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Sometimes collaboration is the better strategy: institutional context and the calculative and collaborative HRM-performance relationship in the Nordics, 1999–2021

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ABSTRACT

This study challenges widespread universalist, or best practice, assumptions about HRM. To do this, we analyze the relationship between collaborative and calculative HRM and organizational performance, comparing Nordic CME countries to other institutional contexts and testing for the effect of time on the relationship. We first replicate a study by Rizov and Croucher (2009), showing that collaborative HRM has a stronger relation to performance, using the 1999 European Cranet survey. The result remains the same in 2021. We find that the Nordic context positively moderates the collaborative HRM performance relationship. The study is then extended by examining the same relationships for 1999 and 2021 in a more contrasting and theory-guided sample including five Nordic-CME countries and five liberal market economies (LMEs) from four continents. Results confirm that collaborative HRM practices are still more important for organizational performance than calculative practices. Furthermore, the Nordic institutional CME context moderates the relationships between collaborative HRM practices and organizational performance in 1999 and 2021 in both the European and the Nordic-LME samples. Finally, we found no change in the effects of collaborative and calculative HRM practices on performance 22 years later. The study contributes to institutional theory and to comparative and international HRM.

KEYWORDS

Strategic HRM; calculative HRM; collaborative HRM; organizational performance; institutional theory; Nordic model

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1. Introduction

Gooderham et al. (2019) along with Mayrhofer et al. (2019) proposed that HRM in national and international contexts should be analyzed through the lens of institutional rather than cultural theory, be expanded beyond North-America and Europe, and take into account time and continuity—as we do in this study. Gooderham et al. (1999) identified a strategic human resource management (HRM) model with two types of HRM practices: calculative and collaborative. The calculative approach is more efficiency—and shareholder—focused, whereby HRM practices focus on individual performance appraisals and the rewarding and monitoring of individual efforts and outcomes. The collaborative approach, on the other hand, emphasizes employee interests by building up trust and consensus through formal and systematic communication practices and employee involvement. The distinction, by continued prevalence of collaborative ('soft') HRM practices in the Nordic countries from 1995 to 2021 and relatively low usage of 'calculative' ('hard') HRM practices, has been confirmed (Gooderham et al., 1999; Gooderham et al., 2025; Prince et al., 2022).

The Neo-liberal economic assumption is that organizations are most efficient when they have few social constraints and concerns (e.g. regulations, agreements, unions; Friedman, 2007). The HRM-literature does tend to reflect these LME ideas through the view that the most productive role of HRM is to serve narrow business interests (e.g. Ulrich, 1997). 'Calculative HRM' operationalizes this view by focusing on HRM-practices doing the latter and is mostly considered as universally valid, a best practice, at least in a Western context. This may lead to a simplified and narrow theoretical and practical understanding of HRM by disregarding the institutional context (Parry, et al, 2021). Others have suggested that the more pluralistic 'collaborative HRM', is a more efficient strategy in some institutional contexts (de la Porte et al., 2023, Rizov & Croucher, 2009). It has also been repeatedly pointed out that some highly collaborative and coordinated market economies (CMEs) such as the Nordic countries do sustain a high level of wealth and social progressiveness compared to other developed countries classified as liberal market economies (LMEs), based on highly competitive organizations and a collaborative institutional context (de la Porte et al., 2023; Panic, 2006; Rizov & Croucher, 2009). An article was recently published in The Economist (2024) titled 'Why are Nordic companies so successful?', pointing to Maersk, Ikea, Lego, Volvo, Kone and Novo Nordisk the most valuable company in Europe at the time of writing.

The distinct cluster of Nordic countries are typically classified as non-legalistic and trust-based CMEs (Gooderham et al. 1999;

Lundvall, 1999; Whitley, 1999). The Nordic countries, which sharply contrast with the five LME cases, provide a good case of a country cluster to study the relationship between HRM practices and performance.

Few studies have attempted to demonstrate a relationship between calculative and collaborative HRM practices and performance through various conceptualizations of both the independent constructs of 'calculativeness' and 'collaborativeness', and the dependent constructs of organizational performance (Cregan et al., 2021; Croucher et al., 2012; Gooderham et al., 2008; Rizov & Croucher, 2009; Stavrou & Brewster, 2005). While a range of countries have been subject to analysis here, these studies have not produced a clear conclusion. While Stavrou and Brewster (2005) and Gooderham et al. (2008) in European samples found a stronger relationship between calculative HRM and organizational performance, Rizov and Croucher's (2009) results showed a stronger positive relationship between collaborative HRM and organizational performance. They also found that calculative and collaborative HRM co-existed, reporting the strongest relationship between collaborative HRM and organizational performance in a collaborative national institutional context where normative settings were supportive. The Nordic country context thus acted as a positive moderator, with Denmark and Sweden pointed out as prime examples. The fundamental theoretical notion behind the analysis and hypotheses development in this study is that institutional context shapes and moderates the relationship between HRM practices and organizational performance.

Previous studies primarily provide snapshots and do not analyze how institutional context shapes HRM performance over time. This is a key motivation for replicating Rizov and Croucher's (2009) study using 1999 Cranet data and to examine whether the same findings can be reproduced 22 years later by using 2021 data from a European sample. The European sample consists of the Nordic countries (Sweden, Denmark, Norway, and Finland) compared to other European countries (UK, Germany, Spain, Austria and Belgium). In addition, in order to extend the generalizability of our findings, and create an institutional theory-based contrast, we compare organizations in five Nordic countries with those in five LME countries across four continents (US, UK, Canada, Australia, and Israel).

The key problem is that HRM is characterized by 'universalist' assumptions providing a simplified and narrow theoretical and practical understanding of HRM and somewhat disregarding institutional context, time and best fit. The aim of this study is to enhance understanding of the relationship between HRM practices and organizational performance, and the role of the Nordic institutional context in this relationship over

time by deploying four samples, or two samples at two time points: European and Nordic-LME samples for both 1999 and 2021. The research question is as follows: How are collaborative and calculative HRM-practices related to organizational performance in different (Nordic CMEs/LMEs) institutional contexts and how persistent are the differences in these relationships over time?

Our research makes three important contributions to the institutional literature and to international and comparative HRM. Firstly, we extend the study by Rizov and Croucher (2009) by replicating the study from 1999 in a European sample and comparing the results with 2021 data to examine the relationship between collaborative and calculative HRM practices and organizational performance. Furthermore, to increase the generalizability of our findings we also examine the relationship between collaborative and calculative HRM practices and organizational performance in an extended Nordic vs. LME sample (Nordic-LME) for both 1999 and 2021. We provide a timely test of whether developments in a 22-year period have affected this relationship in the two samples. We thus also extend the prior study by reaching outside of Europe and by providing a sharper theory-guided contrast between five LME countries and five Nordic CME countries regarding the relationship between collaborative and calculative HRM practices and organizational performance. The empirical basis of Rizov and Croucher's (2009) argument is therefore extended.

Secondly, we contribute to the literature by examining the specificity of five Nordic countries' interactions with calculative and collaborative HRM practices and the impact of this interaction on firm performance in the European and Nordic-LME samples for the period 1999 - 2021. While Rizov and Croucher (2009) tested the interaction between calculative and collaborative HRM practices with each set of country-specific conditions, we focus here on the overall specificity of the Nordic context and its implications for the relationship between HRM practices and organizational performance. This interaction in the Nordic context allows us to examine how the institutional context shapes the relationship between HRM practices and organizational performance over time.

Finally, to enhance our understanding of the resilience of the Nordic institutional context and the role of path-dependent legacies when institutional configurations are well established and strong (Bévort & Einarsdottir, 2021; de la Porte et al., 2023; Dølvik et al., 2015), we examine whether the collaborative and calculative HRM and performance relationship has changed in the Nordic context, over the period 1999–2021.

2. Theoretical background and hypotheses

Below, we develop hypotheses based on the two concepts of calculative and collaborative HRM and their relationship with organizational performance, the institutional context affecting HRM practices and the relationship with performance. We focus on key factors in the Nordic institutional context, and the effect of time on this relationship over the last twenty-two years.

2.1. Calculative and collaborative HRM and performance

Gooderham et al.'s (1999) conceptualization of calculative versus collaborative HRM is grounded in the 'hard' Michigan versus 'soft' Harvard approaches to HRM. The calculative approach refers to the hard efficiency-seeking Michigan logic and the collaborative approach to the soft commitment and trust-building Harvard logic. The two categories are not intended to capture all HRM practices (Gooderham et al., 2008), nor are they always mutually exclusive (Rizov & Croucher, 2009). The calculative approach focuses on individual performance appraisals and reward systems along with formal monitoring and evaluation of training efforts, while the collaborative approach focuses on formal and systematic communication efforts and the involvement of employees (see also Prince et al., 2022; Rizov & Croucher, 2009). The calculative approach has been considered a normative standard for North American HRM, reflecting the institutional environment, and is sometimes labelled as 'Anglo-Saxon', while the collaborative approach is considered a more common and institutionally aligned approach in Europe (see e.g. Poutsma et al., 2006).

