lists. Thus, we weight a player's reach according to the date and engagement levels of their recent posts.

3 Case Study: SPL

Given the approach outlined in Section 2, how does the PFI metric look for SPL teams?

Team	Average reach	Average value	Average PFI
Celtic FC	118,040	£ 1,901,613	169.31
Rangers FC	133,197	£ 3,258,621	130.98
Dundee FC	38,207	£ 275,182	113.50
Dundee United FC	12,881	£ 299,552	61.99
Aberdeen FC	31,705	£ 657,080	60.59
Heart of Midlothian FC	38,039	£ 520,714	51.31
Motherwell FC	12,244	£ 322,913	44.44
Livingston FC	8,137	£ 270,963	42.84
Ross County FC	7,447	£ 249,850	34.16
St. Johnstone FC	7,411	£ 353,909	22.21
Hibernian FC	10,678	£ 680,231	21.28
St. Mirren FC	3,753	£ 333,739	10.50

Figure 1: Average PFI for all Teams in the SPL

At a team level, PFI generally scales with performance: players for successful teams generally appear to gain social media followers at a faster rate than their transfer value rises. However, even at an aggregate level there are some points of note:

- Celtic have the highest average PFI despite a substantially cheaper squad than Rangers
- Dundee FC and Dundee United FC significantly outperforming squad value on social media
- Hibernian FC are under-performing on social media, despite a high squad value
- High average reach (e.g. Hearts) is not necessarily an indicator of high average PFI, as individual players with low reach and high value rapidly bring down team average PFI without affecting the team average reach

Aggregate analysis gives an idea of which teams are (and are not) engaging fans effectively online. On a player-by-player level, we can see which players are most effective at generating high PFI; learning from these players, or using this information to guide transfer policy or marketing campaigns, can help teams improve the size and depth of fan relations. An inspection of the top PFI 10 players across the league reveals some interesting and diverse sources of folk appeal:

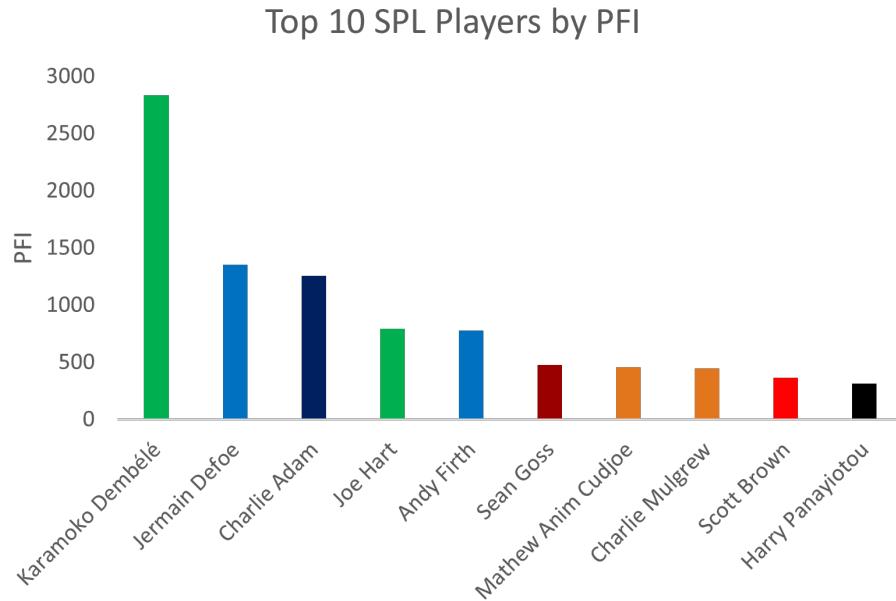


Figure 2: Highest PFI Players in the SPL

Of the top 10 PFI players...

- 40% stem from Celtic and Rangers, compared to 100% of the top 10 SPL players by value and 70% of the SPL players with the largest social media reach
- 30% have transfer values of $\leq \pounds 50,000$, compared to 9% of players across the SPL
- 20% are club captain, compared to 4% of players across the SPL
- 70% have a primary nationality other than Scottish, compared to 52% across the SPL

Thus, the PFI metric provides value to clubs with differing levels of financial resource and can be used as a tool to measure and enhance a club's international audience.

4 Case Study: EPL

The distribution of financial resources across different leagues is very unequal, with the EPL's television revenue making it a global heavyweight sports league. How do the PFI patterns from the SPL map to a league with consistently high levels of investment?

