The sustainable squad management rating: an introduction

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1. Introduction

Major teams are built up over a period of years. While the recruitment of new players is important, the overactivity on the transfer market often reflects a lack of strategic planning. Maintaining a sufficient level of squad stability is indeed a key criterion to sustainably managing a team and optimising its performance.

This report presents the approach developed by the CIES Football Observatory to comparatively assess the sustainability of squads based on three elements: players' age, the length of their stay in the employer club and the duration of their contracts. The study covers the squads of the 98 teams from the five major European championships: the English Premier League, the Spanish Liga, the Italian Serie A, the German Bundesliga and the French Ligue 1.

2. Age structure

A first aspect to be considered when building a sustainable squad is the players' age structure. Although the decline in performance does not occur at the same time for everybody, going beyond a certain age inevitably brings mental and physical fatigue. Having experienced players is certainly useful, and even necessary, but too high a dependence on older players can prove to be deleterious.

Reliance on players at the end of their career can be measured by the percentage of minutes played by footballers over a certain age. As defensive players generally maintain their performance for longer than offensive footballers, we have applied here a threshold of 33 years of age for goalkeepers, 32 for defenders, 31 for midfielders and 30 for forwards. The data below refer to the 2020/21 season up until the end of February.

The highest percentage was recorded for the newly promoted Spaniards of Huesca (39.6%), followed by two teams who played each other in the last sixteen of the Champions League: Lazio (38.7%) and title holders Bayern Munich (36.4%). Five Italian clubs are ranked in the top ten, while there are only German and English teams in the bottom ten positions. Among the squads best built to last from the point of view of age are notably Manchester City and Liverpool.

	Figure 1: % of minutes by "old" players, big-5 (2020/21)		
Highest %			
1	Huesca SD (ESP)	39.6%	)))))))))))
2	SS Lazio (ITA)	38.7%	)))))))))))
3	Bayern München (GER)	36.4%	))))))))))
4	Benevento Calcio (ITA)	34.5%	))))))))))
5	Genoa CFC (ITA)	32.5%	))))))))))
6	SD Eibar (ESP)	32.4%	))))))))))
.	Parma Calcio (ITA)	32.4%	))))))))))
8	Sampdoria UC (ITA)	31.8%	)))))))))
.	Girondins Bordeaux (FRA)	31.8%	)))))))))
10	Getafe CF (ESP)	31.5%	)))))))))
Lowest %			
1	RB Leipzig (GER)	0.0%	
.	VfL Wolfsburg (GER)	0.0%	
3	TSG Hoffenheim (GER)	0.4%	)
4	Aston Villa (ENG)	1.1%	)
5	Leeds United (ENG)	1.6%	)
6	Newcastle United (ENG)	2.2%	)
7	FC Schalke 04 (GER)	2.4%	)
8	Fulham FC (ENG)	2.9%	)
9	Liverpool FC (ENG)	3.2%	)
10	Manchester City (ENG)	3.4%	)

3. Group stability

In a collective sport like football, where the sum is much greater than the parts, cohesion between teammates is of key importance. Insofar as it facilitates the development of team routines, squad stability is generally positively correlated to results. The indicator below ranks teams from the five major European championships according to the the amount of domestic league minutes played by footballers recruited after July 2020.

At one extreme, 65.2% of Fulham's minutes were played by new recruits. Similar to the London team, the three other most unstable clubs have had quite poor results up until now: Elche, OGC Nice and Crotone. While cases such as those of RC Lens and Union Berlin show that it is possible to perform well with a fair number of new players, the lack of stability stemming from a short-term squad management strategy usually has a negative impact on the pitch.

At the other extreme, among clubs where new recruits played the lowest amount of minutes, we mainly find teams in the top half of the rankings in their respective championships. Among these notably are three clubs in the top three places in their league: Real Madrid, Manchester United and RB Leipzig. Mainz is the only team among the 10 most stable clubs to be, at the time of writing, in the relegation zone.

Figure 2: % of minutes by new recruits, big-5 (2020/21)

Highest %

		Club	%	
1		Fulham FC (ENG)	65.2%	))))))))))))))
2		Elche CF (ESP)	51.5%	))))))))))
3		OGC Nice (FRA)	51.3%	))))))))))
4		FC Crotone (ITA)	48.0%	)))))))))
5		Spezia Calcio (ITA)	46.0%	)))))))))
6		Dijon FCO (FRA)	44.4%	)))))))))
7		RC Lens (FRA)	43.6%	)))))))))
8		Genoa CFC (ITA)	40.8%	))))))))
.		Union Berlin (GER)	40.8%	))))))))
10		Hellas Verona (ITA)	40.7%	))))))))

Lowest %

		Club	%	
1		Burnley FC (ENG)	2.1%	)
2		Real Madrid (ESP)	2.9%	)
3		Borussia M'gladbach (GER)	6.8%	))
4		Bayer Leverkusen (GER)	7.5%	))
5		Manchester United (ENG)	7.7%	))
6		US Sassuolo (ITA)	7.9%	))
7		Athletic Club (ESP)	8.7%	)))
8		FSV Mainz 05 (GER)	9.0%	)))
9		RB Leipzig (GER)	9.2%	)))
.		Liverpool FC (ENG)	9.2%	)))

4. Contractual policy

As well as the players' age and their length of stay in the employer club, contractual policy is of fundamental importance from a perspective of sustainable squad management. Indeed, too great a reliance on players whose contract is almost up, or on loan from other clubs, even more so without an option to buy, often constitute an insurmountable obstacle when it comes to maintaining a desirable level of stability from season to season.

