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Intra-match competitive balance and intensity in UEFA men's national team competitions: the impact of recent changes in formats

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ABSTRACT

In 2008 and 2014, UEFA decided to change the formats of its men's national team competitions, with effect from Euro 2016. This article aims to evaluate the efficiency of these changes with two concepts related to outcome uncertainty: competitive balance and intensity. The study focuses on intra-match competitive balance and intensity in Euros 2012 and 2016 qualifying and final rounds. Results show that both dimensions have significantly increased between Euros 2012 and 2016 qualifying rounds. Besides, Euro 2016 final round was more intense than previously. In addition, the establishment of the Nations League in 2018 generated more games with sporting prizes. The changes made by UEFA have improved competitive intensity and encouraged competitive balance in European men's national team games. This is consistent with UEFA's objective to promote football in a spirit of unity and solidarity. UEFA could communicate on these positive evolutions to its stakeholders.

Introduction

Towards the end of the 2000s, UEFA decisions were influenced by the evolutions wanted by its former President, Michel Platini. These decisions included Financial Fair Play,[1] but also some changes in the formats of UEFA men's competitions, in particular the Champions League and Euro. In both cases, Michel Platini applied virtues of solidarity and universality that were the bases of his speech for his election as President of UEFA in 2007.[2] Indeed, he encouraged the access of smaller countries to UEFA men's competitions via two decisions taken in 2008. For the season 2009–2010, different routes were created for champions of smaller countries and non-champions of bigger countries in the Champions League preliminary round so as to ensure that the former take part in its group stage. For Euro, it was decided the expansion of the final tournament from 16 to 24 teams, as from the 2016 edition. These changes are consistent with UEFA's objectives, in particular to promote football in a spirit of unity and solidarity.[3] They are supposed to favour competitive balance, acknowledged as the biggest challenge to develop football by the current UEFA President Aleksander Čeferin.[4] As such, they can be used for communication purposes towards UEFA stakeholders, especially if they prove relevant to the overall quality of European football.

In this article, the focus is on UEFA men's national team competitions, i.e. Euro but also the Nations League that appeared in 2018 following a decision taken in 2014 and allowed four teams to qualify to Euro 2020 final round.[5] The aim is to evaluate the relevance of UEFA decisions on the overall quality of the European men's national team games. To do so, two economic concepts are

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used: competitive balance and competitive intensity. Competitive balance is a well-documented concept for more than 60 years,[6] whereas competitive intensity is much more recent.[7] Competitive balance postulates the necessity of sporting equilibrium between teams so as to generate outcome uncertainty attracting fan demand and thus revenues. Competitive intensity is based on the idea that outcome uncertainty is not only generated by sporting equilibrium between teams but also by sporting prizes (champion, qualification for the next round, relegation ...). In other words, an organizer can generate outcome uncertainty and thus an incentive to play their best for more teams with more sporting prizes.

The structure of the article is as follows. First, more details are given on the concepts of competitive balance and intensity. Second, the exact variables used to evaluate the relevance of the choices made by UEFA are specified. Third, the main characteristics of the competitions studied (Euros 2012, 2016 and 2020, and Nations League 2018–2019) are provided and potential factors explaining their competitive balance and intensity are specified. Fourth, results are presented, with an evaluation on the impact of the changes between Euros 2012 and 2016, on both their qualifying and final rounds. Fifth, results and the impact of the changes between Euros 2016 and 2020 are discussed, taking into account the establishment of the Nations League. Last, the managerial and theoretical contributions of the study are developed, before acknowledging its limitations and providing future research directions.

From competitive balance to competitive intensity

Competitive balance: the two lines of literature

In professional team sports economics, the concept of competitive balance is currently well documented.[8] As underlined in the introduction, it postulates the necessity of sporting equilibrium between teams. Such equilibrium is difficult to reach in a league where the teams have unequal resources. It justifies the existence of specific redistribution mechanisms. Part of the literature deals with the consequences of the introduction, disappearance or changes of redistribution mechanisms. These types of studies belong to what Fort and Maxcy describe as analysis of competitive balance (ACB).[9] These authors note that 'The ACB literature focuses on what has happened to competitive balance over time or as a result of changes in the business practices of pro sports leagues'.[10] In the ACB literature, competitive balance is measured at the end of a season (e.g. based on the standard deviation or the coefficient of variation – standard deviation divided by mean – between teams, i.e. is the final ranking balanced?), or over several seasons so as to establish whether there is an absence of regular domination or not.