Since the inception of HRM in the 1980s, researchers have attempted to link strategic HRM to diverse types of business performance (Huselid et al., 1997; Jackson & Schuler, 1995; Pickles et al., 1998; Ulrich, 1997). There is an ongoing and lively discussion regarding the linkage between HRM practices and organizational performance, and positive relationships have mostly been confirmed (Boselie, 2010; Van De Voorde et al., 2012). The discussion is underpinned by the resource-based view of organizations, focusing on the efficient use of human resources as any other type of resource, and originating in a North American context. Nevertheless, a lack of consensus exists regarding which HRM practices, or combinations of practices, are most strongly associated with organizational performance (Saridakis et al., 2017). Furthermore, both HRM practices and performance can be operationalized in numerous ways and at different levels. For useful reviews, see Guest et al. (2003) and Paauwe (2011).

HRM-performance analysis has more recently been expanded into the European context and the calculative and collaborative HRM practices approach has been applied in several studies (Cregan et al., 2021; Cristiani & Peiró, 2019; Gooderham et al., 2019; Prince et al., 2022; Rizov & Croucher, 2009; Stavrou & Brewster, 2005). However, the aims, operationalizations of HRM and performance measures, the time dimension, and the countries included in these studies are diverse. A study with 1999 data from 14 European Union (EU) member states by Stavrou and Brewster (2005) showed positive relationships between both calculative and collaborative practices on business performance but a stronger relationship with calculative practices. Gooderham et al. (2008), with 1999 data from sixteen firms nested in European Union countries, showed significant effects of calculative practices on organizational performance, while collaborative practices had no effect. Ultimately, the overall effect on organizational performance was relatively modest.

Rizov and Croucher (2009) showed that collaborative practices, in general, were more strongly related with organizational performance. Similarly, Cregan et al. (2021) found that organizations using more calculative HRM experienced lower subsequent performance following layoffs than collaborative HRM, and organizations using calculative HRM also failed to fully recover. Furthermore, it has been argued (Buchele & Christiansen, 1999; Rizov & Croucher, 2009) that steady improvements in productivity are more dependent on effective interaction between various groups, employees, departments, and across different levels within organizations, or on coordination and cooperation, than on individual efforts. Therefore, calculative HRM practices that focus on individual incentives and efforts may be less important than collaborative HRM in relation to organizational performance.

Following our analytical strategy, which comprises a first-stage replication of Rizov and Croucher (2009), we examine the relationship between calculative and collaborative HRM practices on organizational performance with a sample of countries analogous to the sample used by Rizov and Croucher (2009), comprising European countries with diverse institutional settings over the period 1999–2021. Then, we examine the same relationships with an extended sample comprising Nordic CMEs and an international sample of five prominent LMEs for the period 1999–2021. We propose the following hypotheses:

Hypothesis 1a: Collaborative HRM practices are positively related to organizational performance in European and Nordic-LME samples at two time points, 1999 and 2021.

Hypothesis 1b: Calculative HRM practices are positively related to organizational performance in European and Nordic-LME samples at two time points, 1999 and 2021.

2.2. The role of institutional context in the HRM-performance relationship

In this section, we turn our attention to the moderating effect of institutional context on the relationship between HRM practices and organizational performance. Institutional theory provides a sociological perspective to understand the role of institutional context, or the rules, norms, and routines that guide, facilitate, constrain and shape behavior in organizations and society at large (Scott, 2014; Thornton et al., 2012). Institutional theory can explain variation in what is regarded in a specific social context the most appropriate way to organize work and production (Gooderham et al., 1999)—or 'the rules of the game' (North, 1995)—between different institutional contexts. Here, we focus on the various structural properties of social and national context, i.e. the institutional context, which may affect HRM practices in organizations differently, specifically in the Nordic countries.

Studies of variation in organizational behavior often use national-level categories to differentiate between social contexts (Rizov & Croucher, 2009). Hall and Soskice (2001) use so-called varieties of capitalism (VoC) to delineate coordinated market economies (CMEs) and liberal market economies (LMEs). They use labor relations and corporate governance as key dimensions. Nordic countries are classified as CMEs due to the prevalence of strategic coordination mechanisms. Hall and Gingerich (2009) find empirical support for the clustering of advanced economies according to this dichotomous classification. Esping-Andersen (1990) distinguished between three main types of welfare states: liberal, conservative and social-democratic welfare regimes. The Nordic countries are then classified as social democratic welfare states where equality and universal benefits are emphasized. Building on Hall and Soskice's CME and LME classification the ambidexterity of the Nordic model has been explained (Midttun & Witoszek, 2020) on the basis of its capacity to combine and navigate between collaborative and competitive elements.

Whitley (1999) gives an example of this by pointing to a collaborative versus compartmentalized economy and emphasizing institutional complementarities within national systems. Collaborative systems at the national level support the development of high-trust relations at the organizational level between employers and employees, while compartmentalized systems support low-trust relations. According to this view, a consistent element in the institutional differentiation between economies is whether there is a

strong collective or collaborative dimension in the organization of the labor market. The USA, UK and Ireland are typically classified as compartmentalized or LMEs, while the continental Western European countries are classified as collaborative or coordinated (see Rizov and Croucher, 2009). The challenge has been to link institutional macro-categories to micro-behaviors at the organizational level, or with HRM practices (ibid., 256).

Different institutional arrangements support different micro-behaviors at the organizational level. Lundvall (1999) deploys theories of business and national innovation systems to explain what makes the Nordic countries distinctive. He attributes this distinctiveness to institutions being trust-based by non-kin and to a high level of legitimacy of formal roles in organizations and public agencies. The formal institutions in the Nordic countries are according to Lundvall (1999, p. 65) characterized by strong, cohesive states, state commitment to industrial development, strong skill-based unions and a highly organized training and skills system, which creates a high level of trust towards institutions. In addition, multi-level tripartite collaboration between labor unions, employers, and the state/public agencies builds a solid foundation for work life in organizations in the Nordic countries (Dølvik et al., 2015), which is reflected in collaborative HRM practices (Gooderham et al., 1999,2025; Prince et al., 2022).

De la Porte et al. (2023) also suggest that the liberal Anglo-Saxon countries and social-democratic Nordic countries form two most distinct clusters of countries and locate European CMEs and Continental Welfare states between the two. Gooderham et al. (1999) characterize Germany as a legalistic CME in contrast to much more collaboratively oriented Nordic countries. This may explain how the institutional context in the Nordic countries, characterized by a robust collaborative HRM approach, but to a lesser degree a legalistic one, facilitates positive organizational performance, as confirmed by Rizov and Croucher (2009). We therefore conclude here that LMEs and the Nordic countries are two distinct extremes on a continuum of 'political economies', i.e. institutional contexts.

Following Rizov and Croucher's (2009) argument, in the right institutional context, 'collaborativeness' becomes the superior societal and organizational strategy because transaction costs are lower in collaborative than market-based organizations (Coase, 1995; Williamson, 2010), and labor extraction is better in collaborative, and trust-based organizations than in conflict-ridden organizations (Fox, 1974). As noted by Bévort and Einarsdottir (2021), the Nordic countries are distinguished by a very systematic HRM at the national and organizational level with some HRM matters partly resolved at the national level through collaboration and tripartite negotiations between the state and social partners.

Viewed in combination with the high level of institutional trust directed towards organizations, unions and government (Lundvall, 1999), and in line with Rizov and Croucher's (2009) results, we expect to find a stronger relationship between collaborative HRM practices and organizational performance in the Nordic countries compared to the European and LME sample for the period 1999–2021. Conversely, we expect to find a weaker relationship between calculative HRM practices and organizational performance in the Nordic countries compared to the European and LME sample for the period 1999–2021, which favor low-trust and calculative HRM (Fox, 1974; Gooderham et al., 1999; Prince et al., 2022). Calculative HRM practices, like individual performance-related pay and performance management, with the implied competitive norms, undermine the collaborative trust relations at the core of supporting organizational efficiency in the Nordic countries (Rizov & Croucher, 2009). A similar argument could be made for the asymmetry of norms between the LMEs and collaborative HRM, where, for instance, 'unitarist' views of the organization would undermine interest-aligned collaboration (Boxall and Purcell, 2022).

