

Are multinational teams more successful?

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Teams have become increasingly multinational in many sectors. The impact of national diversity on team performance is, however, controversial. On the one hand, multinational teams may have access to a greater variety of task-relevant expertise, which should increase the team performance. On the other hand, national diversity may complicate team collaboration and increase team conflict. Applying panel econometrics to 4284 team observations in a globalized sector, we find evidence that multinational teams perform worse than teams with less national diversity.

Keywords: controlled field environment; multinational teams; national diversity; professional sports; team performance

Introduction

Teams have become increasingly important to organizations. Crown (2000) considers the rise of teams in organizations both as dramatic and comprehensive. With the apparent globalization trend in the last decades, more and more teams have individuals coming from different countries and having different cultural backgrounds (Earley and Gibson 2002). It is, therefore, not surprising that the subject of national diversity management enjoys high popularity in practice (Rowley and Warner 2007; Sippola and Smale 2007). The question whether teams actually benefit from having a multinational team composition or not is contentious. The positive ‘value-in-diversity’ perspective argues that firms may benefit from national diversity within the workforce because some relevant skills and knowledge sets might be nation specific (Lazear 1999a). Members from other nationalities may bring different but important ideas, expertise, and know-how into the team. The negative perspective on multinational teams, however, states that combining workers of various different nationalities may hamper cooperation and collaboration due to the different languages and cultural backgrounds (Williams and O’Reilly 1998).

Although numerous empirical studies exist that analyze *racial* diversity (e.g. McLeod, Lobel and Cox 1996; Mayo, Pastor and Meindl 1996; Timmerman 2000; Hamilton, Nickerson and Owan 2004; Jehn and Bezrukova 2004; Singh 2007), the aspect of *national* diversity is, despite its practical importance, comparably understudied. The question whether multinational teams outperform or underperform the teams with less national diversity has been addressed for student teams solving business cases (Watson, Kumar and Michaelsen 1993; Earley and Mosakowski 2000; Dahlin, Weingart and Hinds 2005), virtual design teams (Gibson and Gibbs 2006), soccer teams (Andresen and Altmann 2006; Brandes, Franck and Theiler 2009; Nüesch 2009), and ice hockey teams (Kahane, Longley

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and Simmons 2009). The results of the related empirical studies are, however, conflicting and/or inconclusive. All in all, we know surprisingly little about the performance effects of national diversity among co-workers.

This paper aims to readdress the effect of national diversity on team performance by using a unique panel data set that offers four distinct advantages. First, the team composition and performance data are analyzed for all games played in the *Bundesliga*, the highest German soccer league, during seven consecutive seasons (1999/00 until 2005/06), in total 4284 team observations. No other empirical diversity study is based on such a large data sample. Second, German soccer teams are, unlike most student teams, for example, truly global. Players from almost 50 different nationalities play in the *Bundesliga*. While some teams are very heterogeneous, incorporating players from multiple different nationalities, other teams have a great majority of German players. Blau's index of national diversity varies between 0 and 0.92 in our sample, covering almost the full possible range from 0 to nearly 1. Third, doing research using sports data imitates laboratory research, as hypotheses can be tested in a controlled field environment (Kahn 2000; Wolfe et al. 2005). In professional team sports, all teams are governed by standardized rules of competition that eliminate factors that would otherwise substantially increase complexity and reduce the power of this study. Every team has to play with the same number of players (team size) and try to win as many games as possible (objective). Games have the same duration and the same underlying rules. Fourth, unlike other kinds of diversity research that rely on indirect performance indicators or subjective ratings by team members or their supervisors, team performance in professional team sports is identified by independent referees according to the rules of the game, leading to a more accurate and objective assessment of team effectiveness. In summary, we believe that game-level data of German soccer teams offers great quasi-laboratory conditions for testing the national diversity–performance relationship.

Theoretical background

This paper investigates the performance effects of national diversity in teams. In doing so, we define a player's nationality by his political citizenship. Based on theory, we outline two contrasting hypotheses about the influence of national diversity on team performance.

Positive view on multinational teams

Scholars with a positive perspective on multinational teams argue that national diversity increases the team performance as multinational teams have access to a greater variety of task-relevant knowledge and expertise. The positive view builds on information and decision-making theory (Gruenfeld, Mannix, Williams and Neale 1996) and considers a team member's nationality as a task-relevant attribute that represents helpful informational diversity (Williams and O'Reilly 1998). Ayub and Jehn (2006, p. 186) state accordingly:

[...] individuals from different nationalities bring a variety of information and ideas as they come from different social networks and social and educational backgrounds. Members with different national backgrounds are likely to have different perspectives, skills, information and knowledge bases, and talents.

