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## Should I Train or Should I Go? Human Resources, Human Capital, Turnover and Service Quality

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## **Should I Train or Should I Go?**

### **Human Resources, Human Capital, Turnover and Service Quality**

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#### **ABSTRACT**

Extant literature documents a relationship between human resource management (HRM) practices and performance, but the mechanisms underlying this relationship are still not well understood. We develop a theoretical framework of the HRM-performance relationship fusing an employment systems approach with human capital theory and articulating the mechanisms and temporal pathways linking HRM bundles and service quality. We use a unique and large panel dataset from the English social care sector to test our framework. The results highlight the significant role of collective human capital and voluntary turnover in the dynamic relationship between bundles of HRM practices and service quality.

**Keywords:** Human Capital; HR Management; Firm Performance; Turnover; Training.

**JEL Codes:** J24, M12, L25, J63, M53.

## INTRODUCTION

The relationship between human resource management (HRM) practices and organizational performance is well established empirically (Appelbaum et al., 2000). However, we still do not fully understand the precise mechanisms linking HRM practices with proximal and distal organizational outcomes (Guest, 2011; Jiang et al., 2012; Jiang and Messersmith, 2018) and this study seeks to address three key areas of limitations in the previous literature.

First, as some scholars have pointed out, current conceptualizations of the HRM-performance relationship are based on fragmented and narrow theoretical perspectives (Jiang et al., 2012; Jiang and Messersmith, 2018). The study addresses this through synthesizing insights from distinct theoretical perspectives: one based on the ‘employment systems’ approach and another based on ‘human capital’ theory. Thus, we develop a conceptual framework that emphasizes the role of collective human capital and organizational turnover in this relationship.

Second, in line with recent arguments (Batt and Colvin, 2011; Chowhan, 2016), the static conceptualization of the HRM-performance relationship may merely reflect data limitations (i.e., cross section data). The latter can test neither dynamic relationships nor temporal hypotheses (Bliese et al., 2020) and fail to establish whether the HRM-performance relationship is causal, due to problems arising from simultaneity and omitted variables (Guest, 2011). In line with recent studies that take a longitudinal approach (Chowhan, 2016; Tregaskis et al., 2013), our study develops a framework that postulates dynamic relationships and accounts for the temporal pathway linking HRM practices, intermediate outcomes, and service quality; and tests the framework using unique panel data.

Finally, previous empirical studies of the HRM-performance link employed largely subjective measures of some of the theoretical constructs based on managers’ perceptions, which may be plagued with measurement error, and thus lead to invalid inferences. We address

this problem by employing more accurate measures of HRM practices, human capital, turnover, and service quality, based on individual and firm-level data.

The rest of the article is structured as follows. The second section presents our theoretical framework and formulates the key hypotheses on the mediating role of collective human capital and voluntary turnover in the relationship between bundles of HRM practices and service quality. The third section discusses the sample, data, and methods, employed to test the framework. The fourth section presents the main findings of the analysis. The final section discusses the findings and concludes by outlining the contributions and implications of the study.

## **THEORY AND HYPOTHESES**

### **Theoretical Background**

A voluminous literature examining the relationship between HRM practices and performance purports to shed light on the so-called ‘black box’ of HRM: the mechanisms underpinning the link between HRM and organizational performance (Boselie et al., 2005; Guest, 2011; Jiang et al., 2013; Jiang and Messersmith, 2018; Posthuma et al., 2013; Wood, 2020). Despite the progress achieved so far, there is a strong consensus that there are many questions that remain unanswered in this area and further research is warranted (Jiang and Messersmith, 2018). It is important that further studies look more closely at some understudied mechanisms underlying the HRM-performance relationship, such as the mediating role of turnover (Posthuma et al., 2013: 1210). As Jiang and Messersmith (2018: 11) argue, several studies rely only on the ‘behavioral perspective’, but it is necessary that further studies consider ‘less frequently’ applied theoretical frameworks to advance the field.

In response to these calls, our approach combines two distinct theoretical perspectives, while it also builds on the framework proposed by Jiang et al. (2012) on the relationship

between HRM practices and organizational outcomes. The first theoretical perspective is based on the ‘employment systems approach’ (Batt and Colvin, 2011; Osterman, 1987) postulating that employees’ voluntary turnover (quits) is a ‘strategic variable’ (Batt and Colvin, 2011; Osterman, 1987), through which the impact of HRM systems on performance is realized. The second theoretical perspective is based on human capital approaches to HRM (Aryee et al., 2016; Wright and McMahan, 2011). This view suggests that collective human capital, i.e., the aggregate stock of skills, knowledge, and abilities of all employees in the organization (Wright and McMahan, 2011), is a key intermediate outcome in the causal pathway linking HRM practices and performance.

The theory of HRM as ‘systems’ or ‘architectures’ (Huselid and Becker, 2011; Subramony, 2009) leads to the broad expectation that HRM practices have complementarities, and their effects should be synergistic. Some studies reveal synergistic effects (e.g. Huselid, 1995); however, other studies do not find such effects (Batt and Colvin, 2011; Cappelli and Neumark, 2001). Notwithstanding, there is a reasonable consensus that ‘subsets’ of HRM practices are likely to be complementing and reinforcing each other; and therefore, should be considered as ‘sets’ or ‘bundles’ (Batt and Colvin, 2011; Guest et al., 2004; Subramony, 2009). This premise leads naturally to the following questions: which HRM practices should be considered together, and in which bundles?

