

The impacts of inward knowledge transfer and absorptive capacity on the turnover of host country nationals in MNE subsidiaries: a multilevel modeling approach

Jin Suk Park, Jae Yoon Chang and Taehun Lee

Abstract

Purpose – This study aims to find how the turnover of host country nationals (HCNs) would be affected by the knowledge transfer from a headquarter to a subsidiary. Knowledge transfer in a multinational corporation (MNC) has been discussed as a critical factor in the MNC's success. Because HCNs are essential to synergizing with a new knowledge inflow during this knowledge transfer process, their turnover entails negative consequences such as knowledge loss.

Design/methodology/approach – This paper empirically tests the unbalance between knowledge received (KR) and absorptive capacity (AC) as the most critical organizational predictor by using the secondary longitudinal records and survey data of 4,915 employees. Multilevel survival analysis is used to calculate the individuals' turnover hazard.

Findings – While finding that the primary effect of transferred knowledge is to reduce turnover, the study demonstrates the unbalance between a subsidiary's AC and KR increases the likelihood of HCNs' turnover within the organization. The authors also recognize the possibility of nonlinear trends of KR and AC on the turnover hazard.

Originality/value – The authors answer how knowledge transfer shapes a subsidiary's work environment to prevent or increase turnover, which has been barely examined for HCNs who comprise the crucial demographic group in knowledge transfer. To enhance the originality further, this study empirically observes the actual turnover of HCNs with a conceptually comprehensive view incorporating both learning and political approaches.

Keywords Turnover, Absorptive capacity, Knowledge transfer, Multinational corporation, Host country nationals, Knowledge received, Multilevel survival analysis

Paper type Research paper

Introduction

The essential role of host country nationals (HCNs) in the local firms of multinational corporations (MNCs) has been highlighted in a knowledge transfer process. The successful processing of the knowledge transferred from headquarters (HQ) is the key to organizational success and competitiveness (Argote and Ingram, 2000; Blomkvist, 2012). From this perspective, HCNs serve two pivotal functions – as information receivers during knowledge transfer (Minbaeva, 2007) and as keepers of the transferred knowledge (Eckardt et al., 2014). Despite many indications that urgent and sufficient attention is required for HCNs, MNCs have suffered from the high turnover rate of HCNs across various industries,

Jin Suk Park is based at Hitotsubashi University Business School, School of International Corporate Strategy (Hitotsubashi ICS), Tokyo, Japan.

Jae Yoon Chang is based at Sogang University, Seoul, Republic of Korea.

Taehun Lee is based at Chung-Ang University – Seoul Campus, Seoul, Republic of Korea.

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countries and jobs (Froese and Xiao, 2012), causing substantial organizational issues due to the loss of acquired knowledge (Dess and Shaw, 2001; Eckardt *et al.*, 2014).

In this study, we attempt to directly examine knowledge transfer as a contextual predictor of HCN turnover. Few (and only recent) studies have investigated the mechanisms and preventive measures of HCN turnover (García-Cabrera and García-Soto, 2012; Hitotsuyanagi-Hansel *et al.*, 2016; Zheng and Lamond, 2010) – the managerial and academic spotlight has been dominated by expatriates from HQ to deliver knowledge and develop management for subsidiaries (Harzing, 2001). Among the limited empirical studies, researchers identified several antecedents of HCN turnover, such as an individual employees' affective commitment and cultural value (García-Cabrera and García-Soto, 2012) and organizational factors such as localization (Hitotsuyanagi-Hansel *et al.*, 2016) and human resource (HR) management processes (Zheng and Lamond, 2010). Extending such findings requires focusing on context (Nyberg and Ployhart, 2013), where HCNs perform their essential functions.

When knowledge transfer is considered a contextual predictor, the question that should be addressed is, "how does knowledge transfer have an impact on the turnover of HCNs?" For finding an answer to the question, we rely on the multilevel turnover literature (Egan *et al.*, 2004; Nyberg and Ployhart, 2013; Watkins and Marsick, 2003; Qin, 2021), which explains how knowledge transfer may foster an organizational environment by improving individual members' job satisfaction (Kianto *et al.*, 2016) and avoiding excessive job complexity (Heavey *et al.*, 2013). Knowledge transfer in such multilevel studies, including our paper, is assumed to shape a work environment and climate that will affect individual job attitudes, behaviors and performance (Cohen, 1991; Kianto *et al.*, 2016; Najafi-Tavani *et al.*, 2018).