The benefit of national diversity is linked to the attributed variety of skills of the different nationalities. If certain skills and knowledge are both national specific and relevant for team production, national diversity is especially important (Lazear 1999a).

The empirical study of Watson et al. (1993) shows that project teams with high national diversity indeed outperform homogenous teams in the long run when it comes to

the range of perspectives and alternatives generated. Dahlin et al. (2005) find evidence that most teams are located at the increasing part of the curvilinear U-shaped function between national diversity and the range, depth, and integration of information use of student teams solving a business case. Andresen and Altmann (2006) find a positive correlation between the national diversity of soccer teams and their sportive success. However, they do not control for unobserved team heterogeneity that is likely to confound the results as Brandes et al. (2009) and Nüesch (2009) show. In line with the positive perspective on multinational teams, we conjecture:

Hypothesis 1: National diversity increases team performance, *ceteris paribus*.

Negative view on multinational teams

The negative view of multinational teams considers a team member's nationality as a less job-related but more relational attribute that complicates mutual interaction and cooperation. This negative diversity perspective typically builds on the social identity theory (Tajfel and Turner 1979) and the similarity/attraction theory (Byrne 1971). High national diversity and team members' identification with their nationality can easily lead to social categorization processes, in which individuals from different nations make 'in-group/out-group' distinctions (Gibson and Gibbs 2006). Stereotyping clearly accompanies these processes. As a result, several subgroups emerge within a team along nationalities providing members with their own strong social identities. This development is detrimental to team performance. Conflicts may occur between members of different subgroups and thereby hinder cooperation and decision-making processes in the main group, thus causing the negative effects of diversity on team output (Ayub and Jehn 2006).

Another theory that emphasizes a potential negative effect of multinational teams is the similarity-attraction-paradigm of Byrne (1971). It is based on the assumption that an impression of mutual attraction is established if two persons share the same or similar deep- and/or surface-level characteristics. Mutual attraction facilitates important communication and team integration processes in a second step. Accordingly, dissimilarity leads to less positive team integration and communication processes, which decreases team effectiveness. The explanations of the similarity-attraction theory are in line with self-categorization and social identity theory and suggest a negative impact of national diversity on team performance.

The empirical study of Gibson and Gibbs (2006) shows that virtual teams with high national diversity score lower in innovation than the more ethnocentric virtual teams. Kearney, Gebert and Voelpel (2009) find a negative relationship between national diversity and the team leader's rating about the team performance using data of 83 teams from eight different organizations. Kahane et al. (2009) show that teams from the National Hockey League with foreign players from one European country attain a higher winning percentage than teams with players from different countries. In line with this negative diversity perspective, we conjecture a second, alternative hypothesis:

Hypothesis 2: National diversity decreases team performance, *ceteris paribus*.

Empirical study

Study context

This study tests the effects of national diversity on team performance using game-level information on team composition and team performance in the German *Bundesliga*. Professional team sports offer an empirical setting in which influential context factors are

either constant for all team observations or can easily be controlled for by team fixed effects. Thus, the risk of omitted variable bias due to missing contextual information is low. Due to the frequency and regularity of athletic events, information on both the team composition and the performance is available in longitudinal format and in large scale. In addition, soccer is a highly interactive game whose outcome depends on the complementary skills and the cooperation of all players on the field (attackers, midfielders, defenders, and the goalkeeper). Thus, team composition including team diversity is critical in professional soccer (Franck and Nüesch 2010).

With 18 teams playing each other twice during a season, the full season includes 306 games, generating 612 team performance observations. Since the data set covers seven seasons, the final sample consists of 4284 team observations in 2142 games. Unlike with US leagues, which are generally 'hermetic', the composition of European soccer leagues changes annually through promotion and relegation. The best three teams from the second division are promoted to the first division, while the weakest three in the latter are relegated to the second division. 26 different teams were present in the league in at least one of the seven observed seasons. The historical data on game results and game-specific team compositions were gathered from the *kicker-Sportmagazin*, a leading German soccer magazine.

Professional German soccer is big business. In the 2005/06 season, the *Bundesliga* generated an estimated turnover of €1.4 billion. At the same time, average game attendance increased to 40,600. No soccer league in Europe attracts more fans at the gate than the German *Bundesliga* (Jones 2007).