HRM strategy and Human capital theory have mainly developed in the UK and US (LMEs), drawing on liberal economic theories (Huselid et al., 1997; Minbaeva, 2018). This has made calculative HRM a taken-for-granted 'best practice' within HRM, but this may not be compatible with a Nordic institutional context. These arguments are in line with theories about institutional embeddedness and follow the continued classification of the Nordics as (non-legalistic, high-trust) CMEs, Whitley's (1999) notion of complementarities within national systems, and Rizov and Croucher's (2009) findings with 1999 data. We examine the impact of the interaction between HRM practices and the Nordic context on organizational performance with two samples, one comprising only European countries (analogous to Rizov and & Croucher 2009) and another comprising the Nordic CMEs and an international sample of five prominent LMEs. We thus advance the following hypotheses:

Hypothesis 2a: The collaborative institutional context in the Nordic CMEs moderates the relationship between collaborative HRM practices in the Nordic countries and organizational performance by making it stronger compared to other European countries and (the five) LMEs in 1999 and 2021.

Hypothesis 2b: The collaborative institutional context in the Nordic CMEs moderates the relationship between calculative HRM practices in the Nordic countries and organizational performance by making it weaker compared to other European countries and (the five) LMEs in 1999 and 2021.

2.3. Time and continuity—resilient institutional context and path dependency

In this section, we address the effects of time and continuity and develop our testable hypotheses concerning their persistence in the Nordic institutional context. The Nordic countries have been able to sustain so-called 'high-road' labor markets by combining high employment rates with high-quality jobs and high wages. This has been ascribed to the Nordic model and coordination between strong labor market partners and the state, providing social security and stable labor demand (Berglund et al., 2019; de la Porte et al., 2023). Union density and collective bargaining coverage are commonly used both as indicators of union strength at the national level and to map changes in the legal-political, social and economic environment of unions (Visser, 2006), or in the institutional framework of work.

Decreased union density from the turn of this century is quite pronounced in many European countries (CRANET, 2023; OECD, 2023) and in the big LMEs, the USA and UK. The Nordic countries (see Table 1), however, continue to stand out with relatively high union density, ranging from 50% to 90%, despite a considerable decline in Sweden and a continuously lower level in Norway than in the other Nordic countries. Importantly, despite slightly decreasing union density in the Nordics, there have only been negligible changes to collective agreement coverage, which remains relatively high, above 70%, in the Nordic countries (OECD, 2023), suggesting continued collaboration in the Nordic labor market.

The rise of the service sector, declining manufacturing sector, digitalization, and non-standard employment, suggest an overall upgrading of employee educational and skill levels in organizations, along with polarization (Berglund et al., 2019). This development may, despite decreasing union density, call for augmented collaborative efforts on behalf of management

Table 1. Union density from 2000 to 2019 in the Nordic countries and five LMEs.

LMEs	2000	2019
Australia[a]	24.9	13.7
Canada	28.2	26.1
Israel[b]	37.7	25.0
UK	28.9	23.5
US	12.9	9.9
The Nordic countries (CMEs)		
Denmark	74.5	67.0
Finland	74.2	58.8
Norway	53.6	50.4
Iceland	89.1	90.7
Sweden	85.0	65.2

[a]Density reported for 2018 not 2019.
[b]Density reported for 2017 not 2019.
Reference: OECD, 2023.

and employees when jobs and problems to solve become more complex and employees are more highly educated. Furthermore, Whitley (1999) suggests that collaborative norms at the national level call for more collaboration at the organizational level between employers and employees. Changes in the occupational structure and institutional setting may thus further strengthen collaboration at the organizational level in a collaborative context.

Decreased union density in a collaborative institutional setting may call for more direct communication and collaboration between management and employees due to ingrained societal collaborative norms. This is in line with the concept of 'path dependence', which posits that when institutional configurations are well established, they generate 'path-dependent legacies' where organizations in a specific national context continue to use the same actions or practices, despite recent developments or 'huge historic breaks' (Marx & Reitmayer, 2019, p. 753). We draw on the notion of institutional path dependency suggesting that resilient institutional norms continue to guide behavior and impact outcomes despite relatively minor institutional developments and drastic 'historic shocks,' such as the financial crisis in 2008 and Covid in 2020, along with the changing occupational structure and design of work. We thus propose continuity in the effects of collaborative HRM practices on performance during the period 1999–2021.

In other words, as the key institutional characteristics of the CME and LME context persist, context continues to matter due to strong and resilient collaborative norms at all levels of society. The organizational-level data in this study is used to investigate how these institutional differences affect firm-level behavior over time in the European and Nordic-LME samples. We, therefore, propose that the relationship between collaborative and calculative HRM practices and organizational performance continues to hold in the two samples for the period 1999–2021, despite some key structural and institutional developments, due to resilient collaborative norms, the resilience of the Nordic institutional model, and 'path dependent legacies' that guide behavior in the Nordic context. Consequently, the following third and final hypothesis is proposed:

> **Hypothesis 3:** There is continuity, or no significant change, in the effects of collaborative and calculative HRM practices on performance in the Nordic context during the period 1999–2021 in both the European and Nordic-LME samples.

3. Methods

3.1. Data and samples

We use cross-national survey data collected by the Cranfield Network (Cranet) on Human Resource Management, covering a wide range of

HRM policies and practices. In the Cranet survey, the respondent is the highest-ranking HR professional in the organization. Cranet surveys are developed in an iterative process between Cranet members with experience in running the survey at approximately five-yearly intervals since 1990. The survey is distributed to organizations with more than 100 employees since organizations with less than 100 employees are less likely to have formal HRM practices and an HR department. The Cranet data has been described by several Cranet researchers such as Brewster et al. (1996), Brewster et al. (2004) and Parry et al. (2021). We use the latest survey data, 2021, as well as the 1999 survey data that Rizov and Croucher (2009) utilized. We collect trend data from the Cranet survey on the same/similar set of variables from the 1999 to 2021 datasets. However, the organizations included in the survey are different in each survey round. Therefore, we can analyze the trend in the same set of variables, but changes in organizations cannot be followed (Parry et al., 2021).

In the first (replication) part of our empirical analysis, we include the same nine countries as employed by Rizov and Croucher (2009)—the UK, Germany, Sweden, Spain, Denmark, Norway, Finland, Austria and Belgium. However, France and Ireland were excluded since they are not present in the 2021 survey. In the second part of our analysis, we extend the focus to compare the Nordic countries (Sweden. Denmark, Norway, Finland, Iceland) classified as CMEs with five prominent LME countries (UK, Australia, Israel, Canada, USA). Iceland was first included in the 2021 sample. The five countries in each category were selected based on their classification as CMEs or LMEs. This provides for an equal number of countries on each side of the comparison. This sample therefore provides a sharper contrast between CMEs and LMEs than prior studies and also offers comparisons against LMEs in more than one continent.

Since Rizov and Croucher (2009) included both the public and the private sector, Table A1 in the appendix shows the difference between two samples—all private and public organizations in the original sample and the more restrictive sample with only private organizations. As can be seen, the results are virtually identical for the two samples. Therefore, we include both the public and private sectors in our analyses to be able to replicate the findings from Rizov and Croucher (2009). In the first (replication) analysis where we compare Nordic countries with other European countries, we have usable data for 851 organizations in a total of nine (European) countries from 1999, and for 797 organizations in the same nine countries from 2021. In the second analysis (the extension), a sharper contrast is provided by focusing on the Nordic CME countries and prominent LMEs, including countries outside Europe. Here, we have 596 organizations in eight countries from the 1999 dataset, and 603 firms in 10 countries from the 2021 dataset.

3.2. Measures

3.2.1. Independent variables

Our main independent variables are calculative and collaborative HRM. Rizov and Croucher (2009) adopted the items and operationalization of the scaling proposed by Gooderham et al. (1999). Gooderham et al. (1999) used the Mokken approach (Mokken & Lewis, 1982) to ensure unidimensional scaling using dichotomous items that do not satisfy the assumptions that interval scale items have in factor analysis. To enhance comparability between the 1999 and 2021 data, we dropped items that were not used in the 2021 survey to be able to combine the two datasets. Other replication studies have recently followed this approach and validated the shortening of the scales (e.g. Gooderham et al.,2025 Prince et al., 2022). As an example, a close correspondence between the full versus shortened calculative ($r = 0.99$) and collaborative ($r = 0.96$) scales was demonstrated by Prince et al. (2022) with 1995 data. In this study, the calculative measure was also reduced from 10 to 5 items, and the collaborative measure from 6 to 5 items (see Table 3).

The *calculative HRM* measure is a composite index of five dichotomous items indicating the firm's use or non-use of individual performance-related pay for the three categories (managers, professional and clerical/manual workers), the use of a formal appraisal system, and the systematic evaluation of the effectiveness of training. The mean of the five items above was used to form an index that ranged from 0 (not at all calculative HRM) to 5 (high degree of calculative HRM). The *collaborative HRM* measure is a composite index of five dichotomous items indicating the presence of a written mission statement, formal briefings about the firm's business strategy for the two main categories (managers/professionals and clerical/manual), and a policy of two-way communication (top-down and bottom-up). The mean of the five variables was used to form an index that ranged from 0 (not at all collaborative HRM) to 5 (high degree of collaborative HRM).