For a comprehensive conceptual debate, we add a political view, denoting the tension between HQ's command and subsidiaries' autonomy, to this knowledge management tradition with the Belderbos and Heijltjes (2005) framework of control and learning for MNC staffing. Moreover, the role of expatriates is introduced because they are the learning and political counterparties of HCNs (Chang *et al.*, 2012). Expatriates introduce new knowledge from HQ to HCNs at a subsidiary and those HCNs may interpret the new knowledge as a learning opportunity and a political message commanding the strategic direction of the subsidiary (Reiche, 2008, 2009). Accordingly, this study's fundamental concept of the relationship between knowledge transfer and HCN turnover is that HCNs are affected by the learning and political environment formed in the process of expatriates' transferring knowledge from an HQ to a subsidiary.

In the following sections, we explain the context of knowledge transfer. Next, we argue that HQ and subsidiary contributions during knowledge transfer can improve the subsidiary's learning and political environment, reducing HCN turnover. The context of knowledge transfer guides us to focus on expatriate knowledge transfer and HCN learning capacity. Then, we elaborate on the relationship between the knowledge received (KR) and absorptive capacity (AC) of a subsidiary by arguing that both parties are essential to successful knowledge transfer. While an HQ tries to deliver knowledge with the expectation of learning by a subsidiary, the subsidiary uses its AC to process KR (Chang *et al.*, 2012). So, the best possible case would be to have two skillful tango dancers and we discuss what would happen when one dancer outperforms his or her partner. Concerning our empirical analysis, the multilevel or cross-level methodology should offer an enormous advantage because the hypotheses address the organizational influence on individual turnover. The recent employee turnover models also focus more on the influence of environmental and organizational factors (Peterson, 2004; Zheng and Lamond, 2010). Finally, in the conclusion and discussion sections, we aim to articulate this study's implications three-fold, namely, knowledge transfer has an impact on individual turnover decisions, among the various patterns of knowledge transfer, the balance between expatriates and HCN knowledge

contributions may be the critical factor of turnover prevention and temporal dynamics may also exist in the HCNs' turnover, although it is not a part of our initial research questions.

Theoretical background

Multilevel turnover and contextual factors

The multilevel turnover literature, including *context-emergent turnover* (Heavey *et al.*, 2013; Nyberg and Ployhart, 2013), provides a foundation for our effort of connecting MNC knowledge transfer and HCN turnover because it supports the argument that knowledge transfer is an important *context* overarching the learning and political environment of individuals in a subsidiary. Although the original contribution of the context-emergent turnover theory has been discussed as an elevation of individual-level turnover to the organizational level by arguing that each individual case of turnover can be separated from a collective pattern of turnover and vice versa (Reilly *et al.*, 2014), we focus on its argument for the contextual factors of turnover. With this focus, the literature articulates that environmental factors should affect individual turnover decisions even with no direct interaction between an individual and the environment because the factors serve as the *context* of the turnover.

Nyberg and Ployhart (2013), in their seminal work, proposed several organizational contexts affecting turnover, such as climate, “a shared sense of what the unit [organization] rewards, supports and considers important” (p. 120) and environmental complexity, “the nature of interconnections and interdependence required by unit [organization’s] task demands” (p. 120). Chang *et al.* (2013) empirically tested and identified associations between employee turnover intention and store-level contextual factors such as HR practices of training, performance appraisal and compensation. Many studies also suggested contextual factors for individual turnover and turnover intention: work-unit-level factors such as supportive climate and *collective* affective commitment (El Akremi *et al.*, 2014), social factors such as social support and self-centered leadership (Lin, 2020) and national-level contexts such as the socio-economic status of specific occupations (Peretz and Fried, 2012; Qin, 2021).