The ACB literature does not assess the impact of competitive balance on fan demand. This aspect is tackled by another area of literature. Indeed, Fort and Maxcy reveal that 'The second line of literature on competitive balance analyzes its effect on fans. This line of literature tests the longstanding uncertainty of outcome hypothesis (UOH) literature, measured during the season and relative to team chances in the playoffs'.[11] More precisely, UOH is measured at four temporal scales: before kick-off for a match, during a season, at the end of a season and over several seasons. The first two levels are chosen to explain stadium attendance over a given period based on team data, whereas the last two levels are used to explain the evolution of stadium attendance on an aggregate league data basis. Recent articles have replaced stadium attendance by TV audience as the variable to be explained.[12] ACB and UOH literatures are complementary in helping us obtain an overall view about competitive balance. Nevertheless, is it relevant to only talk about 'competitive balance'? In the European leagues, there is a promotions/relegations system (opened leagues) and so there are sporting prizes at the bottom of the league table, unlike the American leagues. An unbalanced championship can be potentially more interesting than a more balanced one if each team has a sporting prize to compete for, as in the first system, whereas the second offers few sporting prizes.

Competitive intensity

The importance of sporting prizes beyond competitive balance

The importance of sporting prizes leads to talk about the notion of competitive intensity, as proposed by Kringstad and Gerrard.[13] According to them, apart from the degree of equality between team playing strengths, audiences are also interested in the prizes that may be distributed in the league.[14] Thus, competitive intensity relates to different sporting prizes: champion, qualification in European competitions, relegation in inferior divisions in European leagues or playoff selections in both American and European leagues.

Kringstad and Gerrard assume that the sporting prizes at the top of the standing are more attractive than the 'prize' of avoiding relegation.[15] In line with this, they set weightings for the European national football championships with 1 for the title, 1/1.52 for direct entry to the UEFA Champions League, 1/1.752 for entry to the UEFA Champions League qualifying rounds, 1/22 for entry to the UEFA Cup (now UEFA Europa League) and 1/32 for avoiding relegation. Based on this assumption, they propose the following formula: $CI = \sum w_i P_i$, where w_i is the weight of p rize i and P_i the intensity of prize interval i. Kringstad and Gerrard set the prize interval at 10 points and suggest measuring P_i as the sum of the proportional gap between the points of the prize-winning (losing) team and the points of each team in the prize interval: $P_i = \sum(1 - \text{Gap}/10)$. For example, if the first four teams have, respectively, 75, 72, 67 and 64 points, the intensity of the prize for the title is: $P_1 = [1 - (75 - 72)/10] + [1 - (75 - 67)/10] = 0.9$ (4^{th} not tak en into account for P_1 because the gap with the first is more than 10 points).

Scelles, Desbordes et al. calculate competitive intensity in different leagues.[16] Their measure is based on the percentage of teams with a sporting prize to compete for whatever this prize. They consider that a team has a sporting prize to compete for if it can reach or lose such a prize at the end of the following two games (or the next game if only one is remaining). Their indicator is the average percentage of teams in such a situation, based on the calculation of the percentage at eight times during the season: a third of the way through a championship; half way through; two-thirds of the way through; the point at which five games remain; and the following games. They stress the positive impact of a large percentage of different sporting prizes but also the necessity to avoid unfair prizes (for example, the qualification into the playoffs of low ranked teams). Neither the contribution by Kringstad and Gerrard nor that by Scelles, Desbordes et al. verify the impact of a change of rule on competitive intensity or of competitive intensity on stadium attendance or TV audience.

