Will we lose if we lose you?

Players' absence, teams' performance and the overlap of competitions

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Abstract: It is common for elite players to represent their respective countries in international competitions. However, there is a potential cost to the club team derived from that situation (risk of injury, fatigue, psychological momentum, etc.). This paper evaluates the impact of players' absence on European football teams' performance by focusing on the Africa Cup of Nations as the case study. The results indicate that the sending of players to the African tournament has a relatively small negative impact on teams' performance. But this cannot be generalized to all the leagues and loses significance when corrected by players' abilities.

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Introduction

The fact that national teams participating in international competitions draw their players from club teams is one of the big complaints about professional football (Murphy, 2000). It is well known that every time a player is called up to play in a national team, there is a potential cost to the club team derived from that situation (risk of injury, fatigue, psychological momentum, etc). In fact, today, there are many occasions throughout the regular season when players have to stop playing for their clubs to defend their national team colours. In such circumstances – when two competitions of a particular sport but at different levels (e.g., national championships and competitions and international competitions) occur at the same time, the domestic competition usually shuts down. However, there are situations in which the domestic one does not cease operations even when both competitions overlap. Obviously, this practice, which may generate impacts on clubs that are deprived of their elite players, is one of the current issues professional football should tackle.

Notwithstanding, there is a lack of studies that examine this matter in the case of football. While it is true that the effect of players' injury-related absence on team performance has been previously analysed in the literature (e.g., Drawer & Fuller, 2002; Gabbett, 2004; Hägglund et al., 2013; Williams et al., 2016), the analysis here differs in a number of respects. In the first instance, an injury-related absence may affect (almost randomly) any player, but only elite players are expected to be called up to their respective national teams. Second, managers are aware of the potential absence of players when signing elite players, but it seems very difficult for them to predict in advance any injury-related players' absence. Thus, it might be interesting

to check whether team managers foresee "expected" absences when they assemble the team's squad. From a sports general point of view, apart from Longley (2012) and Cairney et al. (2015) – both focusing on hockey, the empirical evidence on the impact of national team tournaments on individual clubs' performance is scarce.

This paper contributes to the literature by specifically evaluating the impact of the Africa Cup of Nations (AFCON) on European professional football teams' outcomes. The particularly interesting issue is that AFCON regularly occurs in January every two years during the European regular football season itself, and it takes elite African players out of top European teams for up to six weeks. As far as is known, AFCON is the unique case of a football national teams' tournament overlapping with domestic leagues' competitions. All other international competitions in football occur at a time of year when the professional leagues are in their off-seasons. Thus, AFCON could be considered a unique and interesting case of study.

Nonetheless, it should be noted that the last AFCON edition was held in June and July2019, as per the decision of the Confederation of African Football (CAF) Executive Committee on 20 July 2017 to move the Africa Cup of Nations from January/February to June/July for the first time. Of course, part of the motivation for AFCON's new schedule is due to the concerns of European teams previously mentioned. Even though this may limit the future relevance of this study, AFCON provides an excellent opportunity to evaluate the impact that national team tournaments have on clubs' performance. In addition, findings from this paper may support (or not support) CAF's decision to move the tournament to the summer.

Obviously, as mentioned, it can be in any case always argued that European clubs were aware of AFCON's schedule and the potential effects of signing African players. However, it is a fact

that the migration of African players to Europe has accelerated significantly since the early to mid-1990s (Darby, 2001), and thus the presence of African players in European leagues has enjoyed a boost in recent years. In fact, the majority of Africa's elite football players play in Europe. Darby et al. (2007) reported a dramatic increase in the migration of African footballers to Europe in the last years. By the start of the millennium, the number of Africans playing in Europe's 1st and 2nd Division leagues had reached 770 players (Ricci, 2000). Poli (2010) states that in "October 1, 2009, 571 players imported from Africa were employed by 528 clubs of 36 top division leagues of UEFA (Union of European Football Association) member countries", while Acheampong (2019) developed a database of 1,084 African professional players who are playing or had played in 30 different European leagues and other parts of the world. According to a popular German soccer website, Transfermarkt (https://www.transfermarkt.com), more than 270 African players are now contracted to "big five" European leagues – the (German) *Fußball-Bundesliga*, (English) Premier League – EPL, (Spanish) *La Liga*, (French) *Ligue 1* and (Italian) *Serie A*. Therefore, AFCON is expected to affect, to some extent, European football and to have an externality effect on European clubs (competitive disadvantage for teams, for example).