The consensus in the literature is that the mechanism of contextual influence is based on a collective perception of individuals of the organizational environment. Once individual employees perceive a specific environment, they respond to the perceived reality correspondingly (El Akremi *et al.*, 2014; Kang and Sauk Hau, 2014). For example, if team members consider teamwork a shared value, the individuals try to fill a gap generated when a member leaves (Nyberg and Ployhart, 2013). Although the study of Qin (2021) was specific to a vocation in teaching, they found that if a teaching job was evaluated socially as a low-level occupation, there was a higher turnover rate than other contexts having more social appreciation for teaching jobs.

Kang and Sauk Hau (2014) focused more on the detailed psychological mechanism of knowledge recipients. They found that the perception of the knowledge delivered in collective trustworthiness affected the learning behaviors of the recipients. More generally, Naumann (1992) demonstrated that organizational and job characteristics would predict individual turnover through two psychological concepts, namely, job satisfaction and organizational commitment. This prediction implies that the job satisfaction and organizational commitment were the immediate reactions of individuals to contextual factors, with the turnover observed as a secondary outcome. Egan *et al.*'s (2004) study may be the closest work to this study focusing on knowledge transfer given their finding that the perceived organizational learning culture led to employees' reactions of increasing job satisfaction and knowledge transfer while reducing turnover intention. In the following section, we elaborate on such multilevel turnover studies' arguments by reviewing the knowledge transfer literature.

Knowledge transfer: the context of learning and political dynamics

The vital role of HNCs in local firms of MNCs is usually from the perspective of an HQ that wants to facilitate knowledge transfer between HQ and subsidiaries under the assumption that successful intra-firm knowledge transfer will improve organizational competitiveness (Argote and Ingram, 2000). In the perspective of HCNs, an overall organizational environment is affected by the process and consequence of knowledge transfer from HQ (Minbaeva, 2005), even if its immediate impact on HCNs' everyday work can be nuanced and implicit (Bonache *et al.*, 2009). Thus, it is inevitable for this study to include the studies on MNC *expatriation*, which is commonly defined as an organizational level decision to transfer knowledge from HQ to subsidiary by appointing managers or employees abroad to work in a different country for a long term typically more than three years (Baruch and Altman, 2002). There are two primary approaches explaining how HCNs would interpret and react to an organizational environment fostered by the expatriation.

The first approach is to dwell upon the role of HCNs receiving knowledge from expatriates who deliver HQ knowledge to a subsidiary in a host county (Chang *et al.*, 2012). This stream includes several topics related to knowledge transfer and learning the KR by HCNs and extending the argument of HCNs' collective AC for the subsidiary's performance. For effective knowledge transfer through expatriation, HCNs' capacity of absorbing new knowledge is essential. Because of such an important role of HCNs, organizations try to implement various HR measures such as training programs, expecting an improved learning environment (Minbaeva, 2005). When these organizational efforts of knowledge sharing from HQ and acquisition at subsidiaries are managed successfully, job satisfaction within an organization improves (Kianto *et al.*, 2016), reducing turnover. We label this first approach as a *learning approach*.

The second approach focuses on the psychology of HCNs from a slightly different perspective than organizational effectiveness by emphasizing organizational control and individual-level experiences during expatriations or interactions between expatriates and HCNs. In elaborating on the control and political factors for HCN turnover, García-Cabrera and García-Soto (2012) modeled and demonstrated the primary effect of pay fairness and supervision quality with the mediating effect of organizational commitment. Similarly, studies have proposed that the perceived fairness of HCNs interacting with expatriates could be driven by pay differences and expatriate workplace contributions (Bonache *et al.*, 2009; Chen *et al.*, 2011). This approach occasionally emphasizes a power game between expatriates and HCNs in the same subsidiary (Ali *et al.*, 2021; Mudambi and Navarra, 2015), revealing the negative emotion, demotivation and turnover enticed from such dynamics. We label this second approach as a *political approach*.

Mudambi and Navarra (2015) provide a basis for this study, particularly in incorporating both approaches into hypotheses development. According to them, knowledge is simultaneously a source of learning and power. Each stakeholder group (i.e. HCNs and expatriates) tries to exploit its knowledge to gain political advantage during knowledge transfer. The HCNs desire more negotiating power to make potential changes favorable to their interests and environment while expatriates attempt to deliver and implement HQ's interests and strategic directions. While following the learning and political approaches in tandem, we identify that both approaches have the same prediction direction for the impact of knowledge transfer on HCN turnover instead of competing.