The two lines of literature on competitive balance applied to competitive intensity

To fill the first gap (impact of a change of rule on competitive intensity not tested), Scelles, Durand et al. test the impact of the bonus system on competitive intensity in the French rugby Top 14 over the 2001–2008 period.[17] In 2004–2005, the French national rugby league (Ligue Nationale de Rugby, LNR) decided to allocate one bonus point in the table in two situations: one offensive bonus point for teams scoring at least four tries during a game and one defensive bonus point for teams losing a game by no more than seven points. Scelles, Durand et al. explained that this change should have improved intra-match competitive intensity. Indeed, before the bonus system, the only prizes related to a game were a win or a draw and a change could occur following the next score evolution only if the difference between the two teams was no more than seven points; with the bonus system, the prizes are not only a win or a draw but also a win or a loss with offensive bonus and a loss with defensive bonus. As a consequence, a change could occur following the next score evolution if the difference between the two teams was no more than 14 points instead of seven but also if at least one of the two teams had scored three tries. Scelles, Durand et al. measure intra-match competitive intensity as the percentage of game-time with a possibility of change with regards to sporting prizes following the next score evolution. They find a significant positive impact of the

bonus system on intra-match competitive intensity (significant difference between 2001–2004 and 2004–2008).

To fill the second gap mentioned above that the impact of competitive intensity on fan demand has not been tested, Scelles et al. test this in the French football Ligue 1 over the 2008–2011 period.[18] Their measure is the point difference for the home team in comparison with their closest competitor with a different sporting prize: in other words, how many points are required to change its position? They found a significantly positive impact of competitive intensity on stadium attendance. Following this first finding, Scelles et al. investigate competitive intensity measured by dummy variables that are the function of the point difference for the home team in relation to sporting prizes: how many matches are required to change its position?[19] The authors choose eight match temporal horizons: if the point difference makes a change in the position in the league possible as a result of the following match, the following two matches ... until the following eight matches. They conclude that the best horizon to consider competitive intensity is the following two matches, consistent with Scelles, Desbordes et al. This short horizon shows the necessity for a league to have a sufficient number of sporting prizes so that every team is in contention until the end of the championship. Scelles et al. confirm this as they find that all sporting prizes have a significant positive impact on stadium attendance in Ligue 1 but not if the temporal horizon is the next third match.[20] However, Scelles finds that only championship and Champions League intensities have a significant positive impact on TV audience for English Premier League football during the 2013–2014 season.[21] He confirms that the best horizon to consider competitive intensity is the following two matches.

Beyond the distinction between competitive balance and intensity, it is important to note that with a similar format of competition (same sporting prizes) for two leagues, the one with the best competitive balance should have the best competitive intensity, unless its better competitive balance is due to teams close from each other but not in contention for a sporting prize. In other words, competitive intensity is not competitive balance but is usually better with a better competitive balance.

Indicators of competitive balance and intensity for national team competitions

In this article, the focus is on the first line of literature on competitive balance and intensity as identified by Fort and Maxcy, i.e. their evolution over time and the impact of the changes in rules on this evolution. First of all, there is a need to define the indicators measuring competitive balance and intensity. They are usually used at a national league level. As such, their previous indicators are appropriate for a large number of games per team per season (e.g. 34 or 38 games in the main European men's football leagues) associated to a league table. Nevertheless, such indicators are not the most relevant to evaluate competitive balance and intensity in competitions with a small number of games as this is the case for national associations (no more than 10 games per team in Euro qualifying round). Besides, previous indicators based on a league table are not appropriate when games are organized as a knockout stage as this is the case for the playoffs qualifying to Euro final round or after the initial group stage in the latter. It is necessary to rely on indicators specifically adapted for competitions with national associations.

Competitive balance can be measured with the coefficient of variation when there is a league table (intra-league competitive balance). This is not the case for a knockout stage where an intra-match measure is more appropriate. To do so, the percentage of game-time with a score difference of no more than one goal between the two teams can be used.[22] Such percentage can also be applied to games associated to a league table, meaning that it is possible to have an overall measure of intra-match competitive balance for both Euro qualifying and final rounds. Besides, statistical tests conducted on coefficients of variation would lack robustness due to the limited number of values (nine groups for qualifying rounds and four to six groups for final rounds for Euros 2012 and 2016). As such, the focus is on intra-match competitive balance (IMCB) only.