One strand in the literature applies the Ability-Motivation-Opportunity (AMO) model (Appelbaum et al., 2000; Jiang et al., 2012) to group HRM practices and conceptualize their impact on performance. According to the AMO framework, HRM practices are grouped in three main bundles: (a) one that provides employees with necessary skills and abilities; (b) one that boosts motivation; and (c) one that offers opportunities for job involvement or organizational involvement (Wood, 2020). By contrast, another strand in the literature distinguishes between ‘inducements and investment’ HRM practices and ‘expectation-

enhancing' HRM practices (Batt and Colvin, 2011: 698; Shaw et al., 2005: 55). Inducements and investment practices aim to improve employees' outcomes, while the expectation-enhancing practices reflect organizations' expectations about employees' contributions. While the grouping and categorization of practices is slightly differentiated between those two approaches, the common thread is that practices do not impact performance individually, but in 'bundles' (Subramony, 2009). Our conceptualization considers the 'ability' and 'motivation' bundles of HRM practices that we call *skill-enhancing* and *motivation-enhancing*, respectively (Jiang et al., 2012)

Studies in the HRM and performance literature employ a wide range of measures of 'organizational performance' (for an exhaustive review see Jiang et al., 2013: 1456–59). Earlier studies used *inter alia* objective HRM-specific outcomes, such as workforce turnover (Huselid, 1995; Shaw et al., 2005); operational performance outcomes, such as productivity or safety (Bloom and Van Reenen, 2006; Huselid, 1995); financial performance outcomes, such as profitability, sales growth, or return on equity (Huselid, 1995; Shaw et al., 2005); subjective measures of organizational outcomes, based on managers' perceptions of performance (Ramsay et al., 2000; Wood and Ogbonnaya, 2018) or managers' perceptions of service quality or performance (Aryee et al., 2016; Batt and Colvin, 2011; Jo et al., 2020) or a combination of the above (Bryson et al., 2017).

We employ service quality as our measure of organizational performance, for a number of reasons: first, service quality, has been an under-investigated aspect of organizational performance, compared to productivity or profitability; second, service quality, is viewed as an indicator of operational performance, and thus a "proximal" performance outcome, that is more directly influenced by employees' abilities and motivation, than 'distal' outcomes, such as financial performance, which is likely to be influenced by several other external and contextual factors such as competitive conditions in the market (Kaufman, 2015).

As Guest (2011: 9) and Jiang et al. (2013) have forcefully argued, studies that assume instantaneous effects downplayed how long it might take for an HRM practice to influence organizational outcomes (Jiang et al., 2013: 1414). As a result, several scholars recommended a shift to longitudinal designs (Guest, 2011; Jiang et al., 2013; Wall and Wood, 2005), because effects of HRM practices on performance outcomes may take time to kick-in (Chowhan, 2016; Guest, 2011). Hence, our framework and the associated formulated hypotheses postulate that the effects of HRM practices not only work through mediation mechanisms, but also take time to materialize. For this reason, we integrate a temporal sequencing into our hypotheses. Overall, our framework indicates that HRM practices will not influence service quality instantaneously. Instead, as Figure 1 illustrates, there is a temporal sequencing at variable points (not fixed), between HRM practices (t-2), mediators (t-1) and service quality (t).

### **HRM Bundles, Voluntary Turnover, and Human Capital**

The employment systems approach focuses on how employers structure HRM practices to advance their strategic objectives (Batt and Colvin, 2011). Osterman (1987) argues that in low turnover employment systems, HRM practices contribute synergistically to reinforce the ‘commitment and loyalty’ effects of different practices on performance. From this angle, organizational voluntary (employee-driven) turnover is not just a proximal performance outcome (Jiang et al., 2012), but it is a strategic variable, that captures the exit vs. loyalty dilemma in organizations (Hirschman, 1970). This is juxtaposed to involuntary (employer-driven) turnover (that includes dismissals) which reflect an employers’ decision and likely has very different antecedents from quits. Indeed, earlier work suggested that quality is higher where turnover is lower because of higher employee motivation (Batt and Colvin, 2011).

Training and development practices are part of the ‘core’ high performance HRM practices (Posthuma et al., 2013). Following Posthuma et al. (2013: 1192), skill-enhancing

practices include different aspects of training and development: ‘core’ aspects such as the training extensiveness in the organization; training for job or firm-specific skills through accredited or non-accredited courses; as well as broader practices such as cross-functional training and new employee orientation.

There are several mechanisms that underpin the relationship between skill-enhancing HRM practices and voluntary turnover. First, from the perspective of employees, those who have undertaken training focused on firm-specific skills will be more reluctant to leave the organization, as their skills will not be fully transferable and less valuable to other organizations (Batt and Colvin, 2011: 700). From the perspective of the employer, the organization will also be more willing to actively retain those trained employees and avoid ‘poaching’ by other organizations in the sector, because of the cost and time associated with training provision, but also because of the time that new hires need to become ‘fully proficient’ in their job (Batt and Colvin, 2011: 700). Finally, investment in ‘managerial’ human capital (Forth and Bryson, 2019) should also be contributing to lower turnover, since knowledgeable and well-trained managers and supervisors should be more able to ensure the retention of subordinate employees.