Knowledge received, absorptive capacity and turnover

With focusing on the learning and political aspects of knowledge transfer, we conducted a literature review about the impact of KR and AC to understand the story of HCNs' side at the organizational level, especially at the organizational level. Previous literature already addressed the aggregated contributions of HCNs such as to resolve an agency problem of

asymmetric information with expatriates (Lin *et al.*, 2005) and the handlings of transferred knowledge at local subsidiaries (Baruch and Altman, 2002).

After knowledge is transferred from the HQ, HCNs are expected to learn and contain the learning outcomes within subsidiaries (Minbaeva *et al.*, 2003). For this responsibility of handling the KR, many studies have proposed that subsidiaries should offer AC or a learning environment, to HCNs, which can be achieved through training and other structured approaches including organizational design for performance feedback, promotion and compensation at subsidiaries (Mahnke *et al.*, 2005; Minbaeva *et al.*, 2003; Minbaeva, 2007).

Considering that AC is the ability to fully understand and use new external knowledge at the organizational level (Cohen and Levinthal, 1990), we are attentive to the AC's synergy with the KR, thus increasing the subsidiary's performance (Chang *et al.*, 2012). Although the relationship between a subsidiary's AC and improved organizational outcomes from the KR is obvious, several studies have suggested antecedents of HCN turnover regarding AC. Employees tend to be attracted by and willing to remain longer at, an organization where they can learn (Egan *et al.*, 2004). Organizational-level learning capacity can facilitate individual-level learning. The recent study of Veronica *et al.* (2020) connected environmental learning factors to individual level innovative behaviors in the international context of entrepreneurship by adopting a social opportunity approach. Their study summarized that governmental and organizational policies for entrepreneurship led to more flexible and innovative individuals in multinational small to medium enterprises, based on the assumption that the learning environments offered more opportunities that can be easily captured by the individual entrepreneurs. AC also works as an organizational environment that offers learning opportunities to employees and managers in subsidiaries (Jiao *et al.*, 2019) while the definition of AC affirmed that it is about an ability to capture various opportunities (Cohen and Levinthal, 1990). As Ali and Park (2016) viewed the learning culture as an organizational outcome from the AC, Egan *et al.* (2004) found supporting evidence for a negative causal relationship between learning culture at the organizational level and turnover intention at the individual level. In a simulation study, Carley (1992) found that an organization with a slower learning pace induced a higher rate of turnover than one with a faster pace. Hence, in the learning perspective for AC's impact on turnover, we summarize that a high degree of AC is an organizational environment that provides learning opportunities and favorable culture to individual members in a subsidiary, increasing the incentive to stay.

As discussed previously, the political conflict or power game is another critical issue during knowledge transfer because it inevitably involves the close interaction of two groups with different identities (i.e. expatriates and HCNs) in the same organization. When assuming a vital role during knowledge transfer by leveraging AC, HCNs will have greater negotiation power over expatriates in various interaction scenarios (Mudambi and Navarra, 2015). Because belonging in a group with a higher prestige or political position provides a more favorable work environment (Nishii and Mayer, 2009), AC should reduce the chance of HCNs leaving their organizations. HCNs who work in a subsidiary with significant AC are likely to enjoy the environment of self-development and high status. We combine the previous literature demonstrating the internal environment's impact on individual members' job attitudes such as organizational commitment (El Akremi *et al.*, 2014; García-Cabrera and García-Soto, 2012) and job satisfaction (Kianto *et al.*, 2016) to argue that HCNs would prefer to remain in a subsidiary with high AC environment because of the favorable context in which to reside. This argument is represented by our first hypothesis:

H1. AC in a subsidiary is likely to reduce the turnover decisions of HCNs at the individual level.