On the same principle as for competitive balance, competitive intensity can be measured with both the percentage of teams still arithmetically in contention before different matchdays for Euro qualifying round with 8 to 10 games per team (intra-league competitive intensity), and an intra-match measure. For the former, it is not necessary to incorporate matchdays when all teams are still arithmetically in contention in the calculation, i.e. until before the 6thmatchday in Euro 2012 and 2016 qualifying rounds. The problem with this indicator is that only four values would be measured for each of Euro 2012 and 2016 qualifying rounds (from before the 7th to before the 10thmatchday), leading to a lack of robustness of statistical tests. For this reason, it is not included. For intra-match competitive intensity, the percentage of game-time when a goal could change the situation of a team considering sporting prize (qualification for the next round) can be used.[23] A weakness with this indicator is that it considers there is outcome uncertainty even if only one team can change its situation. This is what UEFA members consider as a half-dead situation.[24] An alternative is to measure intra-match competitive intensity for both teams by weighting 0.5 for each of them. As such, both intra-match competitive intensity (IMCI) and half-dead intra-match competitive intensity (HDIMCI) are calculated.

For all indicators, better intra-match competitive balance and intensity are associated with higher values. Data were collected from UEFA website.

UEFA men's national team competitions: factors potentially explaining competitive balance and intensity

Table 1 provides the main pieces of information related to UEFA men's national team competitions over the 2010–2020 period that are relevant to deal with competitive balance and intensity.

For competitive balance, it is expected that the Euro final round is more balanced than its qualifying round since only the best teams qualify for the former (first explanatory factor = who take part?).

However, competitive balance could be lower in Euro 2016 and 2020 final rounds than in Euro 2012 final round since eight additional (lower) teams take part. Nevertheless, this could be counter-balanced by a sporting level of the eight additional teams close to the 16 best teams. This could be the consequence of an improving competitive balance between European national football associations due to: a decrease in their relative gaps in experience (number of games played by a national association in its history) – identified as a key determinant of national men's football team performance[25]; more incentives for lower teams thanks to more positions qualifying for the final round; or more generally the development of European football (second explanatory factor = how football is developing?).

If this is true, competitive balance in Euro 2016 qualifying round could have been better than competitive balance in Euro 2012 qualifying round. Another expectation is that the Nations League qualifying round is more balanced than Euro qualifying round since teams are grouped together according to their level in the former (third explanatory factor = how groups are formed?).

For competitive intensity, three important factors to be considered are: 1) the number of games per team, 2) the number of team situations divided by the number of teams per group and 3) the number of different sporting prizes. For the first factor, the fewer the number of games, the lower the risk of a large point difference between teams, which should lead to a better competitive intensity (advantage for Euro final round (group stage) compared to qualifying round).

For the second factor, team situations are presented under Table 1. If the changes between Euros 2012 and 2016 have increased the percentage of qualified teams and that of positions with sporting prizes, the number of team situations divided by the number of teams per group has slightly decreased. This is due to the first and second-ranked teams having the same situation (qualified for the final round) instead of a specific benefit of being first so fewer team situations, and two additional teams taking part in the qualifying round (only one organizer automatically qualified instead of two and the appearance of Gibraltar) so more teams. The indicator is in favour of Euro final round (group stage) compared to the qualifying round for both 2012 and 2016. It is worth

Table 1. Information related to UEFA men's national team competitions over the 2010–2020 period.

	Euro 2012	Euro 2016	Euro 2020	Nations League 2018–2019
		Qualifying round		
Format	51 teams (Poland and Ukraine already qualified) 6 groups of 6 teams 3 groups of 5 teams 8 to 10 games per team Teams ranked 1st and best 2nd qualified Other 2nd in playoffs	53 teams (France already qualified) 8 groups of 6 teams 1 groups of 5 teams 8 to 10 games per team Teams ranked 1st, 2nd and best 3rd qualified Other 3rd in playoffs	55 teams (no team automatically qualified) 5 groups of 6 teams 5 groups of 5 teams 8 to 10 games per team Teams ranked 1st and 2nd qualified, with incentive to be among teams 1–6, 7–12 and 13–18 overall	55 teams 12 teams in Leagues A and B 4 groups of 3 teams 15 teams in League C 4 groups of 3 or 4 teams 16 teams in League D 4 groups of 4 teams 4 to 6 games per team 1st qualified, last relegated (except in League D)
Percentage of qualified and relegated teams	27.5%	43.4%	37.0%	58.2%
Percentage of positions with sporting prizes	35.3%	50.9%	37.0%	58.2%
Number of team situations*/Number of teams per group (average)	52.9%	50.9%	54.5%	87.3%
Number of different sporting prizes	3	3	5	2
		Final round (group stage)		
Format	16 teams 4 groups of 4 teams 3 games per team 1st and 2nd qualified with 1st playing against 2nd in quarter-finals	24 teams 6 groups of 4 teams 3 games per team 1st, 2nd and 4 best 3rd qualified with games for round of 16 depending on ranking at the end of the group stage		No group stage
Percentage of qualified teams#	50%	66.7%		-
Number of team situations/Number of teams per group (average)	75%	91.7%		-
Number of different sporting prizes	2	3		-

