Cultural diversity and team performance in the Italian Serie A

Addesa Francesco, Leeds Beckett University

Bove Vincenzo, Warwick Univeristy

Rossi Giambattista, Birkbeck University of London

Abstract

Cultural diversity features prominently in management studies. A diverse range of skills and perspectives can produce innovation and a greater variety of solutions to day to day problems. At the same time, however, the same heterogeneous approaches and experiences can result in communication and coordination problems, lack of trust and intra/intergroup conflict. We analyse a newly constructed dataset on team composition and performance for 29 teams, 1,238 players and 1,899 matches in the Italian Serie A with information on the players' place of origin, talent, position, demographics, manager experience and other factors. We compute indices of fractionalization and polarization and find that both measures of diversity have a strong and persistent negative effect on game scores and player objective performance ratings. This research provides new important insights into the drawbacks of cultural heterogeneity in the workplace and calls for more in-depth analyses of the nexus diversity-performances on team performance.

1. **Introduction**

Team diversity is the level of diversity of organizational groups (Milliken and Martins, 1996). It occurs when individuals with different identities, background and experience stay close and interact with each other. Teams can be diverse with regard to various characteristics including gender; age; race, ethnicity and nationality; personal characteristics and values; educational, functional and occupational background; industry experience; organizational memberships; organizational tenure; and group tenure (Milliken and Martins, 1996).

The issue of cultural diversity is one of the most fast-growing fields of research in social science. As the population in modern societies became substantially more heterogeneous along traditional dimensions such as national origin or ethnicity, several studies have investigated whether the overall performance of a team of workers is fostered by the heterogeneity of its members' cultural or national backgrounds (Fisher Ellison et al., 2010; Van Praag and Hoogendoorn, 2012; Trax at al., 2012; Kahane et al., 2013).

Yet, whether diversity has a positive or negative effect on the performances of a team is still a puzzling issue and the studies on organisational theory do not offer a clear-cut answer. Horowitz and Horowitz (2007, p. 98) recalls diversity is often provided as a "*double-edged sword*". Team diversity can potentially create positive team outcomes through enhanced organisational synergy, improving its performance, as individuals' heterogeneous backgrounds bring along their various skills, experiences, and abilities in their daily interactions. At the same time, however, heterogeneous work environments are often characterised by cultural barriers which raise transaction costs and lack of trust, which in turn may reduce the overall performance of the team. Therefore, whether the gains from diversity outweigh its costs should be considered as an empirical question.

Our paper analyses all teams' performance measured objectively and consistently in all matches played in Serie A, the top Italian football division, over a period of five seasons from 2009/10 to 2013/14. We consider cultural diversity at team level, controlling some factors, such as team members, individual skills and team average skills, manager attributes, and team composition that can have an impact on team performance.

This is a very interesting and timely issue as cultural diversity increased considerably in football after the 1995 European Court of Justice's definition of football as an economic activity. This guarantees the free movement of European football players within the European Union without imposing any limitations (Szymanski, 2000). This decision, the so-called Bosman ruling, gave clubs the opportunity to explore the labour market of football worldwide and to hire foreign players to enhance their success by exploiting the specific strengths of individuals with different cultural backgrounds and diverse skills, as football education is focused on different tactics (Lanfranchi and Taylor, 2001).

Using data on teams' line-up including the potential substitutes, a range of empirical models and two indexes of heterogeneity, we find that team performance is consistently and negatively affected by diversity.

2. Relevant literature and theoretical framework

Most of the theoretical literature generally supports the claim that diversity is added-value and its effect is conditioned by the nature of tasks, the extent of potential communication problems, and the scope for gain from creativity derived from differences (Lazear, 1999). On this matter, the diversity of teams has drawn great attention in the literature (Sakuda, 2012). Yet the empirical evidence is inconsistent as some studies found no effects of diversity on performances (Webber and Donahue, 2001), while others documented that diversity is positively (Higgins et al., 2005) or negatively correlated with performance (Carson et al., 2004; Haas and Nuesch, 2012).

Similarly, in psychology and management studies, diversity on organizational productivity and individual and team performance have both negative and positive impact (Joshi and Roh, 2009; van Knippenberg and Schippers, 2007). In a study at a firm-level, Hamilton et al. (2003) finds that more heterogeneous teams were more productive, holding average ability constant, which is consistent with mutual team learning and intra-team bargaining. At the team and workgroup level, the positive effects of diversity are facilitated by multiple factors, including effective leadership and workgroup social identification (Homan et al., 2007; Kearney and Gebert, 2009).

If we focus specifically on the effect of cultural diversity on team performance, numerous scholars have analysed it (Early ad Mosakowski, 2000; Gibson, 1999; Milliken and Martins, 1996; Stahl et al., 2010; Thomas, 1999; Zhou and Shi, 2011). A key positive argument is that multiple perspectives and experiences favour creativity, adaptability, innovation, and higher quality problem solutions (McLeod et al., 1996; Wieserma and Bantel, 1992). Conversely, the similarity-attraction paradigm suggests that workers are appealed to collaborate with who share similar value, principles, and attitudes (Williams and O'Reilly, 1998). According to social identity theory (Tajfel, 1982), more culturally different individuals tend to categorize themselves into specific groups and to negatively assess and judge others as outsiders to maintain a positive social identity.