Motivation-enhancing HRM practices capture outcomes such as higher relative pay, internal promotion opportunities, and job security (Batt and Colvin, 2011; Jiang et al., 2012). Following the employment systems approach higher relative pay is seen as an important mechanism that nurtures ‘loyalty effects’ (Batt and Colvin, 2011) and, vice versa, employees are more likely to quit if their pay is lower than that of employees in the same role in other organizations (Gospel, 2015: 840). Relative pay can be seen as an indicator of what Posthuma et al. (2013: 1192) call ‘external pay equity and competitiveness’ which is one of the ‘core’ practices that influence employee performance. Other practices that boost motivation typically include the type of compensation system (e.g. Aryee et al., 2016; Guest et al., 2003;



Ramsay et al., 2000) as well as the ‘promotion opportunities and benefits’ (Chowhan, 2016: 116; Posthuma et al., 2013: 1193). In other words, opportunities to move up in the internal career ladder shall also motivate employees and induce them to stay in the organization, in anticipation of promotion to job roles and associated pay progression. Finally, practices that promote job security (Jiang et al., 2012) include full-time permanent contracts, which are expected to offer a degree of stability to the employee and thus lead to lower staff turnover (Batt and Colvin, 2011). Regular contracted hours will also provide some degree of stability in the working time arrangements of an employee (Osterman, 2018), and promote work-life balance, and lower turnover.

While our discussion suggests that both bundles of practices should influence organizational voluntary turnover, we expect that motivation-enhancing practices will be more strongly related to a decision to exit an organization than skill-enhancing practices, because the link between motivation-enhancing practices and turnover is more direct. Based on the above analysis, we propose the following hypotheses:

*H1: Skill-enhancing HRM practices in t-2 are negatively related to organizational voluntary turnover in t-1.*

*H2: Motivation-enhancing HRM practices in t-2 are negatively related to organizational voluntary turnover in t-1.*

*H3: Motivation-enhancing HRM practices in t-2 are more negatively related to organizational voluntary turnover in t-1, than skill-enhancing HRM practices in t-2.*

We adopt the definition of collective human capital developed by Wright and McMahan (2011: 94–97), who defined it as the ‘aggregate accumulation’ of individual human capital thus encapsulating ‘the knowledge, skills and abilities of individual employees, as well as their

experience and tacit knowledge' in the organization. The pertinence of human capital for organizational performance is also consistent with the 'resource-based view' of the firm that sees human capital as a source of competitive advantage (see Jiang and Messersmith, 2018). In a nutshell, we expect that skill-enhancing practices lead to the development of collective knowledge, skills, and abilities (KSAs) of employees (Jiang et al., 2013: 1454; Subramony, 2009: 750), and thus are inputs to the process of production of the organization's collective human capital. The mode of investment in the human capital of employees reflects in different ways the 'make vs. buy' decision in organizations (Cappelli and Crocker-Hefter, 1996), i.e., organizations will either engage in skills acquisition from the external market (buy) or develop skills internally (make). As mentioned above, skill-enhancing practices include training type, extensiveness, accredited and informal training, onboarding, inductions, etc.

Higher use of motivation-enhancing-practices and the associated provision of a generous employment package to employees, including higher-relative pay, pecuniary and non-pecuniary benefits, job security and other good working conditions, can develop the human capital stock of the organization. The key mechanism is that postulated by Efficiency Wages theory, which predicts that above market-level pay (or benefits and amenities) can attract high-skilled applicants, as these applicants have a higher reservation wage (Weiss, 1980) At the same time, motivation-enhancing practices improve loyalty and commitment to the organization among existing employees and contribute to the retention of a high-skilled workforce.

While our discussion suggests that both bundles of practices should influence collective human capital, we expect that skill-enhancing practices will be more strongly related to the collective human capital than motivation-enhancing practices, because the link between skill-enhancing practices and human capital is more direct (Jiang et al., 2012). Based on the above analysis, we propose the following hypotheses:

*H4: Skill-enhancing HRM practices in t-2 are positively related to collective human capital in t-1.*

*H5: Motivation-enhancing HRM practices in t-2 are positively related to collective human capital in t-1.*

*H6: Skill-enhancing HRM practices in time t-2 are more positively related to collective human capital in t-1, than motivation-enhancing HRM practices in t-2.*

### **Collective human capital, voluntary turnover, and service quality**

There is a broader consensus that overall turnover is dysfunctional for organizations because it contributes to higher costs and operational disruption (Batt and Colvin, 2011). For instance, any investment in training, will positively affect retention and reduce turnover, and thus will have a positive impact on service quality (Osterman, 2018). Similarly, organizations with high relative pay, plenty of promotion opportunities or good job security, will likely have lower turnover, high satisfaction and loyalty, and higher service quality.