3.2.2. Dependent variable

The main dependent variable, *organizational performance*, is measured as a composite index comprised of four items that are included in both the 1999 and 2021 surveys. Rizov and Croucher (2009) used five items in their original analysis. However, 'product to market' was not included in the 2021 survey and was therefore removed to ensure comparability between the two datasets. Respondents were asked to compare the organization to other organizations in their sector and rate the performance of their organization in relation to service quality, level of productivity, profitability and rate of innovation. The 1999 survey used an ordinal

scale divided into three categories (1 = Top 10%, 2 = Upper half and 3 = Lower half), while the 2021 survey used a 5-point Likert-scale (1 = Poor or at the lower end of the industry to 5 = superior). The 1999 scale was adjusted for comparability with the 2021 scale.

3.2.3. Control variables

Following the specifications used by Rizov and Croucher (2009), we include as controls the share of labor costs in total costs per employee, and the ratio of managers to employees. We further controlled for variables capturing organizational characteristics that could have an impact on performance such as log of firm size (Lfsize) and a log of firm age (Lfage). The latter was dropped in the analysis of the 2021 sample due to missing values. We also controlled for a dummy variable that indicates employees of 45 years of age or older (Eage45), and a dummy variable that indicates employees with at least higher education (Eedugr). Using Cranet, market conditions were controlled by an ordinal scale (Market) indicating if the market conditions were booming, steady, or stagnating. The industry sector was coded based on Gooderham et al. (1999) and Rizov and Croucher's (2009) original operationalization. However, the 2021 survey applies a different industry classification (NACE type) and includes more industry categories. To facilitate comparability of the two surveys, we adopted the approach developed by Prince et al. (2022) and included the six categories of manufacturing, construction, transportation, banking and finance, personal services and other industries. Country dummy variables were used to control for important variations in institutional settings. Finally, in all the regressions, control dummy variables for foreign subsidiary status and private ownership of firms, and individual-reporter characteristics, were included.

3.3. Analytical approach

Prior to hypothesis testing we conducted a descriptive analysis of the variables in the two datasets and tested the reliability of the scales used in the study, as well as their pairwise correlations. Using the same modified scales (and other control variables) on both 1999 data and 2021 data ensures that the results are directly comparable.

In the first part of the analysis, we replicate Rizov and Croucher (2009) and examine calculative and collaborative HRM practices in the Nordic countries (Sweden, Denmark, Norway and Finland) compared to other European countries (UK, Germany, Spain, Austria and Belgium). We ran three hierarchical linear regression models where we first entered the control variables in model 1, added the calculative and collaborative

HRM practices in model 2 and finally, in model 3, added the interaction of the Nordic indicator variable with calculative or collaborative HRM practices. The three models produced consistent results.

In the second part of our analysis, we extend the prior study of Rizov and Croucher (2009) to compare the five Nordic countries (Sweden, Denmark, Norway, Finland and Iceland) classified as Nordic-CMEs with five other LME countries (Australia, Canada, Israel, UK and US) from four continents to extend the generalizability of our results. We again ran three hierarchical linear regression models where we first entered the control variables in model 1, added the calculative and collaborative HRM practices in model 2, and finally, in model 3, added the interaction of the Nordic indicator variable with calculative or collaborative HRM practices.

4. Results

Table 2 presents the descriptive statistics and short definitions of all the measures. The composition of the performance and HRM practices scales, and the corresponding test results are presented in Table 3. Alongside Mokken's nonparametric scaling approach to produce our synthetic performance measure (Mokken and Lewis, 1982) we also conducted confirmatory factor analysis (CFA) using a two-factor measurement SEM. CFA of the 1999 model provided an acceptable fit to the data ($\chi^2[45] = 192.242$, $p < 0.001$; CFI = 0.91; TLI = 0.88; RMSEA = 0.06; SRMR = 0.05). CFA of the 2021 model also provided an acceptable fit to the data ($\chi^2[45] = 84.545$, $p < 0.001$; CFI = 0.91; TLI = 0.88; RMSEA = 0.05; SRMR = 0.04). Table 4 reports the correlations between the scales and the Nordic indicator variable and provides first evidence in line with our hypotheses.

Table 5 reports the replication results from the first part of the analysis where we compare calculative and collaborative HRM practices between the Nordic countries and other European countries using the 1999 and 2021 data. First, we examine the 1999 data. In model 1, we enter the control variables. We find that organization size ($b = 0.10$, SE = 0.06, $p < 0.1$), the proportion of employees with (at least) higher education ($b = 0.05$, SE = 0.02, $p < 0.05$), and market conditions ($b = 0.16$, SE = 0.09, $p < 0.1$) are positively related with organizational performance. Furthermore, the industry sector 'other services' (b =-0.50, SE = 0.19, $p < 0.05$) shows weaker organizational performance than the manufacturing sector.

In model 2, both calculative ($b = 0.09$, SE = 0.05, $p < 0.1$) and collaborative ($b = 0.13$, SE = 0.06, $p < 0.05$) HRM practices are positively related with organizational performance. Thus, in our replication we find support

Table 2. Summary statistics of regression variables.

Variable	Description	Mean (SD) 1999	Mean (SD) 2021
Perf	Performance composite index ranging between 4(4) and 12(20) (low-high) for 1999(2021)	8.90 (2.01)	14.82 (2.99)
Calc	Calculative HRM composite index ranging between 0 and 5	2.58 (1.36)	2.60 (1.30)
Coll	Collaborative HRM composite index ranging between 0 and 5	3.37 (1.24)	3.36 (1.32)
W	Percentage of labor cost in total operating cost per employee	1.03 (4.50)	0.93 (1.45)
S	Ratio of managers to employees in percent	9.39 (9.07)	13.13 (11.02)
Lfsize	Log of firm size (total labor force)	6.10 (1.29)	6.49 (1.49)
Lfage	Log of firm age (years)	3.58 (0.90)	
Eage45	Percentage of labor force 45(50) years of age or older (for 1999); categorical variable 1(0%)-4(>50%) (for 2021)	32.01 (19.77)	2.33 (0.88)
Eedugr	Percentage of labor force with graduate or post-graduate education (for 1999); categorical variable 1(0%)-4(>50%) (for 2021)	23.39 (28.52)	2.59 (1.09)
Market	Index of market conditions and business cycle development ranging between 1 and 3(5) (recession-expansion) for 1999(2021)	1.64 (0.72)	3.61 (0.95)
Manufacturing	Manufacturing industries dummy variable	0.47 (0.50)	0.29 (0.45)
Construction	Construction industries dummy variable	0.05 (0.22)	0.05 (0.22)
Transportation	Transportation industries dummy variable	0.04 (0.20)	0.05 (0.22)
Banking and finance	Banking and finance services industries dummy variable	0.10 (0.30)	0.10 (0.30)
Personal services	Personal services industries dummy variable	0.12 (0.32)	0.10 (0.30)
Other industries	Other industries dummy variable	0.22 (0.41)	0.41 (0.49)
Foreign subsidiary	Dummy variable which is 1 if the firm is a foreign subsidiary and 0 otherwise	0.23 (0.42)	0.18 (0.38)
Private firm	Dummy variable which is 1 if the firm is privately owned and 0 otherwise	0.80 (0.40)	0.77 (0.42)
Nordic	Dummy variable which is 1 if a country is from the group of Nordic countries and 0 otherwise	0.20 (0.40)	0.19 (0.39)

Note. Number of observations in the full available sample used in calculating summary statistics is 2622 for 1999 and 1966 for 2021, respectively. Summary statistics for *Lfage* is not reported because of the large number of missing values.

for Hypothesis 1a that collaborative HRM practices are positively related with organizational performance. We also find support for Hypothesis 1b that calculative HRM practices are positively related to performance. However, the relationship is stronger between collaborative HRM and performance than between calculative HRM and performance.

Finally, in model 3, we find that the interaction between the Nordic country (indicator) variable and calculative practices (b =-0.11, SE = 0.11, *ns*) is not statistically significant, while the interaction between the Nordic variable and collaborative practices is significant ($b = 0.40$, SE = 0.15, $p < 0.05$). This suggests that collaborative practices are more strongly and positively related with performance in the Nordic countries when

Table 3. Performance and HRM practices scales, modified for comparability between 1999 and 2021.