However, literature findings are conflicting. While there is evidence of positive effects of culturally heterogeneous teams in some studies (Cox et al., 1991; Elron, 1997; Gibson, 1999), others highlight negative effects (Govindarajan and Gupta, 2001; Henderson, 2005; Millhous, 1999) or revealed curvilinear relationship between cultural diversity and team performance (Early and Mosakowski, 2000). Similarly, in the team management literature, cultural heterogeneity may not only positively influence team performance but also have negative effects (Chevier, 2003; Maznevski and Chudoba, 2000). This ambiguity is also

present in the conflict management literature (Elron, 1997; Henderson, 2005) as well as in studies analysing motivation and trust building (Di Stefano and Moznevski, 2000).

Maderer et al. (2014) argue that four main methodological limitations suggest this inconsistent evidence. First, several studies used student samples (Chatman and Flynn, 2001; Harrison et al., 2002; Jehn and Mannix, 2001; Thomas, 1999; Watson et al., 1993; Zhou and Shi, 2011), whose findings are hardly compared to real-life teams who face numerous time restrictions and economic constraints (Berg and Holtbrugge, 2010). Second, teams are often selected only for the reason of the study (Cox et al., 1991; Gibson, 1999; Kilduff et al., 2000; Thomas et al., 1996), and they might behave more artificially than teams with both a history and future cooperation (Earley and Mosakowski, 2000; Pelled et al., 1999). Third, the concept of cultural diversity is often not adequately aligned with diverse and multiple approaches to measure team performance: subjective performance ratings (Earley and Mosakowski, 2000; Pelled et al., 1999); the number and the quality of ideas/solutions generated (McLeod et al., 1996; Watson et al., 1993); or psychological commitment, number of absences, job satisfaction, and the intention to stay (Tsui et al., 1992; Verkuyten et al., 1993). Finally, different conditions under which teams operate are not sufficiently considered, as the nature of the task is seen as a possible moderator and culturally heterogeneous teams tend to perform successfully when their tasks are well defined, demand - coordinated activities, and require simple responses (Stewart, 2006; Stahl et al., 2009).

In comparison with previous research, the analysis of football teams' diversity has some advantages. Exhaustive information on players' and teams' characteristics and performance are very accurate and readily available, and this allows much more detailed analyses than any other industry (Kahn, 2000). Then, players' contract duration in a club ranges between a minimum of a year and a maximum of 6 years. Thus, players work together for a comparatively long period of time, which allows assessing time effects.

There literature on diversity in team sports is still marginal as Table 1 reveals. An analysis of multiple seasons in American basketball and baseball conducted by Timmerman (2000) suggested that racial and age diversity for basketball players had negative performance effects but none for baseball. In a study on high-school basketball players, Ninham (2009) found that passing decisions were affected by players' race, probably explained by preferential treatment and difficulty in communication. Considering the gains to NHL hockey teams from employing culturally diverse players, Kahane et al. (2013) argue that teams are more successful when their European players came from the same country. Examining the determinants of team performance, as opposed to individual performance, in the Tour de France, Prinz and Wicker (2016) found that diversity within a team in terms of age, nationality, has no impact on team performance in the Tour de France.

Table 1: List of publications on diversity in sport

Author(s) and year of publication	Data	Dependent variable/estimation technique	Results
Timmerman (2000)	NBA basketball and MLB baseball from 1950 to 1997		Age diversity and racial diversity were negatively associated with basketball team performance. Diversity on both variables was unrelated to baseball team performance.
Brandes, Franck and Theiler (2009)	German Bundesliga from 2001 to 2006	The final ranking of each team in each football season/OLS regression	The influence of national diversity among team members on team performance depends on the nature of the underlying task.
Haas and Nuesch (2012)	German Bundesliga from 1999 to 2006	Team points, goal difference and expert evaluation/OLS regression	Multinational teams perform worse than teams with less national diversity
Kahane, Longley and Simmons (2013)	Hockey NHL from 2001 to 2008	Team win percentage, team points percentage and goal difference/OLS regression	When teams have players from a wide array of European countries, integration costs associated with language and cultural differences may start to override any gains from diversity
Ingersoll, Malesky and Saiegh (2013)	UEFA Champions League from 2003 to 2013	Per-game goal differential/OLS regression	More diverse teams outperform less diverse teams
Ben-Ner, Licht and Park (2013)	German Bundesliga from 2000 to 2010	Games goals conceded, games goal scoreds and player game performance rating/OLS regression	The diversity effect is small and is identified when teams are disaggregated into subgroups, by domestic versus foreign players, by position, and by joint tenure spent together on the team
Maderer, Holtbrugge and Tassilo (2014)	Big five European leagues in season 2008/09	Points to market value defined as the average number of points per match divided by the market value of the team/OLS regression	Cultural heterogeneous teams are less successful than teams that consist of players with the same nationality.
Prinz, J. and Wicker, P. (2016)	Tour de France from 2004 to 2013	Numbers of riders completing the race and standardized team rank/ OLS regression	Diversity in terms of tenure significantly adds to team performance, while diversity in terms of skills (proxied by body mass index) decreases performance. Diversity in terms of age, nationality, language, previous Tour participations and stage wins has no significant effect on team performance