Figure 3 ranks teams from the five major European leagues according to the percentage of domestic league minutes played by footballers whose contract expires by June 2022 at the latest or on loan from other clubs. The highest value was measured for the Spaniards from Eibar, where almost nine-tenths of minutes were played by players with short-term contracts.

Conversely, the five teams least dependent on players whose contract is almost at an end are English. The lowest percentage overall was measured for Aston Villa (6.9%). Similar to the Birmingham team, the other clubs with the contractual policy most orientated to the long term are among the best (and wealthiest) in England: the two Manchester clubs, City and United, as well as the two from Liverpool, Liverpool FC and Everton.

Figure 3: % of minutes by players with short-term contracts or on loan, big-5 (2020/21)

Highest %

1	SD Eibar (ESP)	87.0%	))))))))))))))))))
2	Arminia Bielefeld (GER)	85.8%	))))))))))))))))))
3	Huesca SD (ESP)	82.2%	)))))))))))))))))
4	Elche CF (ESP)	79.4%	)))))))))))))))))
5	Union Berlin (GER)	77.1%	))))))))))))))))
6	Hellas Verona (ITA)	73.8%	))))))))))))))))
7	Crystal Palace (ENG)	72.8%	)))))))))))))))
8	Spezia Calcio (ITA)	69.2%	)))))))))))))))
9	SC Freiburg (GER)	69.0%	)))))))))))))))
10	CD Alavés (ESP)	67.5%	))))))))))))))

Lowest %

1	Aston Villa (ENG)	6.9%	))
2	Manchester City (ENG)	9.3%	)))
3	Manchester United (ENG)	12.8%	))))
4	Liverpool FC (ENG)	12.9%	))))
5	Everton FC (ENG)	13.8%	))))
6	AS Monaco (FRA)	14.2%	))))
7	Tottenham Hotspur (ENG)	17.6%	)))))
8	Real Sociedad (ESP)	17.9%	)))))
9	FC Barcelona (ESP)	19.8%	)))))
10	Brighton & Hove (ENG)	20.2%	))))))

5. Sustainable Squad Management rating (SSM)

Based on the criteria of age, length of stay and remaining contract duration, we have conceived a Sustainable Squad Management rating (SSM). For each player present in the squad, we have multiplied the number of years spent in the first team of the employer club (limited to eight) with the number of years under contract remaining (limited to five), and have divided the total by the age. The result thus obtained for each player was multiplied by the percentage of domestic league minutes played.

By adding the values for each player of a team, we end up with an indicator reflecting the level of sustainability for a squad. Although it varies with each match and transfer, this indicator allows us to compare strategies pursued by teams to build up their squads. It also gives a foretaste of the results that clubs can hope to obtain in the future without major changes in their policies.

From this point of view, Manchester United fans can be relatively confident in the ability of their team to qualify without too much difficulty for the group stage of the Champions League over the next seasons, and eventually lift again the Premier League trophy. Ranked just behind Manchester United despite having far fewer financial resources, the Basque clubs Real Sociedad and Athletic Club constitute perfect examples of sustainable squad management.

Conversely, Genoa is an excellent example of a policy geared towards the short-term. Under the leadership of the club owner Enrico Preziosi, Genoa's squad is constantly disrupted, and the team has had trouble staying in Serie A. The current season will probably not be an exception. If some of the poorly rated teams are obtaining good results, their low squad sustainibility value shows a need for a change in policy, without which it will be difficult to maintain a satisfactory performance level.

Figure 4: Sustainable Squad Management rating, big-5 (2020/21)

Most sustainable squads

1	Manchester United (ENG)	26613	
2	Real Sociedad (ESP)	23021	
3	Athletic Club (ESP)	21508	
4	Tottenham Hotspur (ENG)	21309	
5	Manchester City (ENG)	21137	
6	Liverpool FC (ENG)	20201	
7	Southampton FC (ENG)	19185	
8	FC Barcelona (ESP)	18791	
9	Atlético Madrid (ESP)	18439	
10	RB Leipzig (GER)	17242	

Least sustainable squads

1	Genoa CFC (ITA)	1913	
2	Huesca SD (ESP)	3019	
3	Elche CF (ESP)	3352	
4	Arminia Bielefeld (GER)	3634	
5	Benevento Calcio (ITA)	3826	
6	Union Berlin (GER)	3967	
7	SD Eibar (ESP)	4586	
8	Hellas Verona (ITA)	4817	
9	Dijon FCO (FRA)	5339	
10	Spezia Calcio (ITA)	5448	

6. Conclusion

Football is not an exact science, indeed, far from it. However, data analysis can be an important tool with which to optimise performance. With this in mind, the sustainable squad management rating is not just a descriptive tool allowing the comparison of strategies pursued by teams in the past, which is interesting in itself, but also an instrument to steer future policies so as to optimise the chances of success.

Due to the very large gap in their financial means, performance is measured very differently according to the club. In the same vein, a wealthy team can more easily obtain a higher sustainability rating than a team with fewer resources. The former, for example, can more easily recruit the best young talents, while being able to keep them over the long term if they perform as hoped.

Nevertheless, for all clubs, intelligent planning for the squad in terms of age, stability and contracts will lead to a sustainable optimisation of performance, or at least avoid major upsets. A strategic reflection on squad composition is, in this sense, useful regardless of if the ambition is to win a title, obtaining a European qualification, remaining in the top division, or, if relegation occurs, returning quickly to the top level.