As for the potential effects of past AFCON editions' scheduling on football teams' outcomes, the empirical evidence is also extremely limited. Apart from Krumer and Lechner (2018), who use information on schedule-related variables in international competitions – such as the months in which AFCON took place – when explaining teams' performance in the German Bundesliga, no other study has been found examining this particular topic. However, AFCON is important in its own right – just as the UEFA European Championship is – and it is necessary for promoting and developing African football. Sport, and particularly football, has long been central to nation building and instilling a sense of national pride throughout the African

continent. Without AFCON, African national teams would play fewer official games, which means fewer opportunities for training for the FIFA World Cup or the Olympics.

All in all, it seems quite relevant to offer an answer to the question of what can be done in order to balance the conflicting interests that derive from African players playing in Europe in AFCON. In this regard, this paper's results may ask whether European teams that supply a greater number of players to AFCON are put at a competitive disadvantage. Since the rate of participation is not equal among teams, players' participation in AFCON might favour one team over another. More generally, the results can be helpful for dealing with the controversy generated when national teams recruit players by depriving clubs of their participation and for checking how teams manage that "expected" player talent absence.

Data Sample

As mentioned, the majority of Africa's elite football players play in Europe, and this trend continues today. For example, at the 2000 AFCON edition co-hosted by Ghana and Nigeria, just over 50% of the players were signed to a European club. For the 2002 competition in Mali, this figure had increased to 66%, and for the 2004 event in Tunisia, it stood at 67%. This growing trend ceased in following AFCON editions, but the ratio of African players playing in Europe remained stable around 50% (2006 AFCON – 53%; 2008 AFCON – 56%; 2010 AFCON – 53%; 2012 AFCON – 48%; 2013 AFCON – 50%) until the 2015 AFCON edition in Equatorial Guinea, in which it spiked back up to 66%. In the 2017 edition hosted by Gabon, players based in Europe dominated AFCON squads with a total of 235 players (64%).

The focus of this paper is on the "big five" European leagues. Additionally, evidence from the Portuguese *Primeira Liga* is also considered. These six European competitions account for

between 23% and 31% of the total number of African players playing in AFCON and for almost 80% of total participation of African players playing in Europe in the last AFCON edition (2017). Therefore, data and information from clubs and 488 African players from all these leagues have been collected for the following AFCON editions: 2004 –- Tunisia; 2006 – Egypt; 2008 – Ghana; 2010 – Angola; 2012 – Equatorial Guinea and Gabon; 2013 – South Africa; 2015 – Equatorial Guinea; and 2017 – Gabon. It should be noted that no competitions before 2004 could be considered in the sample because of lack of available data. Notwithstanding, this paper's data set includes eight out of 11 AFCON editions so far in the 2000s. During the sample period, there were 201 different European clubs competing in the considered leagues in a total of more than 1,740 rounds. Hence, this paper's data set consists of an unbalanced panel of 33,436 observations.

Anyway, it should be noted that participation in AFCON is not uniform across European leagues and teams. The presence of African players playing any AFCON edition during the sample period (2004–2017) in *Fußball-Bundesliga*, *La Liga*, *Primeira Liga* and *Serie A* was quite similar: it ranges between one and 16 players, depending on the league and the season, with a mean over the sample period of about eight African players. However, the *Premier League* and *Ligue1* –accounting for more than 46% of African players playing in the six considered leagues – reveal a completely different story. The average per-season number of AFCON players in EPL reaches almost 20, and it is 49 in the case of the *Ligue 1*. Within a particular league, significant differences among AFCON editions are observed (Figure 1).