In football, the majority of studies have focused on the effect of team diversity in the German Bundesliga. Brandes et al. (2009) argue that cultural heterogeneity does not have a significant impact on season league standing. However, by testing it according to players' role, a significantly negative result is evidence on the defense. Haas and Nuesch (2012) found negative effects of national origin diversity on game level team outcomes in terms of points per game, goal differences per game, and average subjective player rating per game.

Ben-Ner et al. (2013) found both positive and negative performance effects at the game level associated with diversity linked to contingencies of task, tenure, and place of origin. Specifically, the effects of diversity on performance are positive for defense and negative for offense. Maderer et al. (2014), using a structure-leadership-performance model and focusing on the big five European Leagues during the season 2008/09, find that cultural diversity has a negative impact on team performance measured in terms of the ratio points per game to clubs' market value.

As we can see, this literature has been facing severe difficulties in attempting to establish the very direction of the effect of diversity on performances in the workplace. This is still a contentious issue and in the next section we will try to address this question by means of a novel and extensive dataset on football teams and compare two indexes of diversity, the issue considered next.

3. Indices of diversity

To capture the degree of diversity within a team, we use two indices: the fractionalization and the polarization. Empirical economic studies on diversity mostly use the Ethnolinguistic Fractionalization Index (ELF) or simply fractionalization index (Alesina and La Ferrara, 2005; Ottaviano and Peri, 2006), which measures the probability of two randomly selected individuals in society belonging to different groups (Desmet et al., 2009). As a variation of the Herfindall-Hirschman concentration Index (HHI), it equals 0 when all players are from the same category and grows as diversity rises; approaching 1, as the number of players increases and each player belongs to a different category. In our paper, we employ a measure of diversity based on players' 60 nationalities represented among the 1,238 players, and on average only half of the players are Italian born in each match. An index of fractionalization can be written as:

$$(1) \quad \text{Fractionalization} = 1 - \sum_{i=1}^{n} \pi_i^2 = \sum_{i=1}^{n} \pi_i (1 - \pi_i)$$

Yet, while this measure of heterogeneity has drawn a vast interest, an alternative index of diversity, called polarization, was originally introduced by Reynal-Querol (2002) as:

$$(2) \quad \text{Polarization} = 4 \sum_{i=1}^{n} \pi_i^2 (1 - \pi_i)$$

This index efficiently assesses how far the distribution of the groups is from a bipolar situation where there two sub-groups within the same team of equal size as is the case of team *Catania Calcio* in our sample. Using this alternative index serves as a way of capturing the presence of intra-group tensions. Economic models of rent-seeking suggests that social costs are higher and social tensions emerge more easily when the population is distributed in two equally-sized groups, therefore when society is highly polarized. For this reason, we

use the indexes of polarization and fractionalization to capture the potential for conflicting behaviours and tensions in heterogeneous teams.

Figure 1: Team Fractionalization vs Polarization in Italian Serie A (2009-2014)
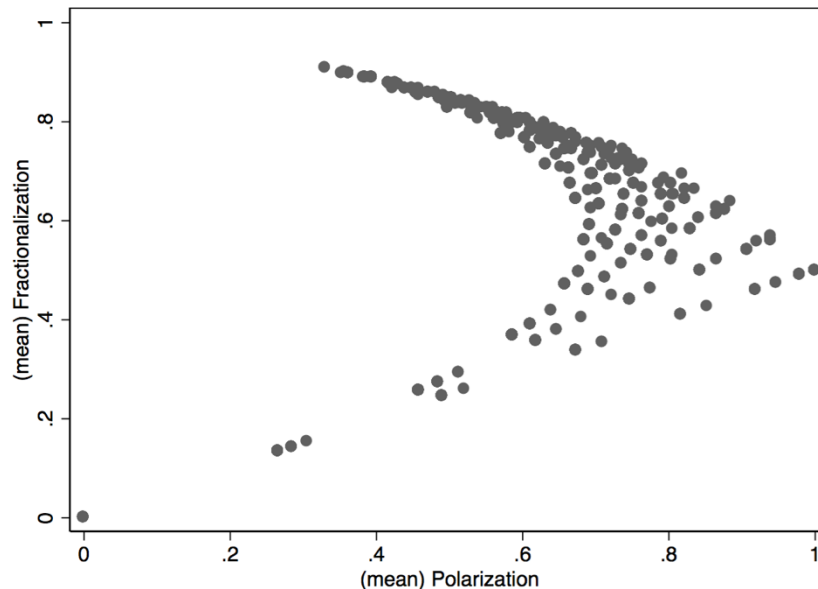
We follow the standard procedure and multiply the index by 4 so as to make it range between 0 and 1. When there are only two groups, both indexes equal the same score. Yet, when we move to three groups, the relationship between these indexes breaks down. Figure 1 shows the scatterplot of fractionalization versus polarization using our data source. For low levels of fractionalization, the correlation with polarization is positive, whereas for intermediate levels of fractionalization, the correlation is zero. High levels of fractionalization are negatively correlated with the polarization.