	MSP		
Scale/variable	Mean	H	Alpha
Performance scale (*Perf*)	–	0.54 (0.59)	0.74 (0.80)
Profitability between 3(5) and 1 (high-low), 1999(20210	2.46 (3.95)	0.55 (0.56)	0.70 (0.74)
Productivity between 3(5) and 1 (high-low), 1999(2021)	2.26 (3.73)	0.55 (0.60)	0.63 (0.70)
Service quality between 3(5) and 1 (high-low), 1999(2021)	2.15 (3.59)	0.50 (0.53)	0.66 (0.74)
Innovation between 3(5) and 1 (high-low), 1999(2021)	2.12 (3.55)	0.43 (0.48)	0.72 (0.78)
Calculative scale (*Calc*)	–	0.52 (0.43)	0.71 (0.64)
Individual rewards - managers	0.52 (0.46)	0.49 (0.36)	0.60 (0.51)
Individual rewards - professionals	0.49 (0.46)	0.56 (0.39)	0.55 (0.50)
Individual rewards - clerical and manual	0.46 (0.39)	0.48 (0.38)	0.64 (0.52)
Use of performance appraisal system	0.82 (0.70)	0.45 (0.36)	0.71 (0.63)
Systematic evaluation of training effectiveness	0.63 (0.52)	0.35 (0.30)	0.74 (0.65)
Collaborative scale (*Coll*)	–	0.41 (0.39)	0.66 (0.65)
Written mission statement	0.73 (0.79)	0.33 (0.31)	0.62 (0.56)
Strategy briefings: managers and professionals	0.94 (0.90)	0.44 (0.38)	0.51 (0.51)
Strategy briefings: clerical and manual	0.40 (0.51)	0.33 (0.32)	0.61 (0.52)
Two-way communication – top down	0.76 (0.63)	0.32 (0.31)	0.60 (0.65)
Two-way communication - bottom up	0.51 (0.53)	0.35 (0.33)	0.67 (0.68)

Note. The 1999 values are always reported first followed by the 2021 values in parentheses. MSP denotes Mokken Scaling Program. H is Loevinger's coefficient of homogeneity (weighted); all H-coefficients are significantly different from zero at the 0.001 level. Alpha is Cronbach's alpha measure of reliability.

compared to other European countries (see Figure 1). Thus, hypothesis 2a, that the relationship between collaborative HRM and performance is stronger in the Nordic countries, compared to other European countries in 1999 is supported. Hypothesis 2b is also supported as we did not find a significant relationship between calculative HRM practices in the Nordic countries and organizational performance.

Next, we examine the 2021 European sample and report the results again in Table 5. In model 4, we enter the control variables. Employee proportion with (at least) higher education ($b = 0.03$, SE = 0.01, $p < 0.01$) and market condition ($b = 0.36$, SE = 0.10, $p < 0.01$) continue to be positively related with organizational performance. Furthermore, none of the industry sector variables or country variables (except Denmark) are associated with organizational performance. In model 5, calculative ($b = 0.17$, SE = 0.07, $p < 0.05$) and collaborative ($b = 0.24$, SE = 0.08, $p < 0.01$) HRM practices are both positively related with organizational performance. Thus, again support is found for Hypothesis 1a that collaborative forms of HRM practices are positively related with organizational performance as well as for Hypothesis 1b that calculative HRM is related with

Table 4. Correlation matrix of main variables, 1999 and 2021.

	Perf	Calc	Coll	Nordic
Perf	1			
Calc	0.07 (0.14)	1		
Coll	0.12 (0.15)	0.16 (0.23)	1	
Nordic	0.03 (0.02)	−0.08 (−0.04)	0.15 (0.01)	1

Note. The 1999 values are always reported first followed by the 2021 values in parentheses.

performance. Finally, in model 6, the interaction between the Nordic country variable and calculative practices (b =-0.13, SE = 0.15, *ns*) is not significant, while the interaction between the Nordic variable and collaborative practices is significant ($b = 0.30$, SE = 0.17, $p < 0.1$). This means that collaborative practices are more positively related with organizational performance in the Nordic countries compared to other European countries (see Figure 2). Thus, Hypothesis 2a is supported as the relations between collaborative HRM is stronger in the Nordic countries compared to other European countries. The empirical results are also supportive of Hypothesis 2b as we did not find significant relations between calculative HRM practices in the Nordic countries and organizational performance.

Table 6 presents the results from the extended analysis of the relationships between calculative and collaborative HRM practices and organizational performance in the Nordic and LME countries using data from 1999 and 2021. First, we examine the 1999 data. In model 1, we enter the control variables. We find that a higher proportion of employees with higher (or better) education ($b = 0.02$, SE = 0.01, $p < 0.1$) and market conditions ($b = 0.18$, SE = 0.11, $p < 0.1$) remain positively associated with organizational performance. Furthermore, the industry sector 'other services' (b =-0.49, SE = 0.21, $p < 0.05$) shows weaker organizational performance than the manufacturing sector. In model 2, calculative ($b = 0.06$, SE = 0.06, *ns*) HRM practices are not statistically significant, while the relationship between collaborative ($b = 0.21$, SE = 0.07, $p < 0.01$) HRM practices with better organizational performance is positive and significant. Thus, we continue to find support for Hypothesis 1a but not for Hypothesis 1b. In model 3, the interaction between the Nordic country variable and calculative practices (b =-0.04, SE = 0.11, *n.s.*) is not significant, while the interaction between the Nordic variable and collaborative practices is significant ($b = 0.36$, SE= 0.16, $p < 0.05$). This suggests that collaborative practices are more strongly and positively associated with performance in the Nordic CME context compared to the sample of LME countries (see Figure 3). Thus, Hypothesis 2a is supported. Hypothesis 2b is also supported, as we did not find a significant interaction between calculative HRM practices in the Nordic countries and organizational performance.

Next, we examine the extended 2021 Nordic-LME sample and report the results in Table 6. In model 4, we enter the control variables and

Table 5. Replication estimates of the modified original European Cranet sample 1999 and 2021.

	1999			2021		
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Calc		**0.089***	**0.115****		**0.174****	**0.202****
		(0.047)	**(0.049)**		**(0.073)**	**(0.092)**
Coll		**0.126****	**0.119***		**0.241*****	**0.227*****
		(0.062)	**(0.064)**		**(0.079)**	**(0.084)**
W	0.002	0.002	0.002	−0.013	−0.019	−0.019
	(0.016)	(0.016)	(0.016)	(0.012)	(0.018)	(0.018)
S	−0.001	−0.002	−0.004	0.006	0.008	0.006
	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.007)
Lfsize	**0.100***	**0.092***	**0.092***	0.041	0.040	0.032
	(0.057)	**(0.058)**	**(0.057)**	(0.078)	(0.077)	(0.076)
Lfage	−0.067	−0.064	−0.098			
	(0.072)	(0.072)	(0.071)			
Eage45	−0.001	−0.002	−0.001	−0.012	−0.013	−0.011
	(0.004)	(0.004)	(0.004)	(0.011)	(0.011)	(0.011)
Eedugr	**0.005****	**0.005****	**0.004****	**0.030*****	**0.024****	**0.021****
	(0.002)	**(0.002)**	**(0.002)**	**(0.010)**	**(0.009)**	**(0.008)**
Market	**0.156***	**0.157***	**0.150***	**0.357*****	**0.329*****	**0.328*****
	(0.090)	**(0.090)**	**(0.089)**	**(0.102)**	**(0.100)**	**(0.101)**
Construction	−0.076	−0.069	−0.043	−0.352	−0.274	−0.202
	(0.370)	(0.369)	(0.367)	(0.432)	(0.273)	(0.423)
Transportation	−0.187	−0.124	−0.048	0.442	0.355	0.267
	(0.282)	(0.282)	(0.278)	(0.419)	(0.415)	(0.415)
Banking and finance	−0.372	−0.330	−0.323	−0.235	−0.278	−0.274
	(0.230)	(0.230)	(0.229)	(0.357)	(0.353)	(0.347)
Personal services	0.051	0.064	0.119	−0.091	−0.044	−0.034
	(0.209)	(0.208)	(0.207)	(0.357)	(0.323)	(0.349)
Other industries	**−0.504****	**−0.441****	**−0.344***	−0.213	−0.202	−0.246
	(0.194)	**(0.196)**	**(0.191)**	(0.230)	(0.228)	(0.225)
Germany	−0.333	−0.222		−0.323	−0.342	
	(0.223)	(0.225)		(0.296)	(0.399)	
Sweden	0.234	0.226		0.357	0.458	
	(0.311)	(0.319)		(0.331)	(0.362)	
Spain	−0.217	−0.160		−0.017	−0.052	
	(0.291)	(0.292)		(0.378)	(0.375)	
Denmark	0.255	0.260		**0.942****	**0.810***	
	(0.264)	(0.273)		**(0.448)**	**(0.471)**	
Norway	−0.123	−0.066		−0.308	−0.322	
	(0.230)	(0.239)		(0.401)	(0.428)	
Finland	0.218	0.261		−0.223	−0.380	
	(0.248)	(0.252)		(0.464)	(0.465)	
Austria	**0.579****	**0.562****		0.531	0.398	
	(0.290)	**(0.289)**		(0.378)	(0.376)	
Belgium	0.167	0.127		0.335	0.234	
	(0.298)	(0.298)		(0.531)	(0.728)	
Nordic			−0.396			0.261
			(0.529)			(0.699)
Nordic*Calc			−0.106			−0.125
			(0.105)			(0.145)
Nordic*Coll			**0.396****			**0.296***
			(0.154)			**(0.171)**
Controls for ownership	Yes	Yes	Yes	Yes	Yes	Yes
Controls for reporter	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.182	0.194	0.187	0.272	0.292	0.281
Number of observations	851	851	851	797	797	797