Team	Average reach	Average value	Average PFI
Manchester United	19,453,740	£ 28,280,172	658.22
Chelsea FC	3,373,831	£ 29,716,667	354.16
Liverpool FC	4,827,335	£ 28,883,333	236.78
Manchester City	3,557,380	£ 41,783,478	164.84
Aston Villa	552,343	£ 14,871,600	151.93
Arsenal FC	1,628,373	£ 20,142,000	113.31
Watford FC	204,155	£ 4,850,000	101.05
Everton FC	773,508	£ 15,327,000	76.30
West Ham United	350,092	£ 13,284,375	54.36
Tottenham Hotspur	1,676,848	£ 26,137,500	49.64
Brighton & Hove Albion	181,058	£ 8,896,154	41.29
Burnley FC	60,326	£ 5,448,750	40.70
Crystal Palace	182,515	£ 8,634,808	40.00
Southampton FC	170,467	£ 8,833,846	36.32
Wolverhampton Wanderers	514,470	£ 14,403,750	35.27
Norwich City	213,106	£ 5,993,036	33.50
Leicester City	311,480	£ 17,617,500	28.07
Leeds United	318,183	£ 11,565,000	27.74
Newcastle United	150,082	£ 8,834,400	19.66
Brentford FC	48,501	£ 5,805,000	17.89

Figure 3: Average PFI for all Teams in the EPL

In general, despite substantially higher squad value in the EPL, this does not necessarily translate to a higher average PFI compared to Scottish clubs. Indeed, although none of the SPL clubs has a squad value close to the EPL's lowest (Watford), the top two SPL clubs, Rangers and Celtic, both have an average reach of over 100,000 (higher than Burnley FC and Brentford FC). The result of this is that half of the SPL clubs would be in the top half of EPL clubs by PFI, and both Celtic and Rangers sit around the EPL top four by PFI (on a comparable level with Manchester City). Only St. Mirren has an average PFI below the EPL's lowest (Brentford).

Beyond league-to-league comparisons, there is a similar pattern to the SPL here: in general, better-resourced clubs within the league have a higher PFI. However, this is not always the case, and there are some interesting features to note here:

- Manchester United has an exceptionally high average PFI, driven by both strong average values across the team and strong individual values for superstar players (see Figure 4). Even without Cristiano Ronaldo's 388 million Instagram followers, the average PFI for Manchester United is 339.66, leaving them second in the EPL
- Manchester City and Tottenham Hotspur are both significantly underperforming their squad value in terms of PFI generation. In the former case, recent over-investment in all areas of the squad has attracted expensive players who play few games and thus have less of a chance attract fans. For Tottenham, low average reach may be due to several England players that are not associated with the national team, generating a lower following than international stars
- Aston Villa, at fifth in the EPL by PFI generation, are significantly outperforming their squad value. This is largely driven by international stars, particularly Argentinian goalkeeper Emiliano Martinez (3.6 million followers on Instagram) and Egyptian winger Trezeguet (1.9 million Twitter followers)

Player-by-player analysis again shines more light on the factors driving high PFI:

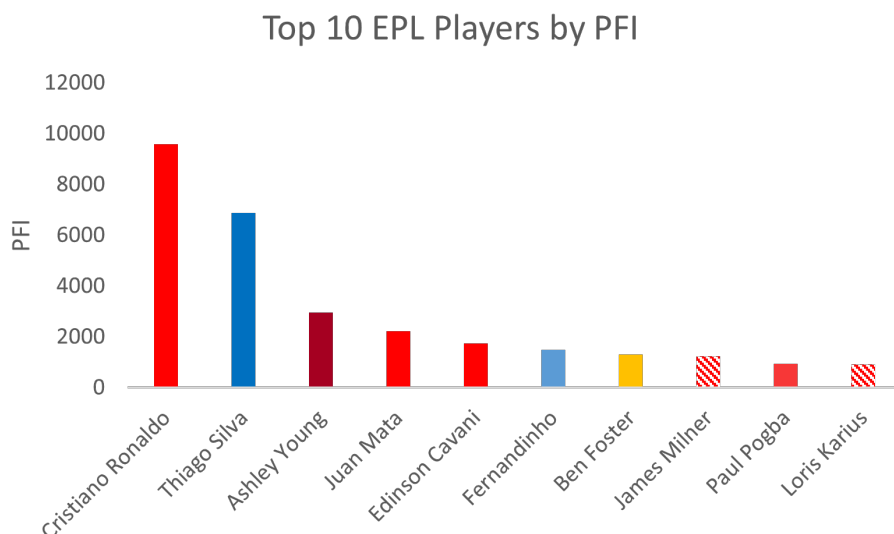


Figure 4: Highest PFI Players in the EPL

High-PFI players are more likely to come from the top clubs than in the SPL, but there is still value available here:

- 20% are outside the top 4 clubs by value (Manchester City, Chelsea FC, Liverpool FC and Manchester United), compared to 79.4% of players across the EPL
- 20% have transfer values of $\leq \pounds 1,000,000$, compared to 8.6% of players across the EPL
- 10% are club captain, compared to 5% of players across the EPL
- 70% have a primary nationality other than English, compared to 64.2% across the EPL

5 Maintenance and Resources

This dataset will be updated monthly at [address], and published open source to facilitate further research. More teams and leagues will be added following publication, according to the following priority ordering:

- English Championship (February 2022)
- German Bundesliga (March 2022)
- Spanish La Liga (March 2022)
- French Ligue 1 (March 2022)
- Italian Serie A (April 2022)
- Portuguese Primeira Liga (April 2022)
- Scottish Championship (May 2022)
- English League 1 (May 2022)
- English League 2 (May 2022)

In parallel, we will be conducting separate work to replicate this approach for the female equivalents of the top European leagues, starting with the Scottish Women's Premier League (SWPL) and the FA National Women's League.