4. Data and empirical strategy

The top tier Italian football league is Serie A and it comprises 18 clubs that compete to win the league title, the so-called Scudetto. Each of the 20 Serie A team plays 38 games per season, playing each of the other team twice, once at home and once away. At the end of the season, the top six teams qualify for European competitions, whereas the bottom three teams are relegated to Serie B.

Our dataset includes five Serie A seasons from 2009/10 to 2013/14 with a total of 3802 player game observations in 1,899 games with 29 different teams, and 238 unique players who played at least in one game during our sample period. While performance data were provided by Panini Digital, the official Serie A data provider, players' personal information and demographic characteristics were collected from the football website Soccer Association.

Whether we consider either the season or the match level, sporting success is the main target for any professional football. Team league table position in terms of points attained is likely the most common measure with the appropriate normalization methods. However, in our context, the analysis is carried out at match level and we opt for the main team performance as shown in table 2: team's final game results and game goal difference. These two variables are the main dependent variable for our empirical analysis on cultural diversity on football teams.

Table 2: Team performance dependent variables at game level

Variable	Mean (S.D.)	Variable description
Team results	0.999 (0.861)	Team's final game result
Goal difference	1.260 (1.066)	Difference between goals made and goals taken by a team in the single game

We strive to control for a host of variables potentially affecting the outcome of the match. We include the IVG, a measure of a player's performance calculated and owned by Panini Digital, which allows us to control for the average quality of the individual players in each match. The index is rated on a 0 to 30 scale based on several metrics weighted in function of the player's position using the same rating scheme across all games: number and quality of passes, goals, saves, tackles, and more, collected continuously in each game.

Table 3: Independent variables

Variable	Mean (S.D.)	Variable description
Wages	42973.470 (25723.880)	Team seasonal payroll in thousands of Euros
Capacity	0.560 (0.190)	Ratio between the game attendance, measured by the number of tickets sold plus seasonal ticket holders per match, and the stadium capacity
Manager Age	49.426 (4.909)	Age of the club's manager
Manager Experience	126.570 (83.570)	Number of games managed by the club's manager
Tenure	1.805 (2.628)	Number of seasons played by a player in the current team
IVG	17.703 (3.413)	Players' performance index
Home	0.500 (0.30)	Dummy variable that takes the value of 1 if team plays a home game and 0 otherwise

In Table 3, we present the other variables that are adjusted to the level and period of analysis and that arguably may affect team.

Time spent together by members of a team may have multiple and conflicting effects on the role of diversity on the quality of their collaboration as common goals and shared experiences may help forge a common identity that bridges over players' place of origin identities (Allport, 1954; Chen and Chen, 2011; Chatman and Flynn, 2001). Differences among diverse members may fade away thus weakening the negative effect of diversity on social preferences towards out-group members. From this perspective, collaboration will be improved over time. Furthermore, longer joint tenure improves communication as team members learn each other's styles and reduce misunderstandings. Harrison et al. (2002) argue that evident aspects of diversity have less negative impacts over time because individuals spend more time together to know one another more and therefore rely on relatively automatic social categorisation processes, and deep level diversity become more pronounced with more negative effects over time. Schippers et al. (2003) and Kurtulus (2011) find that team tenure enhance the beneficial effects of the diversity-performance relationship. For this reason, we include tenure on team in our model. Manager (coach) age and experience and stadium size are also included together with each team payrolls to control clubs characteristics.

5. Empirical strategy

With the exception of the match results, all the continuous variables are transformed into logs to reduce proportionally the variance and the effect of outliers. We estimate the following equation.

$$(3) \ lnY_{imt} = \alpha \, Frac_{imt} + \beta Pol_{imt} + \sum_n \delta_n \ln X_{imt} + \mu_i + \mu_t + \epsilon_{imt}$$

with i = 1,…, 29 is the team, m = 1,… 1,899, is the match and t = 1,..,5 as our data, from 2009 to 2014, is organized in 5 seasons. lnY_{imt} is the performance of the team i. We use two measures of team performances: 1) the result of the match, coded as 2 if the team won, 1 in case of a draw, and 0 when a team loses; and 2) the difference between goals scored and goals conceded. $Frac_{imt}$ and Pol_{imt} are the levels of fractionalization and polarization; X is a vector of explanatory variables and δ_n is the associated coefficient vector; and ϵ_{imt} is the error term. We control for the capacity of the stadium, home, wages, manager age, manager experience, tenure seasons, tenure games, IVG and the interaction between Home and capacity. Game level diversity (as opposed to season-level) is usually affected by a large number of exogenous factors (or shocks) such as injuries, illness, disciplinary suspensions by the soccer federation, international responsibilities of players who are members of national teams, and factors beyond the control of the manager.