Dependent variables

To test the impact of national diversity on team performance, we employ three different measures of team performance. The variable *points* measures the number of points that a team receives based on the game's outcome. The number of points awarded for a victory is 3, while 1 point is awarded for a tie and a loss results in 0 points. As a second team performance indicator, we use the *goal difference* between the two teams on the field. In case of a victory, goal difference is positive, whereas in case of a loss, the value is negative. Accordingly, a tied game results in a neutral score of zero for both teams. For the final placement in the league, both the number of points and the goal difference can be of relevance. If two teams have the same amount of points, the overall goal difference determines which team claims the upper ranking place. Besides these objective measures of game-specific team performance, we also use *expert evaluation* as a third, more subjective outcome variable. In German soccer, every game performance of a player who plays more than half an hour is individually and consistently evaluated and rated by sports experts using the German grading scale that varies between 1.0 (excellent) and 6.0 (very poor). The individual game evaluations are published by the highly respected *kicker-Sportmagazin*. For ease of interpretation, we transformed the original grades by subtracting the original grade from 7. Team performance is then defined as the average of all game grades the fielded players receive. A Cronbach's alpha of 0.84 indicates high reliability and internal consistency for the three performance measures.

National diversity as explanatory variable

In order to calculate game-specific diversity measures, we built a large data set containing all individual game appearances in the German *Bundesliga* over seven seasons (58,772

observations in total) and each player's nationality(s). Players with two citizenships, e.g. German and Turkish, are treated as an extra category, i.e. German-Turkish. National diversity was calculated according to Blau (1977) for every game of a team. Blau's index of heterogeneity is the formula most frequently referred to in measuring the diversity of categorical variables such as nationality. It is defined by

$$H = 1 - \sum_{i=1}^n p_i^2$$

where p is the proportion of group members in a category and i is the number of different categories represented in the team (Blau 1977). If a fielded team consists of German players only, Blau's index is 0. If each of the players on the field has a different nationality, Blau's index is nearly 1, namely $(n - 1)/n$. In our sample, Blau's index of national diversity varies between 0 and 0.92. The sample, therefore, fulfills the criteria proposed by Harrison and Klein (2007) concerning range and variability of diversity variables. Substantial range and variability are necessary for adequate hypotheses tests.

Control variables

In order to account for the possibility that location may influence a game's result and the composition of the fielded team, a dichotomous variable *home game* is incorporated. Carmichael, Thomas and Ward (2000) show that home field factors related to crowd and familiarity effects may influence the effectiveness of home and away team performances.

The team's performance is influenced not only by different levels of national diversity but also by other factors such as the team's financial resources, coaching quality, human resource practices, infrastructure, and team spirit. Many of these aspects are unobservable but constant during a season. As we employ game-specific data, we are able to control for all unobserved team heterogeneity that remains constant during a season by including *seasonal team fixed effects*. As less than 10% of the players change teams within an ongoing season, the composition of the entire team, from which a varying selection of players is elected to play in the competition games, remains more or less stable during a season. By including seasonal team fixed effects, we take into account that relevant and unobserved team characteristics may change considerably between seasons. A team that qualified for the UEFA Champions League in the preceding season, for example, generated substantial extra income with which the team could hire expensive but talented star players from all over the world. Simple correlations between game success and the national diversity of the fielded team may, therefore, be misleading. It is important to note that we identify the effect of national diversity by relating within-season team performance variation to within-season variation of national diversity. Due to injuries, sickness, suspensions of players, and varying game strategies of the coach, the game-specific national diversity variable provides sufficient variation even within the same seasonal team.

To take account of unobserved aspects of the opposition team that may affect the outcome of the game (e.g. average playing quality of the players), we also include 126 dummies denoting the opposition team in a given season. Finally, seasonal dummies are used to control for inter-seasonal time effects.

Analysis

The hypotheses are tested using least squares methods, assuming that the differences between the categories of the dependent variables have a cardinal meaning. We use ordinary least squares (OLS) rather than ordered probit and ordered logit as estimation approach due to the incidental parameters' problem of fixed effects in nonlinear models. Unlike in the linear case, the nonlinear ordered probit and logit models do not estimate consistent coefficients with fixed effects and limited time periods (Verbeek 2008). To account for non-independence of observations within the same game, we compute White robust standard errors, clustered on games. To examine potential nonlinear diversity effects, we also calculated the results when including a squared term of national diversity. However, we did not find evidence for a curvilinear relationship between national diversity and team performance, as the effect of the squared term was not statistically significant. This is true for all three specifications.

Results

As national diversity is measured on a scale that is difficult to interpret, Table 1 illustrates the standardized β coefficients and the p -values. The standardized β coefficients indicate the change in the dependent variable if the explanatory variable varies by one standard deviation. p -values show the levels of statistical significance of the effects. The results in Table 1 indicate that national diversity has a negative effect on team performance in models on *points* ($\beta = -0.061$, $p = 0.030$), *goal difference* ($\beta = -0.051$, $p = 0.080$), and *expert evaluation* ($\beta = -0.055$, $p = 0.060$). Thus, Hypothesis 2 stating that national diversity decreases team performance is supported. The magnitude of the national diversity effect is lower than the strong positive influence of playing at home. The β coefficients of the *Home game* dummy vary between 0.195 and 0.279. Still, the negative effect of national diversity is statistically significant at the 5% level when using *points* as dependent variable and weakly statistically significant at the 10% level in the models explaining *goal difference* and *expert evaluation* using two-tailed tests of statistical significance. As the variance of OLS estimates is lower in large samples, p -values between 0.030 and 0.080 do not seem great given the sample size of 4284 observations. However, the variance of OLS estimates increases with the number of explanatory variables (261 in our case) due to multicollinearity. Given that the cases-to-variables ratio in our models is 16.4, not much higher than the minimum threshold level of 10 suggested by Tabachnick

Table 1. OLS estimation results.