Note. In the estimations, the sample with public and private firms is used. The scales Perf, Calc and Coll are adapted to the information available in the CRANET2021 data and constructed with the CRANET1999 and CRANET2021 data, respectively. Reference country is the UK and reference industry is manufacturing. Controls for private and foreign ownership are included. The sample comprises the original Rizov and Croucher sample countries less France and Ireland. The coefficients in bold are significant at 10% or better.

*$p < 0.10$; **$p < 0.05$ and ***$p < 0.01$.

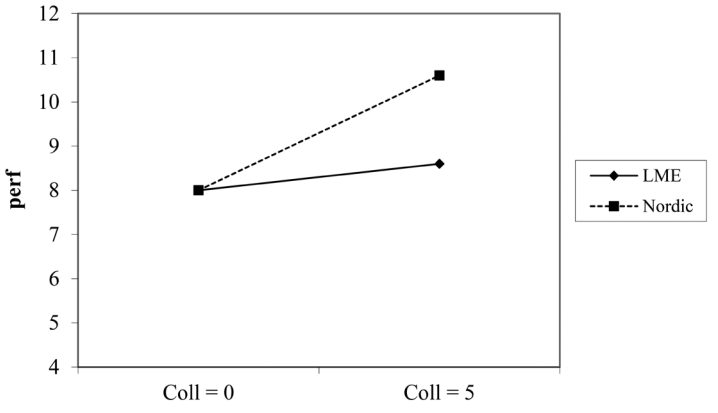

Figure 1. Interaction effects in Table 5, 1999.

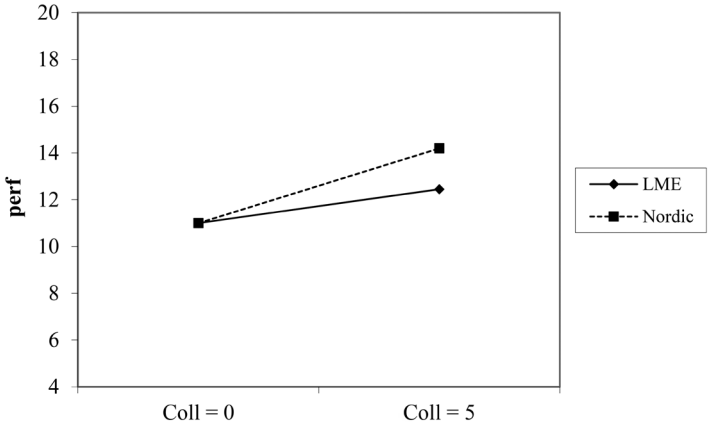

Figure 2. Interaction effects in Table 5, 2021.

find that a higher proportion of employees with higher (or better) education ($b = 0.04$, SE = 0.01, $p < 0.01$) and market condition ($b = 0.49$, SE = 0.12, $p < 0.01$) are positively related with organizational performance. Furthermore, we find that none of the industry sector or country variables (except Denmark and Iceland) are significantly associated with organizational performance. The USA has significantly weaker association with performance than the UK. In model 5, calculative ($b = 0.14$, SE = 0.08, $p < 0.1$) and collaborative ($b = 0.18$, SE = 0.09, $p < 0.1$) HRM practices are both positively associated with organizational performance. This supports Hypotheses 1a and 1b. Finally, in model 6, the interaction between the Nordic country variable and calculative practices (b =-0.03, SE = 0.13, *ns*) is not significant, but the interaction between the Nordic variable and collaborative practices is significant ($b = 0.36$, SE = 0.18, $p < 0.05$). This supports Hypothesis 2a where collaborative practices are more strongly related with organizational

Table 6. Estimates of the extended Nordic (CME) and LME sample with Cranet 1999 and 2021.

	1999			2021		
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Calc		0.064	0.072		**0.139***	0.143
		(0.056)	(0.064)		**(0.083)**	(0.129)
Coll		**0.209*****	**0.202****		**0.180***	**0.286****
		(0.075)	**(0.081)**		**(0.094)**	**(0.122)**
W	0.032	−0.035	−0.037	−0.025	−0.017	−0.016
	(0.020)	(0.022)	(0.025)	(0.091)	(0.091)	(0.091)
S	−0.010	−0.011	−0.015	−0.006	−0.004	−0.04
	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.009)
Lfsize	0.013	0.016	0.018	0.029	0.070	0.072
	(0.069)	(0.071)	(0.071)	(0.112)	(0.112)	(0.111)
Lfage	−0.052	−0.047	−0.052			
	(0.081)	(0.081)	(0.080)			
Eage45	−0.001	−0.001	−0.001	−0.030	−0.028	−0.026
	(0.004)	(0.004)	(0.004)	(0.034)	(0.034)	(0.035)
Eedugr	**0.018***	**0.014***	**0.012*****	**0.040*****	**0.035*****	**0.028*****
	(0.011)	**(0.008)**	**(0.003)**	**(0.011)**	**(0.011)**	**(0.011)**
Market	**0.181***	**0.180***	**0.179***	**0.487*****	**0.384*****	**0.382*****
	(0.108)	**(0.108)**	**(0.106)**	**(0.115)**	**(0.114)**	**(0.116)**
Construction	−0.144	−0.091	−0.143	−0.322	−0.213	−0.189
	(0.393)	(0.391)	(0.389)	(0.473)	(0.473)	(0.477)
Transportation	0.033	0.027	0.017	0.468	0.414	0.409
	(0.346)	(0.344)	(0.340)	(0.457)	(0.449)	(0.454)
Banking and finance	−0.210	−0.228	−0.219	−0.277	−0.197	−0.143
	(0.297)	(0.296)	(0.293)	(0.403)	(0.402)	(0.406)
Personal services	0.098	0.070	0.090	0.296	0.298	0.279
	(0.249)	(0.248)	(0.246)	(0.413)	(0.417)	(0.423)
Other industries	**−0.491****	**−0.445****	**−0.352***	−0.321	−0.331	−0.322
	(0.212)	**(0.211)**	**(0.206)**	(0.279)	(0.278)	(0.282)
Sweden	−0.218	−0.421		−0.366	−0.487	
	(0.311)	(0.316)		(0.364)	(0.367)	
Denmark	0.273 (0.267)	0.190 (0.268)		**1.117****	**0.963***	
				(0.516)	**(0.527)**	
Norway	−0.203	−0.298		−0.400	−0.434	
	(0.234)	(0.235)		(0.429)	(0.432)	
Finland	0.239	0.182		0.229 (0.504)	0.343 (0.513)	
	(0.254)	(0.256)				
Iceland				**1.023****	**1.150****	
				(0.453)	**(0.455)**	
Australia	−0.393	−0.442		0.882	0.695	
	(0.349)	(0.347)		(0.988)	(0.993)	
Israel	0.164	0.195		0.032	−0.012	
	(0.351)	(0.356)		(0.496)	(0.497)	
Canada				−0.641	−0.574	
				(0.541)	(0.538)	
USA				**−0.833***	**−0.998***	
				(0.489)	**(0.495)**	
Nordic			−0.460			0.561
			(0.620)			(0.723)
Nordic*Calc			−0.041			−0.028
			(0.111)			(0.126)
Nordic*Coll			**0.357****			**0.356****
			(0.160)			**(0.184)**
Controls for ownership	Yes	Yes	Yes	Yes	Yes	Yes
Controls for reporter	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.183	0.200	0.201	0.278	0.289	0.284
Number of observations	596	596	596	603	603	603

Note. In the estimations, private firms only sample is used. The scales Perf, Calc and Coll are adapted to the information available in the CRANET2021 data and constructed with the CRANET1999 and CRANET2021 data, respectively. Reference country is the UK and reference industry is manufacturing. The CRANET1999 sample comprises the Nordic countries less Iceland. Removing Iceland from the CRANET2021 sample does not qualitatively change the results. Coefficients in bold are significant at 10% or better.