* Team situations are as follows: qualified for the final round, qualified for the final round as first in group if impact different from second (e.g. better pot for the draw for the final round), qualified for the final round as second if impact different from first, qualified for playoffs, not qualified/not relegated, relegated.
#For the final round, the percentage of positions with sporting prizes is equal to the percentage of qualified teams.

noting that the new format for Euro final round induces 91.7% of team situations relative to the number of teams, a percentage close to 100% supposed to generate a high competitive intensity, especially with only three games per team.

For the third factor, on the top of the team situations described above, the number of different sporting prizes takes into consideration for Euro qualifying rounds prior to 2020 the prize of being the best second/third across all groups, which is a factor generating competitive intensity. For Euro 2020 qualifying round, it takes into account the prizes of being one of the top six first ranked teams (Pot 1 in the draw for Euro 2020 final round), top two second ranked teams (joining the seventh to tenth first ranked teams in Pot 2) and second ranked teams being overall between the 13th and the 18th positions (Pot 3).

Based on the previous elements, expectations for the different comparisons relevant to the research are sum up. Better competitive balance and intensity are expected for Euro final round compared to qualifying round for both 2012 and 2016 due to better and closer teams, fewer games and a greater percentage of team situations relative to the number of teams. This test will not establish whether the changes made by UEFA are appropriate but is useful to obtain an overall picture about competitive balance and intensity in UEFA national men's team competitions and their explanatory factors. Better competitive balance and intensity in 2016 than in 2012 for both the qualifying and final rounds may also be expected: for the qualifying round, the reason would be a reduction in the sporting gap between strong and lower teams (decrease in relative gaps in experience, more incentives to play their best for lower teams due to more positions qualifying for the final round, general development in European football); for the final round, the same reason would counterbalance the potential negative impact of increasing the number of teams (i.e. eight new teams supposed to be lower than the 16 others), while the change in format induces a greater percentage of team situations relative to the number of teams, generating more incentives for lower teams to play their best with the potential to reduce the gap with stronger teams.

Results for the Euros 2012 and 2016

Comparison between qualifying and final rounds for both 2012 and 2016

Table 2 presents the results for the comparison between qualifying and final rounds for both Euros 2012 and 2016. The significance of the differences is tested with an independent one-tailed t-test since expectations are better competitive balance and intensity for the final round compared to the qualifying round (direction specified). For all three indicators used, there is a significant difference with the final round being more balanced (significant at the 10% level for 2012 and 1% level for 2016) and intense (significant at the 1% level for both IMCI and HDIMCI, and 2012 and 2016) than the qualifying round, consistent with expectations.

Comparison between Euros 2012 and 2016 qualifying rounds

Table 3 presents the results for the comparison between Euros 2012 and 2016 qualifying rounds. The significance of the differences is tested with an independent one-tailed t-test since expectations are an increase in competitive balance and intensity in 2016 compared to 2012 (direction specified). There is no significant difference for competitive balance. However, when Gibraltar that appeared in 2016 is not taken into account, the increase for competitive balance is significant at the 10% level. There is no significant difference for competitive intensity with both IMCI and HDIMCI. However, when Gibraltar is excluded, the increase in IMCI is significant at the 10%, meaning significantly more game-time when at least one of the two teams could change its situation with a goal scored or conceded in 2016 compared to 2012. Without Gibraltar, the increase in HDIMCI is still not significant, meaning no significantly more game-time when both teams or only one team (time divided by two) could change their situation with a goal scored or conceded in 2016 compared to

Table 2. Competitive balance and intensity in the Euros 2012 and 2016: comparison between qualifying and final rounds for each edition.