(Insert Figure 1 about here)

At the club level, the number of teams with AFCON players differs a lot among leagues. On average, almost 89% of the French teams in *Ligue 1* had an African player playing any AFCON edition during the sample period. However, this percentage dramatically falls to 29% in the case of the Italian *Serie A*. A question to be answered in this paper would then be whether such differences in participation impact teams' performances, as the described statistics seem to indicate.

Econometric Modelling

The ultimate goal is to provide evidence on whether teams that supply the most players to AFCON rosters are subsequently advantaged or disadvantaged. Obviously, no team gains an absolute advantage for losing talent. But in relative terms, a team could be relatively favored when all international players in a league leave for national team tournaments. This could be the case in top budget teams' squads with more and better substitution possibilities. Hence, an individual team's performance indicator during a given season is regressed on variables potentially linked to that team performance, including an index of (number of) African players' participation in AFCON. This variable (*AFCON participation*) is corrected by a proxy of these players' abilities to control for the quality of players that a particular team loses.

Clearly the best indicator of a football team's performance in a game-by-game basis is whether that team has won a particular match or not. Many studies use match results or an indicator capturing similar information (Audas et al., 2002; Flores et al., 2012; Tena & Forrest, 2007). The empirical model, motivated as a latent variable model as described in Equation 1, will then contain a binary dependent variable (*won game*) taking value 1 when a team wins a particular game.

$$Y^* = X^T\beta + \varepsilon \qquad (1)$$

where $\varepsilon \sim N(0, 1)$, X is a vector of regressors (including *AFCON participation*, among other controls as described below), and Y^* is an auxiliary random variable. Then, Y can be viewed as an indicator (*won game*) for whether this latent variable is positive (Equation 2).

$$Y = \begin{cases} 1; Y^* > 0 \\ 0; otherwise \end{cases} = \begin{cases} 1; -\varepsilon < X^T\beta \\ 0; otherwise \end{cases} \qquad (2)$$

Of course, it should be acknowledged that some information could be lost due to the use of a binary dependent variable. An ordered probit model for each game outcome (1-lose; 2-draw; 3-win) as a dependent variable was estimated as a more informative model, but no significant effect of AFCON participation on the odds of drawing was found, whereas a significant negative marginal effect for the odds of winning a game was observed. Moreover, all estimate coefficients for other control variables remain mostly the same, suggesting that increasing complexity is not likely to add much to presented results (ordered probit estimations are available upon request). In addition, empirical results from previous studies show that the introduction of the three-point rule in the 1990s has led to a statistically significant decrease in the proportion of football matches that end in a draw (Moschini, 2010). Since the rule increased the pay-off for winning (reward for a draw remained unchanged), it was expected that teams would change their strategies. Hence, teams relying more on draw tactics changed their behaviour towards attack, considerably reducing the odds for a draw to occur (Shepotylo, 2010). All this may support this paper's focus on wins/losses.

To approximate players' abilities, this paper uses players' monetary values obtained from Transfermarkt, which is a reliable data source that provides data on players' market values. A

quick look at the data from the 2017 AFCON edition reveals that the market value of each considered African player shows a high degree of variation, from the highest value of €50 million for Senegalese Sadio Mané (Liverpool FC – EPL) to the €503,000 for Bissau-Guinean Bocundji Ca (SC Bastia – *Ligue 1*). Therefore, the expected impact of players' absence may even differ among African players. The variable *AFCON market value* stands for each season and each player's estimated market value in million Euros.