	<i>Points</i>		<i>Goal difference</i>		<i>Expert evaluation</i>	
	β	p -value	β	p -value	β	p -value
National diversity	-0.061	0.030	-0.051	0.080	-0.055	0.060
Home game	0.259	0.000	0.279	0.000	0.195	0.000
Team seasonal fixed effects	Yes		Yes		Yes	
Opposition team seasonal fixed effects	Yes		Yes		Yes	
Seasonal fixed effects	Yes		Yes		Yes	
R^2		0.221		0.265		0.201
Observations		4284		4284		4284

Notes: OLS estimation with White robust standard errors clustered on games. Standardized β coefficients and p -values according to two-tailed tests of statistical significance are shown.

and Fidell (2001) for social sciences, we consider the common levels of statistical significance (10%, 5%, and 1%) as appropriate.

Discussion

While the relationship between *racial* diversity and team performance can draw on a substantial body of research, this paper adds to the relatively new field of *national* diversity research. In addition, this investigation contributes to the diversity literature by testing the effects of national diversity in a field environment where accurate performance measures are easily available and where contextual factors either are the same for all teams or can be held constant by using panel econometrics. Employing game-level data from the German *Bundesliga*, we find evidence for a negative relationship between national diversity and team performance. Homogenous teams are more likely to win a game than multinational teams, controlling for unobservable team heterogeneity. As soccer is a very interactive game, team success typically depends on the continuous cooperation of all fielded players. National diversity seems to complicate team interaction and collaboration. Language is usually one of the main channels through which national diversity affects team performance. Lazear (1999b) shows that speaking a common language facilitates social interactions. In the context of this study, however, language may play a secondary role, because team task in professional soccer requires little verbal communication. The found negative relation between national diversity and team performance is, therefore, even more surprising and hints at other factors relating to nationality, such as, e.g., cultural differences in playing styles.

Limitations

Before discussing the potential managerial implications of the results, we wish first to acknowledge the limitations of our study. Even though we have clear information on a player's nationality, we do not know where the players have grown up, which religion they belong to, or which languages they speak. Our measure of national diversity may be associated with other unobserved but still relevant dimensions, like cultural values, religion, or still language. Thus, it is possible that parts of the effect we attributed to national diversity were actually due to unmeasured constructs. Further research should inquire into more detailed data on the cultural background of the workers to allow a more thorough understanding of how different aspects of diversity impact group effectiveness.

In addition, we only analyze a single-attribute heterogeneity index and do not examine the effects of group member characteristics in combination, as proposed by the faultline model of Lau and Murnighan (1998) and illustrated by Thatcher, Jehn and Zanutto (2003). Future research should explore both aligned and non-aligned effects of multiple diversity measures.

Implications for managerial practice

The same properties that make the sports context an advantageous area of research – accurate performance measures and controlled environment – also limit the generalizability of the results (Harder 1992). While the controlled field environment in professional sports allows high *internal validity*, it enforces the concern about *external validity*. External validity holds if the principle of induction holds, which means that behavioral regularities prevail in new situations as long as the relevant conditions remain substantially unchanged (Falk and Fehr 2003). Thus, it is not a question of yes or no, but rather one of whether

business environments offer conditions similar to what professional soccer offers. Crown (2000) considers soccer teams as accurate representations of performance-oriented work groups that are expected to produce the primary product of an organization. Unlike research and development teams, production teams are characterized by exploitation rather than exploration using the typology of March (1991). Compared to project teams, production teams spend more time on issues of coordination and less time on strategy formulation and innovation. In professional soccer, innovation is restricted to the development of new playing strategies and tactics, but the general rules and objectives of the game are given (Wolfe et al. 2005). Hence, this special team type has to be kept in mind when applying the results. Whenever the team task is somehow blurry and team effectiveness is no longer confined to exploitation alone, national diversity is likely to have a less negative or even a positive impact on team performance. Whenever the team task is clearly defined, however, this study suggests that performance-oriented work teams should have low national diversity in order to maximize team effectiveness. This finding has clear implications for the human resource department when hiring new employees and forming teams.

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