	Observations*	Competitive balance	Competitive intensity	
		Intra-game competitive balance	Intra-game competitive intensity	Half-dead intra-game competitive intensity
Euro 2012				
Qualifying round	247	80.1% (26.6%)	72.3% (33.5%)	68.3% (35.1%)
Final round	31	86.8% (20.9%)	86.8% (20.9%)	83.6% (22.4%)
Final round significantly better than qualifying round?[#]		Yes ($p = 0.09$)	Yes ($p < 0.01$)	Yes ($p < 0.01$)
Euro 2016				
Qualifying round	266	81.3% (25.6%)	74.8% (32.1%)	70.0% (33.8%)
Final round	51	90.8% (19.8%)	90.5% (20.0%)	87.1% (21.8%)
Final round significantly better than qualifying round?[2]		Yes ($p < 0.01$)	Yes ($p < 0.01$)	Yes ($p < 0.01$)

Average percentage for each indicator, standard deviation in brackets.
* 247 games instead to 248 for the Euro 2012 qualifying round due to Italy–Serbia awarded as a 3–0 forfeit win to Italy; 266 games instead to 268 for the Euro 2016 qualifying round due to Montenegro–Russia awarded as a 3–0 forfeit win to Russia and Serbia–Albania awarded as a 3–0 forfeit win to Albania.
Extra time is not included for knockout stages.
[#]Independent one-tailed t-tests.

Table 3. Competitive balance and intensity in the Euros 2012 and 2016 qualifying rounds: comparison between the two Euros.

	Observations	Competitive balance	Competitive intensity	
		Intra-game competitive balance	Intra-game competitive intensity	Half-dead intra-game competitive intensity
Euro 2012	247	80.1% (26.6%)	72.3% (33.5%)	68.3% (35.1%)
Euro 2016	266	81.3% (25.6%)	74.8% (32.1%)	70.0% (33.8%)
2016 significantly better than 2012?[1]		No ($p = 0.30$)	No ($p = 0.21$)	No ($p = 0.29$)
Euro 2016 without Gibraltar	256	83.0% (24.3%)	77.0% (31.1%)	71.8% (33.1%)
2016 without Gibraltar significantly better than 2012?*		Yes ($p = 0.0997$)	Yes ($p = 0.07$)	No ($p = 0.13$)

Average percentage for each indicator, standard deviation in brackets.
* Independent one-tailed t-tests.

2012. Overall, these results suggest that both intra-match competitive balance and intensity would have been improved without Gibraltar, consistent with expectations.

Comparison between Euros 2012 and 2016 final rounds

Table 4 presents the results for the comparison between Euros 2012 and 2016 final rounds. The significance of the differences is tested with an independent one-tailed t-test since expectations are an increase in competitive balance and intensity in 2016 compared to 2012 (direction specified). None of the tests unveils a significant difference between the two editions. One reason could be the limited number of observations for Euro 2012 final round (31 versus 51 for Euro 2016 final round), which makes the statistical test less likely to be significant. In order to deal with this issue, Euro 2008 final round (31 observations) was added to Euro 2012 final round, both forming the 'old' format (62 observations as a whole) *versus* Euro 2016 final round as the 'new' format. If there is still no

Table 4. Comparison between competitive balance and intensity in the Euros 2008, 2012 and 2016 final rounds*.

	Observations	Competitive balance	Competitive intensity	
		Intra-game competitive balance	Intra-game competitive intensity	Half-dead intra-game competitive intensity
Euro 2012	31	86.8% (20.9%)	86.8% (20.9%)	83.6% (22.4%)
Euro 2016	51	90.8% (19.8%)	90.5% (20.0%)	87.1% (21.8%)
Euro 2016 final round significantly better than Euro 2012 final round?#		No ($p = 0.20$)	No ($p = 0.22$)	No ($p = 0.25$)
Euro 2008	31	88.1% (18.2%)	76.2% (31.2%)	74.4% (32.3%)
Euros 2008 and 2012	62	87.5% (19.6%)	81.5% (27.1%)	79.0% (28.2%)
Euro 2016 final round significantly better than Euros 2008 and 2012 final rounds?[2]		No ($p = 0.18$)	Yes ($p = 0.02$)	Yes ($p = 0.046$)

Average percentage for each indicator, standard deviation in brackets.
* Extra time is not included for knockout stages.
#Independent one-tailed t-tests.

significant difference between the two formats for competitive balance, the 'new' format has a significantly better competitive intensity than the 'old' format (at the 5% level for both IMCI and HDIMCI), consistent with expectations.