For each dependent variable, six regression analyses are shown in Table 4 and 5. We use

both ordered probit models (models 1-3) as well as OLS models (models 4-6) as a robustness check. We also include a full set of time dummies, μ_t, that control for unobservable seasonal effects, and team fixed effects μ_i. First, since the indexes are correlated for extreme levels of fractionalization and polarization, we include them first separately. In both tables, columns 1 and 4 contain all the control variables plus the fractionalization index. Similarly, columns 2 and 5 only include the polarization index with the same control variables. Yet, Ager and Bruckner (2013) claims that the estimates do not capture independent effects and suffer from an omitted variables bias. For this reason, we also consider them jointly in columns 3 and 6. We control for group-wise heteroscedasticity and serial correlation by reporting robust standard errors clustered on teams. It is relevant to note that we use a linear-log model i.e., we take the log values of fractionalization and polarization and we keep the dependent variables in their original scale. This specification is useful in the presence of diminishing marginal returns and it is easy to interpret.

6. Results

The goal of each team is to win by scoring more goals than conceding and thus earnings three league points. Winning at a greater goal difference means greater success and helps with league standing when teams are tied in terms of number of points. The diversity variables and team characteristics vary from game to game depending on the specific game line-up, manager variables change when manager changes, or are incremental (experience). Our empirical results are reported in Tables 4 and 5, whose difference is in the dependent variable. While Table 4 reports the performance in terms of match result, assigning 0 to Lose, 1 to Draw and 2 to Win, in Table 5 we explain the difference in goals (goal scored-goals conceded) as the other dependent variable, also treated as a categorical and ordered variable.

Diversity indexes are always negatively correlated with performances. The benchmark regression in Column 1 of Tables 4 and 5 suggests that the fractionalization index is statistically significantly associated with team result and goal difference, and average team tenure as well as manager experience has no significant moderating effect on this relationship.

Amongst the control variables, team wages and IVG have a positively and statistically significant impact on the dependent variables on the match results and the goal difference score. This evidence confirms that top spending clubs are more likely to win. Similarly, playing at home provide a considerable advantage as the estimations are also positively and statistically significant.

<div align="center">Table 4: Ordered Probit and OLS Models of Team Result, 2010-2014</div>

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Wages	0.383**	0.309	0.346*	0.231**	0.187	0.208*
	(0.177)	(0.188)	(0.191)	(0.107)	(0.113)	(0.114)
Home	0.755***	0.763***	0.756***	0.506***	0.510***	0.506***
	(0.149)	(0.149)	(0.149)	(0.091)	(0.091)	(0.091)
Capacity	0.006	0.005	0.005	0.025	0.026	0.025
	(0.128)	(0.125)	(0.127)	(0.084)	(0.081)	(0.083)
Home x Capacity	-0.478**	-0.487**	-0.480**	-0.352**	-0.356**	-0.352**
	(0.222)	(0.222)	(0.221)	(0.132)	(0.132)	(0.131)
Manager Age	-0.481	-0.438	-0.499	-0.274	-0.250	-0.284
	(0.325)	(0.312)	(0.320)	(0.197)	(0.190)	(0.194)
Manager Experience	0.018	0.018	0.021	0.011	0.011	0.012
	(0.016)	(0.016)	(0.016)	(0.009)	(0.009)	(0.009)
Tenure Seasons	-0.002	0.021	0.015	-0.003	0.010	0.007
	(0.106)	(0.097)	(0.099)	(0.065)	(0.059)	(0.061)
IVG	9.883***	9.859***	9.885***	5.984***	5.978***	5.984***
	(0.558)	(0.554)	(0.558)	(0.272)	(0.268)	(0.271)
Fractionalization	-0.797***		-0.705**	-0.468**		-0.414**
	(0.294)		(0.324)	(0.171)		(0.188)
Polarization		-0.683*	-0.454		-0.409	-0.279
		(0.410)	(0.431)		(0.241)	(0.255)
N			3799			

Dependent variable is team result: 0 if Lose, 1 if Draw, 2 if Win
Models 1-3 are Ordered Probit. Models 4-6 are OLS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Season and Team fixed effects are included. Robust standard errors are given in parentheses clustered by Team.

Regarding manager variables, manager experience is not significant in both tables' estimations. Conversely, manager age has a negative and significant impact on goal difference. This implies that older manager might perform worse than younger ones.