Of course, a team's quality is expected to be a good predictor of that team's outcome. Since the best performance teams are expected to accumulate the most points during a particular season, the points a particular team has in round *t-1* are included in the model as an explanatory variable (*accumulated points*) for that team's performance in round *t*. In line with Wirl and Sagmeister (2008) and Hughes et al. (2010), who measure teams' short-run performances by using different calculations from points earned in the previous matches, this variable aims to represent the current performance of a given team. In addition, since traditionally strong teams have a higher probability of qualifying for European-wide tournaments (Noll, 2007), an index (*quality score*) for each team's participation in European competition throughout the sample period is considered as a proxy for the overall historical quality of the team – 1 point is awarded for each season participation in *UEFA Europa League* and 2 points for each season participation in *UEFA Champions League*; the index is just the total sum of points for all considered seasons and is used to proxy this variable. This index builds on Flores et al. (2012) who use a weighted sum of the number of times a club had participated in international competitions in the preceding years.

The set of covariates, including league-effect and season-effect controls, also account for whether the team is playing a European competition because such participation generates a

huge financial prize for teams (Noll, 2007), and it may create a different allocation of efforts (for example, saving best players for more important games). Some key descriptive statistics are shown in Table 1. Differences in AFCON participation at the club level within each league can be observed. This seems to reinforce the hypothesis that European teams might be differently impacted by loss of elite African players. According to the definition of the dependent variable – taking value 1 if a particular team won its game and zero otherwise, the quantitative conditional analysis is performed by a conventional probit regression in which the number of players participating in AFCON per team, among other controls, is used to predict the probability of winning a game during the AFCON tournament.

(Insert Table 1 about here)

Results

The results reported in the first column in Table 2 show that the European teams that have a greater number of AFCON players experience a decline in the odds of winning a game during AFCON. The estimated average marginal effect is -0.009; thus, the probability of winning a match for a given team is reduced in average terms by 0.9% for each additional African player released to play the African Cup. However, this negative impact disappears when weighting for the market value of African players (second column in Table 2). One possible explanation for this last result would be that African players with the highest market value are usually signed by clubs with high budgets. These clubs generally have large squads and good substitute players, which means that the overall quality of the team is not significantly reduced in the absence of a top player, and neither is the probability of winning a particular game.

(Insert Table 2 about here)

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The estimates of the control variables are in accordance with expectations. Both the points accumulated in the previous matches and the historical quality of the team increase the probability of winning a particular game. The effect of participation in European competitions goes in the same direction.

(Insert Table 3 about here)

To test whether previous results can be generalized to all considered leagues, the variable that controls the participation of African players in AFCON (and that weighted by its market value) is interacted with the dummy variables for each league. Same controls as before are maintained. The estimated coefficients in Table 3 indicate that the negative impact of the release of African players on the probability of winning a given match seems to exist only in the case of the German *Fußball-Bundesliga*, the English Premier League and (weakly) the French *Ligue 1*. Again, when correcting for the market value of the players, these effects seem to disappear (second column in Table 3).

On average, for every African player playing in AFCON, the odds of winning a *Fußball-Bundesliga* match are reduced by a significant 3.5%. This negative impact would be 2% for English teams and nearly 1% for the French *Ligue 1* (Table 4). However, in the case of the Portuguese *Primeira Liga*, when considering players' market value, a positive effect on the probability of winning a match appears, which increases by 0.7% for each African international player released to play in AFCON. This result can be explained by the fact that African players with higher market values are concentrated in teams which, as previously argued, have better

substitution possibilities. Hence, these teams are relatively favored when African players leave compared with those with worse substitute players.

(Insert Table 4 about here)

Limitations and Robustness Test

A limitation of the model specification is that it fails in differentiating the home and visiting teams' information. This comes from the dataset that is limited to the considered European leagues' standings by round within a particular season. Accordingly, the points won by each team on a round-by-round basis can be derived from such information, but it is not possible to differentiate between home and visiting teams for each game. As a result, a particular match between two teams in a certain season is somehow included twice in the sample. Since this could potentially raise some inference problems, a robustness test of previously discussed results is proposed by estimating a panel data model with points accumulated per game for each team during AFCON as the dependent variable and with the same control variables as were included in the probit analysis. The use of aggregate information may allow to overcome some potential noise.