Discussion

Euros 2012 and 2016

An improvement in competitive balance and intensity supportive of the changes made by UEFA

Results are supportive of the changes made by UEFA between Euro 2012 and 2016 qualifying rounds. When Gibraltar that appeared in the 2016 qualifying round is not included, they unveil that intra-match competitive balance has improved. With regards to competitive intensity, this increase in competitive balance and the advantage of having more 'average' teams in contention to qualify or take part in playoffs are not counterbalanced by the disadvantage of having more teams qualified early among the best. Competitive intensity could have been even better with a sporting prize for teams ranked first in their group different from teams ranked second, e.g. being in Pots 1 and 2 for the final draw (among group winners, Czech Republic was in Pot 3 and Northern Ireland in Pot 4). UEFA addressed this issue for Euro 2020 qualifying round as described above.

Results also reveal that Euro final rounds were more balanced and intense than Euro-qualifying rounds in both 2012 and 2016. The addition of eight teams in the final round in 2016 did not reduce competitive balance (it even improved, although this is not significant), suggesting that teams 17 to 24 are not significantly lower than teams 1 to 16. This is consistent with the idea of an overall increase in competitive balance between European national football associations. This can be illustrated by Iceland (27^{th} in the UEFA ranking) able to eliminate the Netherlands (7^{th}) and Wales (28^{th}) able to eliminate Bosnia and Herzegovina (13^{th}) at the end of Euro 2016 qualifying round. These two teams also performed well in the final round, with Wales reaching the semi-finals and Iceland the quarter-finals.

Beyond not having reduced competitive balance, the new final round format is more appropriate for competitive intensity as highlighted earlier, with 91.7% of team situations relative to the number of teams and still only three games per team. This did not lead to significant differences between Euros 2012 and 2016 final rounds for the two indicators of competitive intensity. However, when

adding Euro 2008 final round to Euro 2012 final round, the differences between the 'old' and the 'new' formats become significant. As such, results are supportive of the changes made by UEFA for Euro final round between 2012 and 2016.

Euro 2020 and Nations League 2018-2019

Euro 2020 final round is the same as for 2016 so it is not discussed further. On the contrary, Euro 2020 qualifying round changed compared to 2016. As highlighted in Table 1, the percentage of team situations relative to the number of teams was increased from 50.9% to 54.5% thanks to the positions 1 and 2 in each group being allocated a different sporting prize (Pots 1 and 2 for teams ranked first, Pot 2 for teams ranked second only for the best two overall among them, Pots 3 and 4 otherwise). Besides, the number of different sporting prizes was increased from 3 to 5, the disappearance of both the best third and the qualification for playoffs (now preceded by the Nations League) being more than compensated by the impact of being ranked 1–6, 7–12, 13–18 or 19–20 overall on the pot allocated for the draw for Euro final round. These two increases should have led to an increase in competitive intensity, except in case of decrease in competitive balance. Moreover, the changes related to Euro 2020 qualifying round have to be considered with the other changes implemented by UEFA, namely the Nations League. As indicated above and in Table 1, the 2018–2019 Nations League has an appropriate format to generate both competitive balance as teams are grouped together according to their level, and competitive intensity with 87.3% of team situations relative to the number of teams and only four to six games per team.