Table 5: Ordered Probit and OLS Models of Goal difference, 2009-2014

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Wages	0.343**	0.256*	0.294**	0.442**	0.328*	0.378**
	(0.140)	(0.140)	(0.141)	(0.182)	(0.181)	(0.183)
Home	0.642***	0.648***	0.642***	0.839***	0.849***	0.840***
	(0.111)	(0.110)	(0.110)	(0.145)	(0.144)	(0.144)
Capacity	0.005	0.005	0.003	0.012	0.012	0.009
	(0.137)	(0.133)	(0.136)	(0.183)	(0.178)	(0.181)
Home x Capacity	-0.358**	-0.365**	-0.358**	-0.482**	-0.492**	-0.481**
	(0.174)	(0.174)	(0.173)	(0.229)	(0.230)	(0.228)
Manager Age	-0.537**	-0.498**	-0.559**	-0.700**	-0.648**	-0.729**
	(0.240)	(0.228)	(0.233)	(0.313)	(0.297)	(0.305)
Manager Experience	0.014	0.015	0.017	0.018	0.019	0.022
	(0.014)	(0.014)	(0.013)	(0.018)	(0.019)	(0.018)
Tenure Seasons	-0.046	-0.018	-0.023	-0.060	-0.024	-0.031
	(0.091)	(0.082)	(0.084)	(0.120)	(0.107)	(0.110)
IVG	9.929***	9.911***	9.934***	12.980***	12.965***	12.980***
	(0.506)	(0.503)	(0.506)	(0.621)	(0.617)	(0.618)
Fractionalization	-0.862***		-0.744***	-1.140***		-0.985**
	(0.243)		(0.271)	(0.322)		(0.359)
Polarization		-0.841***	-0.608*		-1.104**	-0.793*
		(0.323)	(0.353)		(0.421)	(0.460)
N				3800		

Dependent variable is Delta of goals (goals scored-goals conceded)
Models 1-3 are Ordered Probit. Models 4-6 are OLS. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Season and Team fixed effects are included. Robust standard errors are given in parentheses clustered by Team.

There is no notable difference between fractionalization and polarization, as both indexes have the same direction. Using two different measure of performance does not seem to affect the results. However, when we include them together in table 4, polarization is no longer significant, whereas in table 5 both retain their statistical significance at conventional levels. This should be expected as the two measures are correlated and therefore the interpretation is ambiguous. This makes us less confident in the validity of the results when both indexes were included jointly in the regressions. This issue is also acknowledged in some of the recent literature on the topic (Ager and Bruckner, 2013). In light of this issue, we need to be careful in interpreting the models where both indexes were included jointly. Using an OLS model yields empirical estimates that are similar in statistical significance to those obtained using Probit models. The substantive interpretation of the coefficients in the

OLS model reveals that a 10 percent increase in fractionalization reduces both the result by 0.05 points and difference in goals by 0.11. The effect of polarization is in the same order of magnitude. These results support previous studies on multicultural teams which find that cultural diversity is damaging for tasks with low complexity and greater time constraints (Cox et al., 1991; Jehn, 1995; McLeod et al., 1996; Pelled et al., 1999).

The fact that some control variables are not significant, such as capacity and manager experience, is not surprising, as our models are very conservative and the combined inclusion of time and team fixed effects soak up most of their explanatory power.

Some variables have a negative sign such as the age of the manager and the interaction between Home and Capacity. Regarding the first variable, the age of the manager has a negative impact as it might be related to the fact that old manager tends to work for teams that fight to avoid relegation and they might adopt a more conservative style. The second variable might be explained by the fact that stadia attendance in Italian Serie A is very low due to reasons that stadia are old and unsafe to attract large audience. For this reason, top clubs mostly play in half-empty stadium and middle and bottom clubs fill their stadium when they host top clubs. Hence, it is plausible that there is a negative significance between home stadium capacity and team performance.

7. Discussion and conclusions

A multitude of factors affects how well individuals who are diverse in teams of their place of origin collaborate on various tasks. Diversity may affect incentives, communication and creativity arising from different groups within a team that act in the interest of the group versus their individual and collective decisions. The literature on diversity has generated findings that show both positive and negative effects of diversity on performance.

This paper examines the relationship between the cultural heterogeneity of football teams and their success at match level. Firstly, the current literature on multicultural football teams was examined to identify the most relevant variables in this research context. While previous research is mainly focused on the German Bundesliga, the composition of football team line-up in terms of cultural diversity is analysed in the Italian Serie A, thus offering a wider and more consistent picture of the effects of cultural diversity in this context. Afterwards, we developed a model to test an archival dataset of 1238 players of 29 clubs along 1,899 matches in the Italian Serie A. In contrast to the main literature, we analysed real-life teams that are characterized by a relatively stable composition over a longer period of time.

We found that diversity matters and has unfavourable effects. The place-of-origin diversity of team line-up has discernible association with match results and goal difference. Performance effects of diversity at the team level can be identified when the role of joint tenure on time spent together in the team is incorporated in individual games. Our evidence

supports that cultural diversity has a negative effect on team success, thus supporting the similarity–attraction theory, in contrast to previous studies which showed that cultural diversity has either no impact or a positive impact on the sporting success of football teams (Brandes et al., 2009). This means that more cultural diverse teams are less successful than more cultural homogenous teams.

A future research direction should have a closer look on the impact of language on team process and sporting success (Chen et al., 2006; Henderson, 2005). Football requires intensive communication between the team members on the field as well as by the coach. Thus, it can be expected that language skills of players and coaches may moderate the relationship between the cultural diversity of a team and team success in a positive way.