Admittedly, high turnover might be a conscious or strategic choice of managers because of a 'low road' (cost leadership) business model (Osterman, 2018). Even so, this means that an organization will also be willing to tolerate poor performance in terms of *service quality* (but not necessarily in terms of profitability, which is a different issue). Overall, the discussion above leads to the following hypothesis:

*H7: Organizational voluntary turnover in t-1 mediates the positive relationships between the two bundles of HRM practices in t-2 and service quality in t.*

Drawing on previous literature we hypothesize that the level of collective human capital reflects the knowledge, skills, and abilities (KSAs) of employees (Jiang et al., 2013: 1454; Subramony, 2009: 750) and is expected to be an important determinant of organizational

performance. Organizations with high levels of collective human capital reflect ‘learning organizations’ and should be able to provide a high level of service quality (Aryee et al., 2016). Well-designed and extensive training practices are likely to increase the pool of collective human capital, with an impact on service quality. Similarly, generous HRM packages, such as with high relative pay, promotion opportunities, and job security (e.g., permanent contracts) are likely to attract able employees and thus increase the collective human capital and through that service quality. The discussion above leads to the following hypothesis:

*H8: Collective human capital in t-1 mediates the positive relationships between the two bundles of HRM practices in t-2 and service quality in t.*

Figure 1 presents the theoretical model and summarizes the relationships in the hypotheses.

---[FIG\_1\_NEAR\_HERE]---

## **METHOD**

### **Sample and Data**

The data for this study come from the Adult Social Care Workforce Data Set (ASC-WDS) collected by Skills for Care: an independent charity and partner of the UK Department of Health and Social Care, which is the key workforce intelligence unit in the adult social care sector in England (Skills for Care, 2020). The data on service quality come from the Care Quality Commission (CQC), the independent body regulating the social care sector in England, which conducts regular inspections of all care providers and rates quality of care along a range of dimensions (CQC, 2020).

The ASC-WDS is a panel data set, collected every month on-line, since 2008, and is the leading source of workforce information in adult social care in England. It includes detailed

information both at the level of service provider (establishment/care home), e.g., provider characteristics and workforce practices, and at the level of individual employee, e.g., employees' demographics and outcomes, for over 20,000 establishments and 750,000 workers in England. These reflect approximately half of the adult social care in England and are representative of the population of care homes and their employees along a range of characteristics (Giupponi and Machin, 2018). Information provided is based on objective sources, such as timesheets, tax and revenue statements, and contracts (see Skills for Care, 2020).

The initial sample of this study consists of all establishments and workers in the ASC-WDS in March and September between 2015 and 2018 inclusive. This sample was matched to information on ratings of quality of care from CQC data in the same period. Nevertheless, CQC ratings for each service provider are updated at a lower frequency than the ASC-WDS data: around half of establishments are being rated (inspected) more than once, with the number of inspections of a given establishment being on average 1.7, over the period considered. Given this, for establishments with more than one rating over the period we consider, the matched quality rating at any given period in the ASC-WDS data is the one received closest to that period. The resulting sample contained 11,356 observations, from 7,993 establishments over 8 periods (of 6 months length each), employing around 410,000 workers. As the resulting sample is a sub-set of the ASC-WDS data, we investigate whether this may raise concerns for sample selection bias in our analysis (see Data Analysis section).

## **Measures**

A description of the measures of the key constructs, as presented in our theoretical model in Figure 1, has as follows:

**Service quality.** Service quality was measured using the rating for overall quality of care for each care home, assigned by CQC inspectors. The measure takes four values: 1 (inadequate), 2 (requires improvement), 3 (good), and 4 (outstanding). We believe that this care quality rating is a credible measure of service quality that is more reliable and objective than measures based on managers' reports or customers' perceptions used in previous studies (e.g., Batt and Colvin, 2011). This is because of the following reasons. First, ratings are based on independent assessments of experts' inspectors along six dimensions of service quality; an overall rating, as well as ratings reflecting the extent to which the service is: a) safe; b) effective; c) caring; d) responsive; and e) well-led. Second, inspectors' assessments are based on comprehensive information collected via on-site visits and including checks of care providers' records and policies, as well as on data collected through group interviews with service users and meetings with employees and managers. Third, all inspectors have the same training, provided by CQC, and apply the same rigorous and consistent quality assessment procedure and standards across establishments. For these reasons, CQC quality ratings provide an accurate, consistent, and comprehensive assessment of service quality at the establishment level.

**Voluntary Turnover.** Employees' turnover was measured using the annual turnover rate, calculated as the ratio of the number of employees who left the establishment in the last 12 months voluntarily to the total number of employees. Voluntary leavers are those who reported that the reason for leaving was not related to redundancy, end of contract term, transfer to another employer, death, and retirement.

**Human capital and HRM practices.** Human capital and HRM practices are measured using indices composed of a set of variables reflecting mutually substitutable elements associated with each theoretical construct. This follows a well-established approach in the HRM and performance literature (Appelbaum et al., 2000; Batt and Colvin, 2011; Chowhan,

2016) that combines respective elements into an additive index rather than treating them as items in a scale representing an underlying latent construct. This is because these elements represent alternative and mutually substitutable ways to achieve the same objective (higher level of the theoretical construct).