In addition, it is important to consider that the Nations League aimed to replace friendly games without sporting prizes. Looking at all competitive games, the 2018–2019 Nations League consisted of 154 games and Euro 2020 of 301 games (250 for the qualifying round against 268 in 2016 and 51 for the final round). In the Nations League, one team in each group of three teams (nine groups so nine teams) does not play for each matchday (six matchdays). If eight teams in such situation play friendly games against each other (four games per matchday so 24 games for six matchdays) and the other team plays against a team from another confederation (one game per matchday so six games for six matchdays), this would mean 30 friendly games 'associated' to the Nations League (i.e. played at the same time as the Nations League). With the same principle, in Euro qualifying round, one team in each group of five teams (five groups so five teams) does not play for each matchday (10 matchdays). If four teams in such situation play friendly games against each other (two games per matchday so 20 games for 10 matchdays) and the other teamplays against a team from another confederation (one game per matchday so 10 games for 10 matchdays), this would mean again 30 friendly games 'associated' to Euro qualifying round against 10 in 2016 (only the games played by France, the host country). However, all other friendly games played by European national football associations during Euro 2016 qualifying round have to be taken into account. They can be considered as 'indirectly associated' to Euro 2016 qualifying round.

Table 5 sums up the number and percentage of games 'associated' to UEFA men's national team competitions in the 2014–2016 and 2018–2020 cycles under the hypothesis of the same number of games as a whole. It provides an idea about the extent to which the Nations League allowed UEFA to reduce the number and percentage of friendly games without sporting prizes. The percentage of

Table 5. Number and percentage of games 'associated' to UEFA men's national team competitions in the 2014–2016 and 2018–2020 cycles under the hypothesis of the same number of games as a whole.

	2014–2016		2018–2020	
	Number	Percentage	Number	Percentage
Euro qualifying round	268	52.0%	250	48.5%
Euro final round	51	9.9%	51	9.9%
Nations League	-	-	154	29.9%
Friendly games	196	38.1%	60	11.7%
Total	515	100%	515	100%

friendly games was potentially reduced from 38.1% to 11.7%, meaning that UEFA achieved its objective.

Managerial and theoretical contributions

Changes in competition formats are important for a sport organization like UEFA as they are supposed to have a commercial and economic impact via their effect on fan demand and, in the long term, a political impact since they are part of the elements that can be assessed to consider whether a President and her or his team have achieved their objectives. Nevertheless, evaluating the impact of such changes in competition formats requires knowing what has to be measured exactly. Competitive balance and intensity are two relevant concepts as they provide indicators enabling the evaluation of the impact of a change in competition format on the equilibrium between teams and the incentives to play their best as long as possible during a competition, respectively. In other words, the concepts of competitive balance and intensity give key performance indicators related to one specific objective for UEFA, i.e. to promote football in a spirit of unity and solidarity by increasing the access of smaller countries to competitions without a negative impact on the quality of the game. They can be used by UEFA managers to assess and communicate on the relevance of their decisions. In a context where UEFA President Aleksander Čeferin explained that competitive balance is the biggest challenge to develop football as mentioned in introduction, the indicators provided in the present research seem to be highly appropriate.

From a theoretical point of view, the main contributions of this research lie in providing a range of indicators that are suitable for the evaluation of the competitive balance and intensity of national team competitions, including half-dead intra-match competitive intensity which is based on UEFA recommendations and new in the literature; suggesting some factors that can explain competitive balance and intensity in national team competitions; and confirming the impact of these factors on their competitive balance and intensity. Managers can act upon these factors, meaning that their identification contributes to both theory and practice.

Limitations and future research directions

It must be acknowledged that this research has some limitations, opening the door to future directions. First, similar analyses for the other UEFA men's competitions (club, youth and amateur, futsal) and all UEFA women's competitions are needed to provide an overview on the extent to which the changes made by UEFA over the last decade are beneficial for European football as a whole. The approach chosen could also be applied to other confederations or other sports, with some adaptations in the indicators used so as to take into account the specificity of each confederation or sport competition system.

Another future research direction would be to ask football coaches and players for their feelings about the changes made by UEFA, especially the implementation of the Nations League instead of friendly games. National association coaches may complain against the decrease in friendly games, reducing their possibility to test new players and tactical schemes without the pressure of a competitive game. Club coaches and players may also complain against the increase in competitive games, associated with more efforts so more fatigue for players. Such elements may counterbalance the positive impact of the changes made by UEFA.

An additional future research direction would be to test the impact of competitive balance and intensity on stadium attendance and TV audience (and ultimately TV rights)[26] in UEFA national team competitions, consistent with the second line of literature on competitive balance and intensity not explored in the present research.

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