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The effects on team output of employing an internationally-diverse workforce: The case of Europeans in the National Hockey League

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This paper uses data from the National Hockey League (NHL) to examine the extent to which a sport team's output is impacted by the international diversity of its workforce.

The work of Lazear (1999) provides a theoretical foundation for the analysis. He notes how the topics of "globalization" and "teamwork" are increasingly common in today's business media, and argues that there are both benefits and costs to firms who employ internationally diverse workforces. On the benefit side, firms are able to expand their collective skill set, beyond the skills available from domestic workers. However, on the cost side, because workers within a global firm have different cultures, legal systems, and language, the firm must now incur additional costs to integrate these workers into a cohesive team. Determining which effect is greater is a matter for empirical analysis.

We focus on the NHL because it is the most internationally diverse league in North America, with approximately 30% of all players being European. These European players come from a wide range of countries, thus bringing together on NHL teams a mix of many cultures and languages. NHL teams are faced with two types of decisions with the respect to the international diversity of their workforce. First, they must decide *how many* Europeans to hire. Secondly, they must decide the specific *mix* of Europeans on the team. For example, if a team hires six Europeans (the average on NHL teams), is there any difference, all else equal, between hiring six Europeans from the same country, or one player from each of six different European countries?

Our paper constructs an empirical model that measures the effects of workforce diversity on team-level performance. To measure team diversity, we sort players into five major geographic groups: North America (Canada and USA), Czech Republic/Slovak Republic, Sweden, Finland and Russia, and then compute a Herfindahl-Hirschman index (HHI) based on the shares of a team's players belonging to these groups. While the HHI is normally used to measure the concentration of market power amongst firms in industries, it has equally effective application to measuring worker concentration within a firm.

Our data set spans the 2001-02 through the 2007-08 NHL seasons for all 30 teams. Using a fixed effects model, our results indicate that team output in the NHL does indeed seem to be impacted by measures of player diversity and concentration, over and above controlling for influences of team payroll or aggregate player performance measures.

First, we find that teams who employ a greater proportion of Europeans (as opposed to North Americans) appear to gain an advantage in team performance, where team performance is measured as win-percent. Each additional European increases a team's win-percent by about 3.3%, with the results consistently significant at the 5% level. The results were also robust to various definitions of both output (including points-percent and goal differential) and team skills. The results imply that there can be benefits to a firm in expanding its workforce beyond the local, homogenous, group. The presence of foreign workers, like Europeans in the NHL, allow the firm to broaden its collective sets of skills and abilities, beyond what would be found if it only employed domestic workers.

However, a second feature of our results is that NHL teams perform better when their European players tend to come from the *same* country, rather than being spread across many European countries. To quantify this result, if one assumes an average of six European players on a given team's 20-player roster, if all six of those Europeans come from the same country, then that team can expect about a 4% increase in win-percent, relative to a comparable team that employs one player from each of six different European countries. Again, these results were consistently significant at the 5% level across various specifications.

This latter result would support the notion that communication costs are always a factor when attempting to diversify – when teams have players from multiple European countries, language and cultural barriers my start to override any increase in diversity benefits. More broadly, this implies that firms need to be cognizant of the *way* in which they diversify – our results suggest that the gains from diversity may be greatest when the foreign component of the workforce has, within itself, a higher degree of homogeneity.

These results potentially have implications for other leagues that employ an internationally diverse group of players – such as the National Basketball Association in the U.S., and many domestic soccer/football leagues in Europe.