(Insert Table 5 about here)

The estimates in Table 5 are consistent with those obtained in the panel data probit regression included in the paper. An overall negative effect of AFCON participation on points accumulated per game during the African tournament is found. However, when looking at leagues' interactions, it is limited to the German *Fußball-Bundesliga* and the English Premier League. When weighting for players' market value, a positive effect is observed in the case of

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the Portuguese *Primeira Liga* (as it was in the panel data probit regression). All estimated coefficients for control variables remain almost the same.

Concluding Remarks

It has become commonplace for elite professional football players to represent their respective countries in major international competitions. However, no evidence currently exists evaluating the effect of player absence on teams' performances aside from injury-related absences. The case study here is unique because African players' premier competition, AFCON, aside from the FIFA World Cup, occurs during European domestic seasons and removes top African players from European domestic leagues for up to six weeks.

In general, the sending of players to AFCON seems to have a negative impact on teams' performance. Nonetheless, the overall impact is small, and it cannot be generalized to all the analysed leagues. In any case, this result loses significance when corrected by players' abilities. This lends support to the argument in favour of allowing AFCON players to participate in the tournament, given that no strong claims can be made that participation negatively impacts performance at the team level to a point that it is detrimental to a team's success. Moreover, according to this paper's findings, maybe the international football governing bodies would decide it is not a big issue for AFCON to take place in January and February and keep the tournament as it had been historically.

As for the European football teams' management, to know about the impact of AFCON on teams' performance may be relevant for their strategy of signing elite African players. In general, top budget teams seem to manage well each season's squad by anticipating the "expected" absence of talented players. In any case, the findings here are relevant for the debate

about the overlapping of national team tournaments with domestic (clubs) competitions and the release of players to national teams in terms of league policies about players' absence.

References

Acheampong, E. Y. (2019). Giving back to society: Evidence from African sports migrants. *Sport in Society*, *22*(12), 2045-2064.

Audas, R., Dobson, S., & Goddard, J. (2002). The impact of managerial change on team performance in professional sports. *Journal of Economics and Business, 54*(6), 633-650.

Cairney, J., Joshi, D., Li, Y., & Kwan, M. (2015). The impact of the Olympics on regular season team performance in the National Hockey League. *Journal of Athletic Enhancement*, *4*(6). doi:10.4172/2324- 9080.1000214

Darby, P. (2001). The new scramble for Africa: The African football labour migration to Europe. *The European Sports History Review*, *3*(1), 217-244.

Darby, P., Akindes, G., & Kirwin, M. (2007). Football academies and the migration of African football labor to Europe. *Journal of Sport and Social Issues*, *31*(2), 143-161.

Drawer, S., & Fuller, C. (2002). An economic framework for assessing the impact of injuries in professional football. *Safety Science, 40*(6), 537-556.

Flores, R., Forrest, D., & Tena, J. D. (2012). Decision taking under pressure: Evidence on football manager dismissals in Argentina and their consequences. *European Journal of Operational Research, 222*(3), 653-662.

Gabbett, T. (2004). Influence of injuries on team playing performance in Rugby League. *Journal of Science and Medicine in Sport, 7*(3), 340-346.

Hägglund, M., Waldén, M., Magnusson, H., Kristenson, K., Bengtsson, H., & Ekstrand, J. (2013). Injuries affect team performance negatively in professional football: An 11-year follow-up of the UEFA Champions League injury study. *British Journal of Sports Medicine, 47*(12), 738-742.

Hughes, M., Hughes, P., Mellahi, K., & Guermat, C. (2010). Short-term versus long-term impact of managers: Evidence from the football industry. *British Journal of Management*, *21*(2), 571-589.