**Collective human capital.** Becker (1962) defined individual human capital as including education, training, and working experience. Following this, the “collective human capital index” was calculated, as average stock of education, training, and experience, of all employees in the establishment, during their entire working career (and up to the point of measurement). In particular, the index was the average of 14 standardized variables reflecting education, training, and experience of all employees in the establishment, considering their *full employment history*, which were as follows: the share of employees holding an educational qualification/degree; the average number of educational qualifications; the share of employees holding a qualification relevant to social care; average number of qualifications relevant to social care; average level of the highest qualification relevant to social care; average years of working experience in social care; share of employees who have received training; average number of areas of work on which training was received (included 24 areas such as first aid, health and safety, food and safety catering, dementia, etc.); average number of trainings received across all areas; average number of areas of work on which accredited training was received; average number of accredited trainings; average number of areas of work on which non-accredited training was received; average number of non-accredited trainings; and whether the employee has received induction training.

**Skill-enhancing practices.** Following previous studies (Batt and Colvin, 2011; Jiang, 2012), the “skill-enhancing practices index” was calculated as the average of a set of standardized indicators mainly reflecting the extent to which workers achieved educational qualifications/degrees and received training during the period they were working for the

particular care provider. The index combined 15 variables reflecting qualifications achieved and training received *only at the current employer*, which were as follows: the share of employees achieving a qualification/degree; the average number of educational qualifications; the share of employees holding a qualification relevant to social care; average number of qualifications relevant to social care; average level of the highest qualification relevant to social care; the share of employees currently working towards a qualification/degree; the average number of educational qualifications employees' are currently working towards; the share of employees working towards a qualification relevant to social care; the average number of qualifications relevant to social care employees' are working towards; average level of the highest qualification relevant to social care employees' are working towards; share of employees received training; number of trainings received; share of employees received induction training; whether the care provider has received an Investors in People award; and the share of employees recruited from other adult social care providers (this aimed to capture the extent to which the establishment enhances average skills in the workplace through recruitment of highly skilled employees).

**Motivation-enhancing practices.** Following extant literature (Batt and Colvin, 2011; Jiang et al., 2012), the "motivation-enhancing practices index" was calculated as the average of 6 standardized indicators, reflecting working conditions at the current employer, which were as follows: relative pay, calculated as the difference between average hourly rate for each occupation at the current employer and the mean hourly rate in the same occupation in other employers in the locality; opportunities for pay progression, calculated as the difference between the maximum and the average hourly rate for each occupation at the current employer; the share of employees with permanent contracts; the share of full-time employees; the average ratio of contracted hours to total hours (the sum of contracted and non-contracted hours); and the share of employees achieving promotion.



**Control variables.** We included a list of variables in all estimated models to control for a range of establishment and workforce characteristics, as well as a set of indicators controlling for differences in the source and precision of the worker and establishment level information across establishments. The set of controls are listed in Table 1. In addition to these, all models included local authority dummies, which aim to control for a range of factors associated with differences in establishment practices and performance across localities, such as state funding to service providers, which is allocated at the local authority level; as well as a set of period dummies that aim to control for differences in aggregate economic conditions over time.

### **Data analysis**

All formulated hypotheses were tested by estimating linear models employing random effects estimation that is suitable for panel data (Wooldridge, 2010). Random effects estimation, which is commonly employed in management studies analyzing panel data (Bliese et al., 2020), applies a feasible Generalized Least Squares (GLS) estimator that accounts for dependence in model errors over time, arising from accounting for an establishment-specific error component (or intercept) (Bliese et al., 2020; Wooldridge, 2010). Random effects was the preferred estimator in our case, due to the small within-establishment variation of quality of care ratings over time, as it allows for parameter estimation using both between and within establishment variation, and thus it is efficient. Following, Wooldridge (2010) and Bliese et al. (2020), and as discussed in one of the previous sections on control variables, all models included time and local authority fixed effects, which control for endogeneity arising from unobserved heterogeneity associated with time and local authorities, respectively.

Our modeling approach also deals with endogeneity arising from simultaneity, as, consistent with our theoretical framework, independent variables, mediators, and dependent variables are measured at different points in time: independent variables are measured one

period (6 months) prior to the mediators and two periods prior to the dependent variable, whereas mediators are measured one period prior to the dependent variable (Batt and Colvin, 2011). Moreover, all models included a large set of control variables that capture both time-variant and time-invariant establishment and workforce related factors that may be associated with the dependent variable. As discussed in the previous section, we checked for potential concerns related to sample selection bias arising from restricting analysis on care homes with quality ratings. We tested whether there is a significant relationship between sample selection and the independent variables, which is a necessary condition for sample selection bias (Greene, 2018). This test was conducted by regressing an indicator that takes the value 1 if the care home is included in our sample and is 0 otherwise on the independent variables and the controls. Estimates revealed no significant association between sample selection and the skills-enhancing and the motivation-enhancing practices indices, suggesting no concerns for sample selection bias in our analysis (results are available upon request).

We also checked for potential problems in estimation arising from a strong correlation in the indices for human capital and skills-enhancing practices that could arise by construction, as the latter partly reflects human capital flow (change) at the current employer, that is a subset of the human capital stock reflected in the former. In particular, eight of the variables included in the “skills-enhancing practices index”, reflect qualifications and training obtained in the current employer, which are a subset of qualifications and training obtained throughout one’s career, included in the “human capital index”. We find no evidence, however, suggesting that this could be a concern in our analysis (see next section on Results).