References

- Alesina, A. and La Ferrara, E. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3), 762-800.
- Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.
- Ben-Ner, A., Licht, J. G. and Park, J. (2013). Diversity and performance in teams: Evidence from 10 seasons of German soccer.
- Berg, N. and Holtbrügge, D. (2010). Global teams: a network analysis. *Team Performance Management*, 16(3), 187–211.
- Brandes, L., Franck, F. and Theiler, P. (2009). The effect from national diversity on team production - Empirical evidence from the sports industry. *Schmalenbach Business Review, 61*, 225-246.
- Carson, C. M., Mosley, D. C. and Boyar, S. L. (2004). Performance gains through diverse top management teams. *Team Performance Management*, 10(5/6), 121-126.
- Chatman, J. A. and Flynn, F. J. (2001). The influence of demographic heterogeneity on the emergence and consequences norms in work teams. *Academy of Management Journal*, 44(5), 956-974.
- Chen, R. and Chen, Y. (2011). The potential of social identity for equilibrium selection. *American Economic Review*, 101(6), 2562-2589.
- Chen S., Geluykens, R. and Choi, C. J. (2006). The importance of language in global teams: a linguistic perspective. *Management International Review*, 46(6), 679–95.
- Cox, T. H., Lobel, S. A. and McLeod, P. L. (1991). Effects of ethnic group cultural differences on cooperative and competitive behaviour on a group task. *Academy of Management Journal*, 34(4), 827-847.
- Desmet, K., Weber, S. and Ortuno-Ortin, I. (2009). Linguistic diversity and redistribution. *Journal of the European Economic Association*, 7(6), 1291-1318.
- DiStefano, J. J. and Maznevski, M. L. (2000). Creating value with diverse teams in global management. *Organizational Dynamics*, 29(1), 45–63.
- Earley, P. C. and Mosakowski, E. (2000) Creating hybrid team cultures: an empirical test of transnational team functioning. *Academy of Management Journal*, 43(1), 26–49.
- Elron, E. (1997). Top management teams within multinational corporations: effects of cultural heterogeneity. *Leadership Quartely*, 8 (4), 393-412.
- Fisher Ellison, S., Greenbaum, J. and Mullin, W. (2010). Diversity, social goods provision, and performance in the firm. *MIT Department of Economics Working Paper*.
- Gibson, C. B. (1999). Do they do what they believe they can? Group efficacy and group effectiveness across tasks and cultures. *Academy of Management Journal*, 42(2), 138-152.
- Govindarajan, V. and Gupta, A. (2001). Building an effective global business team. *MIT Sloan Management Review*, 42(4), 63–71.

- Haas, H. and Nuesch, S. (2012). Are multinational teams more successful?. *The International Journal of Human Research Management*. 23(15), 3105-3113.
- Hamilton, B. H., Nickerson, J. A. and Owan, H. (2003). Team incentives and worker heterogeneity: An empirical analysis of the impact of teams and productivity and participation. *Journal of Political Economy*, 111, 465-497.
- Harrison, D. A., Price, K. H., Gavin, J. H. and Florey, A. T. (2002). Time, teams, and task performance: Changing effects of surface- and deep-level on group functioning. *Academy of Management Review*, 45(5), 1029-1045.
- Henderson, J. K. (2005). Language diversity in international management teams. *International Studies of Management and Organization*, 35(1), 66-82.
- Higgins, M., Plewian, V. and Ploch, J. (2005). Influence of team composition and task. *Team Performance Management*, 11(7/8), 227-250.
- Homan, A. C., von Knippenberg, D., Van Kleef, G. A., and De Dreu, C. (2007). Bridging faultiness by valuing diversity: Diversity, beliefs, information, elaboration and performance in diverse work groups. *Journal of Applied Psychology*, 92 (5), 1180-1199.
- Horowitz, S. K. and Horowitz, I. B. (2007). The effects of team diversity on team outcomes: A meta-analytical review of team demography. *Journal of Management*, 33(6), 987-1015.
- Ingersoll, K., Malesky, E. and Saiegh, S. M. (2013). Heterogeneity and group performance: Evaluating the effect of cultural diversity in the World's top soccer league.
- Lanfranchi, P. and Taylor, M. (2001). *Moving With the Ball. The Migration of Professional Footballers*. Oxford, New York: Berg.
- Lazear, E. P. (1999). Globalisation and the market for team-mates. *The Economic Journal*, 109 (454): 15-40.
- Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, 40(2), 256–82.
- Joshi, A. and Roh, H. (2009). The role of context in work team diversity research: A meta-analytic review. *Academy of Management Journal*, 51(6), 1204-1222.
- Kahane, L., Longley, N. and Simmons, R. (2013). The effects of coworker heterogeneity on firm-level output: Assessing the impacts of cultural and language fractionalization in the National Hockey League. *Review of Economics and Statistics*, 95(1), 302-314.
- Kahn, L. M. (2000). The sports business as a labour market laboratory. *The Journal of Economic Perspectives*, 14(3), 75-94.
- Kearney, E. and Gebert, D. (2009). Managing diversity and enhancing team outcomes: The promise of transformational leadership. *Journal of Applied Psychology*, 94, 77-89.