*$p < 0.10$; **$p < 0.05$ and ***$p < 0.01$.

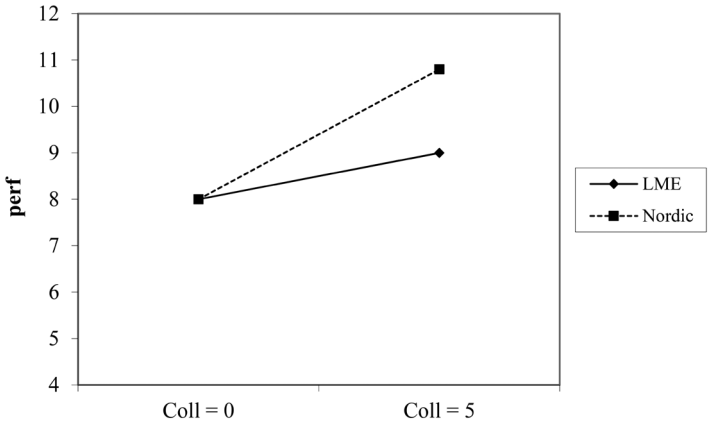

Figure 3. Interaction effects in Table 6, 1999.

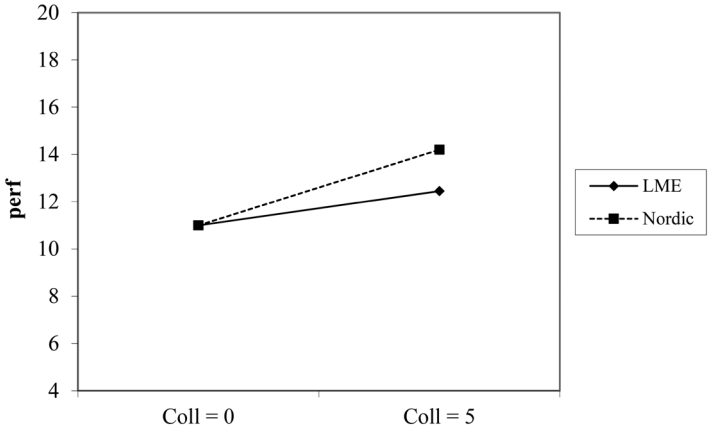

Figure 4. Interaction effects in Table 6, 2021.

performance in the Nordic CME context compared to the five LME countries (see Figure 4). Hypothesis 2b is also supported as the interaction is not significant between calculative HRM practices and organizational performance in the Nordic countries.

Comparing Tables 5 and 6 regarding the effect of the calculative and collaborative scales, and their interaction terms with the Nordic variable, we can conclude that in the first part of the analysis with the European sample, the direct effects appear to have strengthened over time, while the only significant interaction term of collaborative practices and the Nordic variable has declined. In the second part of the analysis, with the Nordic-LME sample, the direct effects have strengthened modestly, but they are mostly significant for the collaborative scale, not the calculative one. The interaction terms of collaborative practices and the Nordic variable have remained stable and significant over the 1999–2021 period.

To formally confirm the statistical significance of our observation and to test our Hypothesis 3, we conducted Wald tests of difference in relevant coefficients, notably of *Calculative*, *Collaborative*, and the interaction terms *Nordic*Calculative* and *Nordic*Collaborative* in the European and Nordic-LME samples. The results are reported in Table 7 and show that none of the estimated Chi2 statistics are significant at any conventional level. Thus, we can conclude that there is no significant change in the effects of the HRM practices in our estimated samples over the period 1999-2021 in the European and Nordic-LME samples.

5. Discussion and conclusion

The main aim here was to challenge universalist assumptions about the relationship between calculative and collaborative HRM practices and organizational performance, and to enhance understanding of the role of institutional context and time in this relationship. We replicated the findings from Rizov and Croucher (2009) using 1999 data and tested whether this remained the case in 2021 in a European sample. We also examined whether the Nordic context moderated the relationship between calculative and collaborative HRM practices on organizational performance in the European sample, for the period 1999–2021. We then extended our analysis by examining the same relationships in the Nordic context compared to five LME countries in four continents in the period 1999–2021.

All hypotheses proposed are confirmed. First, both collaborative and calculative HRM practices positively affect organizational performance in all four samples. Still the relationship between collaborative HRM practices and performance is stronger than the calculative HRM practices and therefore more important. Second, our results confirm that the Nordic institutional CME context moderates the relationships between collaborative HRM practices and organizational performance in 1999 and 2021 in the European and the Nordic CME-LME samples by strengthening the relationship, while the calculative HRM relationship with performance is weakened. Finally, no change was found in the effects of the collaborative and calculative HRM practices on performance, over the period 1999-2021.

5.1. Theoretical and practical implications

The findings contribute to the institutional as well as the comparative and international HRM literature. The results contribute towards extended understanding of long-term patterns in HRM practices, whereby historical institutional factors and path dependency continue to shape relations

Table 7. Changes in effects of Calc and Coll, and their interactions with Nordic, over time.

	Table 5 comparisons ($N = 1648$)		Table 6 comparisons ($N = 1199$)	
	Columns 2–5 difference	Columns 3–6 difference	Columns 2–5 difference	Columns 3–6 difference
Calc 1999–2021	0.97 (0.32)	0.77 (0.38)	1.72 (0.19)	0.94 (0.33)
Coll 1999–2021	1.93 (0.16)	1.82 (0.18)	0.23 (0.63)	0.29 (0.59)
Nordic*Calc 1999–2021		0.14 (0.71)		0.11 (0.74)
Nordic*Coll 1999–2021		1.55 (0.21)		0.18 (0.67)

Note. The change in effect between 1999 and 2021 (1999–2021) is calculated by a Wald test where the null hypotheses (Ho) is that the difference in coefficients is zero; the test statistics is χ^2-distributed. The reported statistics are $\chi^2(1, N)$ and $\text{Prob} > \chi^2$, in parentheses.

between HRM and performance, about 22 years later. First, we confirmed with new data, and by replicating and extending the Rizov and Croucher's study (2009), that collaborative HRM practices are more important for organizational performance than calculative practices, despite inconclusive results in prior studies. The results are based on four samples, 1999 and 2021 European samples and the Nordic-LME sample. Furthermore, the collaborative-performance relationships are strongest when the institutional and national setting in the Nordic context supports them. These results are also consistent with Cregan et al. (2021), indicating that collaborative practices may have a more positive impact on performance when layoffs are used or in times of crisis. Our results are also partly in line with Stavrou and Brewster's (2005) study by suggesting that collaborative HRM practices do still matter and positively impact organizational performance, in both LME and CME contexts and over time, in 1999 and 2021. As we extended the study with theory-based samples, with Nordic-CMEs and prominent LMEs worldwide, strong support was found for collaborative HRM practices and their relationship with organizational performance. The relationship was even stronger in the Nordic countries for both 1999 and 2021. This indicates a systematic and institutional theory-based difference between the two groups, LMEs and Nordic-CMEs, regarding the effect of collaborative HRM on organizational performance since we found more support for collaborative than calculative HRM in the Nordic context.

Second, we extended our analysis to specifically investigate how calculative and collaborative HRM practices interact with the institutional setting in the Nordic context compared to other European countries and five LME countries nested in four continents for the period 1999–2021. Our results confirmed how the Nordic institutional CME context provides support for a positive interaction between collaborative HRM practices and Nordic context on organizational performance, in both the 1999 data and the 2021 data. The results suggest a continued importance of institutional and normative support for collaborative HRM practices since collaborative HRM in the Nordic context improves organizational performance while

calculative HRM practices do not significantly affect it. Similarly, the collaborative institutional context in the Nordic CMEs moderates the relationship between collaborative practices and organizational performance, by making it stronger. The collaborative Nordic context on the other hand moderates the relationship between calculative HRM and performance by making it weaker. These results can be explained by strong collaborative norms and high trust at all levels of society and by the institutional characteristics of the specific brand of non-legalistic high-trust CME, persistently thriving in the Nordic countries (Gooderham et al., 1999; Prince et al., 2022). Relations are thus strongest when the institutional and normative CME settings support collaborative HRM at the organizational level, as is the case in Nordic countries. This is also in line with Whitley's (1999) suggestion that collaborative norms and behavior at the national level also call for collaboration at the organizational level. We also emphasize that using different country compositions in our estimated samples provides for a robust triangulation in our analysis, confirming that our results are not driven by specific countries. The results, therefore, suggest a resilient Nordic HRM model.