We used estimates of clustered/robust standard errors to evaluate all hypotheses related to coefficients of the independent variables that deal with heteroscedasticity and dependence of observations of a given establishment over time. The former is likely to arise in models with service quality as the dependent variable, considering that the measure used takes a limited set

of integer values, which implies that the underlying regression model is likely to be non-linear (Angrist and Pischke, 2009). Despite this, linear models were preferred for two reasons. First, following Angrist and Pischke (2009), linear regression models provide the best linear approximation to the true (non-linear) regression model and always have an intuitive interpretation. Second, in contrast to non-linear models, linear models provide the more transparent and feasible approach to conduct mediation analysis (Baron and Kenny, 1986), which is one of the key objectives of our study.

## RESULTS

Table 1 presents descriptive statistics and correlations for dependent and independent variables at the establishment level used in our analysis. Table 1 shows a medium correlation (0.37) between the human capital and the skills-enhancing practices measures, and, thus, suggests no concerns associated with very high overlap between these two measures in our analysis.

----[TABLE\_1\_NEAR\_HERE]----

Table 2 presents estimation results of models with dependent variable voluntary turnover, collective human capital, and service quality that aim to test hypotheses developed. Results of model 1, with dependent variable turnover, indicate significant negative associations of skill-enhancing and motivation-enhancing practices at time t-2 with voluntary annual turnover rate at time t-1. This provides support to hypotheses 1 and 2 positing that heavier reliance on skill- and motivation-enhancing practices by businesses is associated with lower workforce turnover. Although, the estimated coefficient of motivation-enhancing practices appears larger, in

absolute value, than the coefficient of skill-enhancing practices, a one-tailed test of equality of the two coefficients cannot reject the null hypothesis<sup>1</sup>.

Thus, the results do not support hypothesis 3.

----[TABLE\_2\_NEAR\_HERE]----

Turning to model 2 of Table 2, where the dependent variable is collective human capital, results indicate positive and significant associations of skill-enhancing and motivation-enhancing practices at t-2 with collective human capital at t-1, providing support to hypotheses 4 and 5. Moreover, a test of equality of coefficient of the two types of HRM practices strongly rejects the null in favor of the alternative that the coefficient of skill-enhancing practices is larger in magnitude.<sup>2</sup>

This supports hypothesis 6 that skill-enhancing practices are more strongly positively associated with collective human capital than motivation-enhancing practices.

Model 3 of Table 2, with dependent variable service quality, shows positive and significant associations of skill- and motivation-enhancing practices at t-2 with service quality at t. This suggests that the two bundles of practices strongly and independently predict service quality. This motivates further investigation of the mechanism mediating the latter link.

Model 4 extends Model 3 by including turnover at t-1 among the right-hand side variables, to test the extent to which turnover at t-1 mediates the relationship between skills- and motivation-enhancing practices at t-2 and service quality at t. Results show a (weakly)

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<sup>1</sup> The chi-square test statistic of the null hypothesis that the coefficients are equal is 1.49, which is smaller than 3.841, the 5% critical value of the chi-square distribution with one degree of freedom for a one-tailed test, with alternative hypothesis that the coefficient of motivation-enhancing practices is larger in absolute value.

<sup>2</sup> The chi-square test statistic of the null hypothesis that the coefficients are equal is 64.15, which is greater than 10.828, the 0.1% critical value of the chi-square distribution with one degree of freedom for a one-tailed test, versus the alternative that the coefficient of skill-enhancing practices is larger.

significant association between turnover and service quality, and that estimated coefficients of the two bundles of practices remain significant (and change only slightly in magnitude). These results, together with the results in Model 1 of Table 2, provide support to hypothesis 7, and suggest that turnover partially mediates the relationship between the two bundles HRM practices and service quality.

Model 5 includes the measure of collective human capital in Model 3 to test the extent to which collective human capital mediates the associations between the two HRM practices and service quality. Estimation results show a significant association between the human capital index and service quality; that the coefficient of the skills-enhancing practices is insignificant, whereas the coefficient of the motivation-enhancing practices is significant. These results, taken together with the results of Model 3, and accounting also for the results of Models 1 and 2, indicate support for hypothesis 8, and they allow us to infer that human capital fully mediates the association between skills-enhancing practices and service quality, and partially mediates the association between motivation-enhancing practices and service quality.

Moreover, Model 6 includes both organizational voluntary turnover and collective human capital in Model 3, to simultaneously account for the entire set of relationships in the theoretical model presented in Figure 1. The main change in the results compared to Models 4 and 5 is that the association of motivation-enhancing practices is less significant. This implies that turnover and human capital jointly mediate a significant share of the association between motivation-enhancing practices and service quality; that is larger than the share mediated by each mediator independently.

## **DISCUSSION AND CONCLUSION**

### **Overview and Contributions**

The article makes theoretical, methodological, and empirical contributions to the literature. Our theoretical contribution is that, in contrast to previous studies that take a fragmented theoretical view, we synthesize two distinct but related theoretical perspectives, which, together, provide a better insight to the HRM-performance link (Jiang and Messersmith, 2018). The first perspective, which rests on employment systems (Batt and Colvin, 2011), identifies turnover as a critical variable in the HRM-performance link; whereas the second perspective, based on the human capital approach to HRM (Wright and McMahan, 2011), emphasizes the mediating role of collective human capital in the relationship between HRM practices and organizational performance (Aryee et al., 2016). This theoretical synthesis is supported by our empirical analysis which shows that collective human capital is the key construct mediating the relationship between skill-enhancing practices and service quality; and that collective human capital and voluntary turnover combined, partially mediate a significant share of the association between motivation-enhancing practices and service quality.