Krumer, A., & Lechner, M. (2018). Midweek effect on soccer performance: Evidence from the German Bundesliga. *Economic Inquiry*, *56*(1), 193-207.

Longley, N. (2012). The impact of international competitions on competitive balance in domestic leagues: The case of the National Hockey League's participation in the Winter Olympics. *International Journal of Sport Finance*, *7*(3), 249-261.

Moschini, G. (2010). Incentives and outcomes in a strategic setting: The 3-points-for-a-win system in soccer. *Economic Inquiry, 48*(1), 65-79.

Murphy, P. (2000). Club or country: The struggle for supremacy in World Football: Patrick Murphy interviews Graham Kelly, the ex-Chief Executive of The Football Association. In *Singer & Friedlander Football Review 1999–00 Season*. The Centre for Research into Sport and Society at the University of Leicester.

Noll, R. (2007). Broadcasting and team sports. *Scottish Journal of Political Economy, 54*(3), 400-421.

Poli, R. (2010). The migrations of African football players to Europe: Human trafficking and neo-colonialism in question. *Football for Development, Vienna, Austria.* http://www. footballfordevelopment.net/uploads/tx_drblob/storage/Poli_migration-of-African-football-players_01. pdf

Ricci, F. (2000). *African football: Yearbook 2000*. ProSports.

Shepotylo, O. (2010). *The law of unintended consequences in soccer: Impact of three-point-a-win rule on strategies and outcomes*. Kyiv School of Economics Discussion Papers (No. 30).

Tena, J. D., & Forrest, D. (2007). Within-season dismissal of football coaches: Statistical analysis of causes and consequences. *European Journal of Operational Research*, *181*(1), 362-373.

Williams, S., Trewartha, G., Kemp, S., Brooks, J., Fuller, C., Taylor, A., Cross, M., & Stokes, K. (2016). Time loss injuries compromise team success in Elite Rugby Union: A 7-year prospective study. *British Journal of Sports Medicine, 50*(11), 651-656.

Wirl, F., & Sagmeister, S. (2008). Changing of the guards: New coaches in Austria's premier football league. *Empirica*, *35*(3), 267-278.

Figure 1. Number of African players playing in the six European leagues in last eight
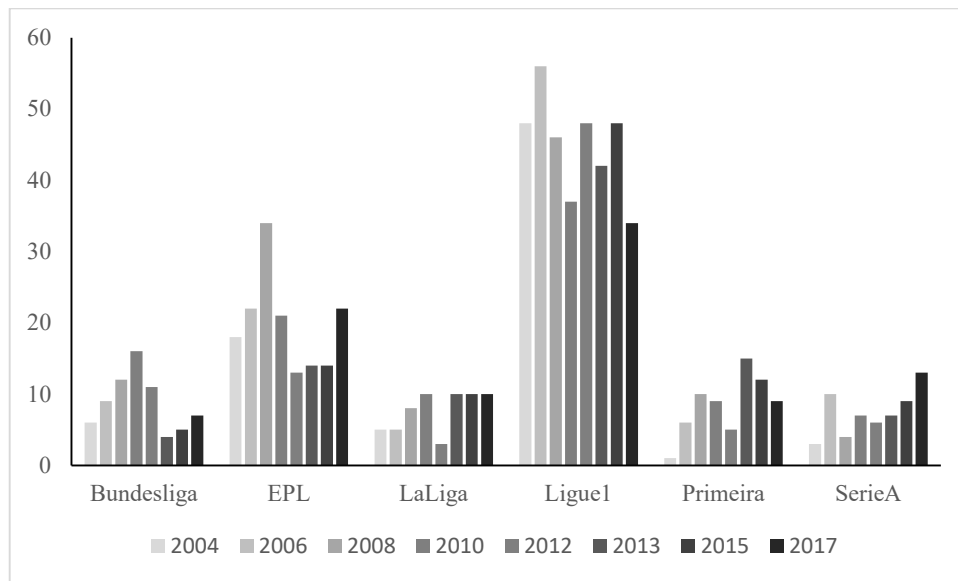
AFCON editions