Finally, no change in the effects of collaborative HRM practices over the period 1999–2021 was confirmed. This result is consistent with the concept of path dependence (Marx & Reitmayer, 2019, p. 753) suggesting that strong and well-established configurations of institutional characteristics of the Nordics have created strong 'path dependent legacies' by allowing developments to take place while key collaborative institutional characteristics and their relations with organizational performance are maintained.

Our study also has important practical implications for HRM practitioners. The results suggest that organizations can benefit from using and embedding collaborative HRM practices in their HRM approach, for instance through formal and systematic top-down and bottom-up communication efforts and through employee involvement. However, this does not suggest the exclusion of calculative practices, as our results show that they are also important for performance. In line with Buchele and Christensen (1999) arguments that organizational performance depends more on effective interaction, trust and collaboration between various groups, departments and people in organizations than on individual efforts, to benefit from a more collaborative HRM organizations may have to look into ways to build up group incentives that foster collaboration, rather than individually based performance appraisal systems and incentives.

Furthermore, in a collaborative context such as the Nordic one, the importance of collaborative HRM practices is further augmented,

attributed to the collaborative institutional context in which organizations and HRM practitioners operate. As the results suggest that context matters, they should also contribute to the global-local dilemma faced by practitioners in multinational corporations (MNCs) regarding transfer of global practices or adoption of local ones. This could also inspire policymakers elsewhere to develop national policies in the labor market and institutions that further collaborative practices by promoting and supporting collaborative HRM at the organizational level. The combined effect of institutional collaborative arrangements at the national level, and HRM-practices at the organizational level that together improve performance, as exemplified by the Nordic countries in this study, could be an important inspiration for national level policymakers, HR practitioners and management in organizations.

5.2. Limitations and future research

A few important methodological caveats should be acknowledged when evaluating the validity of the analysis and results. First, the Cranet data is cross-sectional, and the results are based on one informant per organization with at least 100 employees. We could only speculate whether the effects of institutional factors on HRM practices and the HRM-performance relationship would be different for smaller firms like SMEs (Menzies et al., 2025). Results also rely on a self-reported composite outcome variable which can also be criticized for its subjectivity. However, prior studies do lend support for subjective measures of organizational performance as managers do accurately assess and respond to questions relating to performance. Further, consistent, objective and reliable data across countries is extremely difficult, if not impossible to obtain (Singh et al., 2016). Other researchers, drawing on the Cranet data, have concluded that it is important to balance rigor and relevance when collecting large-scale comparative management data from multiple countries (Parry et al., 2021). A suggestion for future studies is to either include several informants about performance in each participating organization or to include other types of objective organizational performance data.

We also want to mention a caveat related to missing values for some of the variables used in our estimated specifications, following our replication strategy of the Rizov and Croucher (2009) study. Our comparable estimated samples for the two periods—1999 and 2021—are therefore relatively small. Thus, an associated suggestion for future comparative (replication) studies with the Cranet data is to explore possibilities for data imputation and appropriate variable selection/substitution to achieve

larger usable sample sizes while keeping in mind the trade-offs associated with data manipulation.

It may also be noted that other studies, such as Gooderham et al. (1999) use only private firms in their analysis, while Rizov and Croucher (2009) and this study include also public and voluntary organizations. Some might argue that 'organizational performance' is something different in private as opposed to public organizations. However, the public sector plays an important role in the Nordic country's welfare state model, as the public sector is about 25% to 30% of the labor market, and the OECD average is about 18% (OECD, 2019). We are also guided by the reforms of New Public Management (NPM) initiated about 30 years ago, pressuring public organizations to become more efficient and result-oriented in alignment with the private-sector (Goldfinch et al., 2009; Leisink et al., 2021). This suggests a convergence in the public sector with the private one, in terms of management styles and practices. It is also fair to mention that for a more focused argument we did not include a number of variables (managerial oversight, absenteeism, voluntary turnover etc.) in the analysis. However, as we replicated the original Rizov & Croucher (2009) analysis with the 1999 data without these items, and still got the same results, the relationships depicted by the two sets are very similar. Moreover, as the public sector is included in the study it might be valuable to investigate further the interaction between public and private sector organizations regarding collaborative HRM, and its impact on organizational performance. Generalizability may also be a limitation, even though this study improves generalizability of prior studies through its extension and inclusion of countries in four continents, The results are still only valid for the countries and regions included in the study. One suggestion for future research is to examine other country clusters to add more empirically based nuances to the existing CME and LME dichotomy.

The important question of how the Nordic countries manage to turn collaborative HRM into a competitive advantage still remains and more in-depth research is required. Furthermore, we suggest that future studies should use more proximal measures of HRM performance, like absenteeism and voluntary turnover, but also other more distal societal outcomes of, for instance, trust, equality or social progress in general (Greve, 2017). In-depth qualitative case studies might shed light on how different organizational actors utilize and seek support within this collaborative context and how HRM practices are influenced and evolve accordingly. This aligns with the recommendations of other comparative institutionalist HRM research (Gooderham et al., 2019; Mayrhofer et al., 2019), which emphasize the need to explore how the institutional context of HRM is perceived and enacted within organizations.

It can be concluded that the Nordics represent a social alternative to Liberal Market Economies (US, UK, Canada, etc.) that continue to turn collaborative HRM into a reasonable strategic choice for organizations. As such, the study highlights that the presence of a collaborative, democratic, coordinated and trust-based social model, as observed in Nordic countries, intensifies this relationship. Indeed, collaboration may sometimes be the better strategy.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Appendix

Table A1. Replication estimates of the public and private firms' sample and the private firms only sample with Cranet 1999.

	CJE original setup (pub and priv firms)		CJE setup (private firms only)	
Variable	(1)	(2)	(4)	(5)
Calc		**0.072* (0.033)**		**0.066* (0.037)**
Coll		**0.088* (0.047)**		**0.112** (0.054)**
W	−0.001 (0.017)	−0.001 (0.016)	−0.019 (0.018)	−0.019 (0.018)
S	0.007 (0.009)	0.006 (0.008)	0.005 (0.009)	0.005 (0.009)
Lfsize	0.085 (0.064)	0.053 (0.064)	**0.152** (0.074)**	0.118 (0.074)
Lfage	**−0.162* (0.085)**	**−0.146* (0.085)**	−0.141 (0.100)	−0.133 (0.099)
Eage45	−0.004 (0.004)	−0.003 (0.004)	−0.006 (0.005)	−0.006 (0.005)
Eedugr	**0.005* (0.003)**	**0.005* (0.003)**	**0.007** (0.003)**	**0.006* (0.003)**
Market	**0.225** (0.104)**	**0.219** (0.104)**	**0.241** (0.120)**	**0.217* (0.119)**
Construction	0.166 (0.364)	0.261 (0.364)	0.138 (0.385)	0.228 (0.385)
Transportation	−0.409 (0.309)	−0.326 (0.308)	−0.165 (0.358)	−0.089 (0.357)
Banking and finance	−0.388 (0.267)	−0.400 (0.266)	−0.486 (0.302)	**−0.492* (0.300)**
Personal services	0.150 (0.237)	0.130 (0.235)	0.058 (0.274)	0.025 (0.273)
Other industries	**−0.776*** (0.207)**	**−0.722*** (0.206)**	−0.293 (0.261)	−0.252 (0.260)
France	**−0.753*** (0.238)**	**−0.849** (0.332)**	**−0.792** (0.348)**	**−0.689* (0.351)**
Germany	0.344 (0.274)	0.166 (0.279)	0.589 (0.400)	0.390 (0.305)
Sweden	−0.367 (0.385)	−0.469 (0.385)	−0.644 (0.442)	−0.657 (0.441)
Spain	−0.225 (0.357)	−0.108 (0.358)	**−0.711* (0.391)**	−0.579 (0.392)
Denmark	0.068 (0.325)	0.165 (0.327)	0.184 (0.388)	0.094 (0.391)
Norway	−0.158 (0.282)	−0.024 (0.288)	−0.115 (0.342)	−0.118 (0.348)
Ireland	0.019 (0.305)	0.094 (0.305)	0.267 (0.335)	0.192 (0.336)
Finland	0.187 (0.302)	0.217 (0.305)	0.143 (0.359)	0.148 (0.361)
Austria	**0.767** (0.358)**	**0.867** (0.359)**	0.545 (0.392)	**0.656* (0.392)**
Belgium	0.288 (0.368)	0.252 (0.367)	0.239 (0.397)	0.311 (0.396)
Control for subsidiary	Yes	Yes	Yes	Yes
Controls for reporter	Yes	Yes	Yes	Yes
R^2	0.176	0.186	0.178	0.189
Number observations	1045	1045	829	829

Notes: The original (Rizov and Croucher, 2009) scales are constructed with the Cranet1999 data; the original sample countries are used. Coefficients in bold are significant at 10% or better;.

*$p < 0.10$,
**$p < 0.05$ and
***$p < 0.01$.