Another theoretical contribution of our study is that, in contrast to previous studies that viewed the HRM-performance relationship as static (see critiques by Guest, 2011; Jiang et al., 2013; Jiang and Messersmith, 2018), we take a dynamic view and formulate novel hypotheses that articulate the temporal pathway linking HRM and performance. Our results support this view and suggest that associations between HRM bundles of practices and service quality take time to realize. It may take, on average, one year before improvements in HRM practices translate into higher service quality.

Our methodological contribution rests on using a unique panel data set on establishments and employees in the adult social care sector in England that allows us to address some of the biases in estimation plaguing previous studies of the HRM-performance link, arising from simultaneity and omitted variables.

Finally, our empirical contribution is to provide new evidence on the mechanisms underlying the relationship between HRM and performance based on more precise and fine-grained measures of the key theoretical constructs. For example, in contrast to earlier studies which measure human capital and service quality employing subjective measures based on data from managers' perceptions (Wright and McMahan, 2011), we rely on objective detailed data on employees' educational qualifications and training, as well as service quality ratings from comprehensive establishment inspections by the independent national regulatory authority.

### **Limitations and Directions for Future Research**

Our study has some limitations. One limitation of our analysis is that we do not consider the 'opportunity-enhancing' bundle of the AMO model that includes innovative work organization that could empower employees (Batt and Colvin, 2011). However, as Osterman (2018) argues, several organizations in the low wage sectors do not deploy a full set of elaborate HRM systems, such as involvement practices. The latter are usually more readily available to large organizations with big HRM departments. Nevertheless, future research can enrich the agenda by explicitly including 'involvement' practices (Wood, 2020).

Our study also examines the length of time needed for associations of HRM practices with intermediate outcomes and with service quality to realize. It applies a temporal pathway linking sequentially practices, intermediate outcomes, and performance measures, where constructs in each link of the sequence are 6 months apart. This may be considered an improvement compared to earlier studies examining associations between constructs in the pathway over longer periods, e.g., 12-month periods (Chowhan, 2016), as this may lead to overestimation of the actual time needed for associations to realize. Further studies are needed to investigate how long it takes for bundles of HRM practices to influence intermediate outcomes and organizational performance.

## **Conclusion**

Our article contributes to the literature by developing a theoretical framework of the HRM-performance link, fusing an ‘employment systems’ perspective (Batt and Colvin, 2011) with human capital theory (Wright and McMahan, 2011) and articulating the temporal pathway linking HRM and performance. The article also tests the framework through employing unique panel data and estimation methods that address biases in previous analyses, arising from simultaneity, omitted variables, and the ‘common method bias’. Our findings suggest that skill-enhancing and motivation-enhancing bundles of HRM practices are strong and significant predictors of intermediate outcomes, such as voluntary turnover and collective human capital, as well as performance outcomes, such as service quality. We find strong evidence that the relationship between skill-enhancing practices and service quality is fully mediated by collective human capital; and human capital and turnover mediate a significant share of the association between motivation-enhancing practices and service quality. Overall, our findings contribute to the literature on HRM practices and performance and provide robust evidence on how service organizations could more effectively employ HRM practices to boost service quality and achieve their strategic objectives.



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## TABLES

**Table 1**

### Descriptive Statistics and Correlations

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Care quality rating	2.72	0.55																		
2. Turnover rate	0.26	0.28	-0.01																	
3. Collective human capital index	-0.10	0.61	0.07	-0.08																
4. Skill-enhancing practices index	-0.05	0.52	0.06	-0.04	0.37															
5. Motivation-enhancing practices index	-0.07	0.36	0.01	-0.05	0.06	0.05														
6. Number of employees	47.39	49.28	-0.05	-0.01	-0.19	-0.14	-0.03													
7. Part of larger organization	0.43	0.49	0.07	0.07	-0.15	0.04	0.14	0.06												
8. Capacity utilized	0.77	0.32	-0.04	-0.08	0.04	0.05	0.21	-0.15	0.15											
9. Carers	0.73	0.16	0.11	0.05	-0.04	0.08	-0.11	-0.01	0.13	-0.30										
10. Managers	0.09	0.08	0.09	0.02	0.15	0.14	0.01	-0.26	-0.09	-0.07	-0.20									
11. Professionals	0.03	0.07	-0.11	-0.03	-0.02	-0.14	0.05	0.18	0.01	0.18	-0.54	-0.24								
12. White	0.83	0.23	0.01	0.01	0.07	0.08	0.14	0.01	-0.01	0.0242	-0.06	-0.02	-0.08							
13. Female	0.84	0.14	-0.04	-0.01	0.03	0.01	-0.15	0.03	-0.15	-0.07	-0.08	-0.10	-0.01	0.19						
14. Average age	42.76	4.87	0.02	-0.17	0.27	0.11	-0.01	-0.08	-0.01	0.04	-0.14	0.07	0.03	0.01	0.12					
15. Migrants	0.20	0.23	-0.01	-0.03	-0.03	-0.07	-0.11	0.01	-0.01	0.02	-0.04	0.01	0.12	-0.76	-0.19	0.02				
16. Individual information	0.92	0.17	0.06	0.09	-0.10	0.01	0.01	0.03	0.25	0.06	0.02	-0.07	-0.01	0.09	0.01	0.02	-0.09			
17. Establishment records	0.77	0.06	-0.05	-0.01	0.11	0.02	-0.05	-0.11	-0.55	-0.16	-0.15	-0.07	0.05	-0.03	0.01	0.07	-0.08	0.05	-0.20	
18. Organisation records	0.22	0.39	0.05	0.02	-0.12	-0.02	0.05	0.11	0.1484	0.08	-0.05	0.03	-0.01	-0.08	0.07	-0.03	0.19	-0.99	-0.04	0.19