- Kurtulus, F. A. (2011). What types of diversity benefit workers? Empirical evidence on the effects of coworker dissimilarity on the performance of employees. *Industrial Relations*, 50, 678-712.
- Maderer, D., Holtbrugge, D. and Tassilo, S. (2014). Professional football squads as multicultural teams: Cultural diversity, intercultural experience, and team performance. *International Journal of Cross Cultural Management*, 14(2), 215-238.
- Maznevski, M. L. and Chudoba, K. M. (2000). Bridging space over time: global virtual team dynamics and effectiveness. *Organization Science*, 11(5), 473-492.
- McLeod, P. L., Lobel, S. A. and Cox, T. H. (1996). Ethnic diversity and creativity in small groups. *Small Group Research*, 27(2), 248–64.
- Millhous, L. M. (1999). The experience of culture in multicultural groups: Case studies of Russian-American collaboration in business. *Small Group Research*, 30(3), 280-303.
- Milliken, F. J. and Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review*, 21(2), 402-433.
- Ninham, D. (2009). Ethnically heterogeneous high school boys basketball: An investigation of unity in diversity. ProQuest Dissertation and Theses. University of Northern Colorado.
- Ottaviano, G. I. P. and Peri, G. (2006). The economic value of cultural diversity: Evidence from US cities. *Journal of Economic Geography*, 6(1), 9-44.
- Pelled, L. H., Eisenhardt, K. M. and Xin, K. R. (1999). Exploring the black box: An analysis of work group diversity, conflict and performance. *Administrative Science Quarterly*, 44(1), 1-28.
- Prinz, J. and Wicker, P. (2016). Diversity effects on team performance in the Tour de France. *Team Performance Management: An International Journal*, 22(1/2), 22-35.
- Reynal-Querol, M. (2002). Ethnicity, political systems, and civil wars. *Journal of Conflict Resolution*, 46(1), 29-54.
- Sakuda, K. H. (2012). National diversity and team performance in low interdependence tasks. *Cross Cultural Management: An International Journal*, 19(2), 125-141.
- Schippers, M. C., Den Hartog, D., Koopman, P. L. and Wienk, J. A. (2003). Diversity and team outcomes: The moderating effects of outcome interdependence and team longevity on the mediating effect of reflexivity. *Journal of Organizational Behaviour*, 24, 779-802.
- Stahl, G. K., Maznevski, M. L., Voigt, A. and Jonsen, K. (2010). Unravelling the effects of cultural diversity in teams: a meta-analysis of research on multicultural work groups. *Journal of International Business Studies*, 41(4), 690–709.
- Stewart, G. L. (2006). A meta-analytic review of relationships between team design features and team performance. *Journal of Management*, 32(1), 29–55.

- Szymanski, S. (2000). A market test for discrimination in the English professional soccer leagues. *Journal of Political Economy*, 108(3), 590–603.
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology*, 33, 1-39.
- Thomas, D. C. (1999). Cultural diversity and work group effectiveness: an experimental study. *Journal of Cross Cultural Psychology*, 30(2), 242–63.
- Thomas, D. C., Ravlin, E. C. and Wallace, A. (1996). Effects of cultural diversity in work groups. In: Erez, M. and Bacharach, S. B. (eds) *Research in the Sociology of Organizations*. Greenwich, UK: JAI, pp. 1–33.
- Timmerman, T. A. (2000). Racial diversity, age diversity, interdependence, and team performance. *Small Group Research*, 31(5), 592-606.
- Trax, M., Brunow, S. and Suede Kum, J. (2012). Cultural diversity and plant-level productivity. *IZA Discussion Paper Series*, 6845.
- Tsui, A. S., Egan, T. D. and O'Reilly, C. A. (1992). Being different: relational demography and organizational attachment. *Administrative Science Quarterly*, 37(4), 549–79.
- van Knippenberg, D. and Schippers, M. C. (2007) Working group diversity. *Annual Review of Psychology*, 58, 515-541.
- van Praag, C. M. and Hoogendoorn, S. (2012). Ethnic diversity and team performance: A field experiment. *IZA Discussion Paper Series*, 6731.
- Verkuyten, M., De Jong, W. and Masson, C. N. (1993). Job satisfaction among ethnic minorities in the Netherlands. *Applied Psychology: An International Review*, 42(2), 171–89.
- Watson, W. E., Kumar, K. and Michaelsen, L. K. (1993). Cultural diversity's impact on interaction process and performance: comparing homogeneous and diverse task groups. *Academy of Management Journal*, 36(3), 590–602.
- Webber, S. S. and Donahue, L. M. (2001). Impact of highly and less job-related diversity on work group cohesion and performance: a meta-analysis. *Journal of Management*, 27, 141-162.
- Wiersema, M. F. and Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, 35(1), 91–121.
- Williams, K. Y. and O'Reilly, C. A. (1998). Diversity and demography in organizations. *Research in Organizational Behavior*, 20, 77-140.
- Zhou, W. and Shi, X. (2011). Special review article: culture in groups and teams: a review of three decades of research. *International Journal of Cross Cultural Management*, 11(1), 5–34.