Table 1. Key variables and indicators

	Obs.	Mean	Std.Dev.	Min.	Max.
Won game	33,436	0.369	0.483	0	1
Independent variables (*all leagues*)					
AFCON participation	33,436	0.165	0.621	0	7
AFCON market value (million €)	33,436	0.897	4.800	0	107
Accumulated points (t—1)	33,436	24.345	17.402	0	97
Quality score	33,436	7.045	8.467	0	28
Europe	33,436	0.357	0.479	0	1
AFCON participation *(by league)*					
Fußball-Bundesliga	4,896	0.074	0.336	0	3
Premier League	6,080	0.210	0.658	0	4
La Liga	6,080	0.078	0.315	0	3
Ligue 1	6,080	0.408	1.088	0	7
Primeira Liga	4,368	0.102	0.396	0	4
Serie A	5,932	0.080	0.343	0	3

Table 2. Panel data regression (probit model)

Dependent variable is the probability of winning a game

	(1)	(2)
AFCON participation	- 0.025***	
AFCON market value		- 0.001
Accumulated points (t-1)	0.002***	0.002***
Quality score	0.033***	0.033***
Europe	0.124***	0.123***
League dummies	YES	YES
Season dummies	YES	YES
N	33,436	33,436

Note: * Significant at 10%; ** significant at 5%; ***significant at 1%

Table 3. Panel data regression (probit model) – Leagues interaction

Dependent variable is the probability of winning a game

	(1)	**(2)**
Bundesliga*AFCON participation	-0.095**	
EPL*AFCON participation	-0.054**	
La Liga*AFCON participation	0.081	
Ligue 1*AFCON participation	-0.019*	
Primeira*AFCON participation	0.054	
Serie A*AFCON participation	-0.047	
Bundesliga*AFCON market value		-0.003
EPL*AFCON market value		-0.002
La Liga*AFCON market value		0.003
Ligue 1*AFCON market value		-0.003
Primeira*AFCON market value		0.020***
Serie A*AFCON market value		0.004
Accumulated points (t-1)	0.002***	0.002***
Quality score	0.033***	0.032***
Europe	0.123***	0.122***
Season dummies	YES	YES
N	33,436	33,436

Note: * Significant at 10%; ** significant at 5%; ***significant at 1%

Table 4. Average marginal effect of releasing of African players to National Teams

	participation	market value
Bundesliga	-0.035**	
EPL	-0.020**	
Ligue 1	-0.009**	
Primeira		0.007***

Note: * Significant at 10%; ** significant at 5%; ***significant at 1%

Table 5. Panel data regression (random effects model[a])

Dependent variable is points accumulated per game for each team during AFCON

			Leagues interaction	
AFCON participation	-0.037**			
AFCON market value		0.001		
Bundesliga*AFCON participation			-0.106**	
EPL*AFCON participation			-0.045**	
La Liga*AFCON participation			0.035	
Ligue 1*AFCON participation			-0..012	
Primeira*AFCON participation			0.058	
Serie A*AFCON participation			-0.044	
Bundesliga*AFCON market value				-0.003
EPL*AFCON market value				-0.001
La Liga*AFCON market value				0.002
Ligue 1*AFCON market value				0.001
Primeira*AFCON market value				0.024***
Serie A*AFCON market value				0.006
Quality score	0.036***	0.035***	0.035***	0.035***
Europe	0.116***	0.104**	0.110**	0.103**
League dummies	YES	YES	NO	NO
Season dummies	YES	YES	YES	YES
R² (between)	0.548	0.543	0.551	0.542
N	918	918	918	918

Note: [a] Hausman test statistics (p-value): RE vs. FE 13.05 (0.1602).
* Significant at 10%; ** significant at 5%; ***significant at 1%