Notes: Number of firms: 7,993; number of periods: 8; number of observations: 11,356; correlations larger than 0.02 are significant at 1% level.

**Table 2**

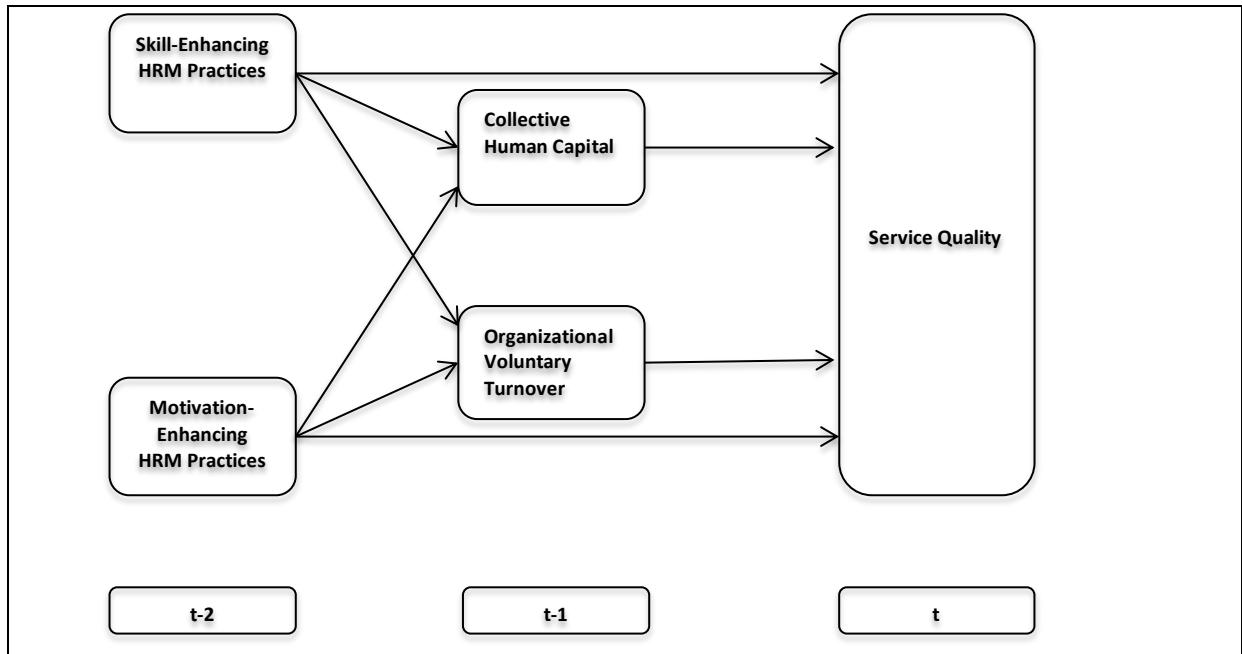
**Random Effects Feasible GLS Estimates for Models of Turnover, Collective Human Capital, and Service Quality**

	Turnover (t-1) (Model 1)	Collective human capital (t-1) (Model 2)	Service Quality (t) (Model 3)	Service Quality (t) (Model 4)	Service Quality (t) (Model 5)	Service Quality (t) (Model 6)
Turnover (t-1)				-0.040* (0.022)		-0.039* (0.021)
Collective human capital (t-1)					0.076*** (0.011)	0.076*** (0.011)
Skill-enhancing practices index (t-2)	-0.014*** (0.005)	0.212*** (0.013)	0.025** (0.010)	0.024** (0.010)	0.006 (0.010)	0.005 (0.010)
Motivation- enhancing practices index (t-2)	-0.026*** (0.009)	0.053*** (0.015)	0.033** (0.014)	0.032** (0.014)	0.029** (0.014)	0.027* (0.014)
R <sup>2</sup>	0.072	0.232	0.123	0.123	0.128	0.129
N	11,356	11,356	11,356	11,356	11,356	11,356

Notes: \*p<0.10., \*\*p<0.05., \*\*\*p<0.01. Standard errors clustered at the establishment level in parentheses.

**Figure 1**

**Theoretical Model of Effects of HRM Systems on Service Quality**



*Source:* Authors' elaboration.