The same learning and political dynamics mechanism can be applied to the impact of KR from HQ on HCN turnover. Because the knowledge from an HQ should differ from local

knowledge already shared in a subsidiary (Minbaeva, 2007), the new knowledge can be transformed into a resource for the subsidiary to develop its HCNs to fill knowledge gaps that cannot be filled with only existing local knowledge (Fang *et al.*, 2010). Politically, the practice of transferring knowledge is a less explicit control mechanism compared to other control measures such as performance evaluation, compensation and the number of expatriates in a subsidiary (Björkman *et al.*, 2004; Blomkvist, 2012), and should, therefore, cause less authoritarian pressure on HCNs' everyday lives at their workplaces (Reiche, 2008).

Instead, the knowledge inflow from an HQ or other subsidiaries to a specific subsidiary is perceived as a signal of the prestigious status of the focal subsidiary within intra-firm relationships (Monteiro *et al.*, 2008). Marin and Giuliani (2011) related the inflow of knowledge and network position of a subsidiary by proposing that the subsidiary's prestige has a positive association with the centrality of the position within an MNC's intra-organizational-knowledge network. A subsidiary receiving significant knowledge from an HQ is likely to enjoy social status within the intra-firm network (Guo *et al.*, 2018). In contrast, other subsidiaries that cannot receive comparable knowledge tend to be isolated in the network. When this "game of organizational politics" was perceived by individual members, it increased mental pressure at the workplace, resulting in increased turnover intention (Ali *et al.*, 2021, p. 35). Thus, we hypothesize that the KR will serve to increase the learning and political prestige of a subsidiary, resulting in reduced HCN turnover:

H2. The KR in a subsidiary is likely to reduce the turnover decisions of HCNs at the individual level.

The organizational contributions from an HQ and a subsidiary are likely to reduce the risk of HCN turnover at the individual level. We have proposed that successful contributions for knowledge transfer within an MNC would offer a favorable learning and political environment to HCNs, increasing their willingness to remain in the current organization or subsidiary. This mechanism is the foundation for the upcoming argument on the question of "what will happen if one contribution exceeds another?" The question is highly relevant because knowledge transfer can only be accomplished by both KR and AC.

Unbalance between knowledge received and absorptive capacity

The question of balance/unbalance emerges from the perspective of HCNs rather than expatriates. Consistent with the ongoing logic of context-based turnover, it is necessary to focus on how HCNs interpret and perceive the work environment where balance (or lack thereof) between KR and AC exists. Perceived AC would be a critical contextual factor for HCNs because KR from an HQ does not merely signal that there is something new to learn – even when the focus is restricted only to learning before extending its scope to include power dynamics. Instead, the received knowledge changes the working environment of HCNs, so that HCNs are expected to function for five pivotal roles rather than just learning knowledge (Jannesari *et al.*, 2016), namely, cultural interpreter, communication facilitator, information resource broker, talent developer and change partner (p. 651). Due to the nature of knowledge transfer, we argue that unbalance between KR and AC would entail an undesirable work environment for HCNs.

Under the context of a large information inflow from HQ, contextual pressure exists on HCNs to learn new knowledge, coordinate the knowledge with the existing culture and engage in self-development (Egan *et al.*, 2004; El Akremi *et al.*, 2014). The demand-control model and previous studies have demonstrated that high demand without a control measure is a key stressor, increasing the hazard of voluntary turnover at the workplace (De Rijk *et al.*, 1998; Karasek, 1979; Shih *et al.*, 2011). In the empirical setting of knowledge transfer within an MNC, Li and Lee (2015) demonstrated that a subsidiary that was not

ready to learn new knowledge significantly underperformed under the condition of high knowledge inflow compared to other subsidiaries with strong learning cultures.

When the concept of unbalance is applied to this study about turnover, the learning approach highlights job stress from the imposed workload but with a limited organizational capacity. Role-overload-generating stress is a key predictor of employee turnover and will be perceived and experienced when demanding roles, exceeding the available resources, are imposed (Vandenberghe *et al.*, 2011). The KR from HQ demands that HCNs assume various learning roles during knowledge transfer; a limited AC available will exacerbate the HCNs' work conditions. Consequently, we define the excessive inflow of new knowledge from an HQ to the unprepared subsidiary as a high-demand and low-resource environment for HCNs. The demanding job condition without accessible resources is commonly classified as a source of stress, demotivation and turnover (de Croon *et al.*, 2004). HCNs must have a sense of controllability during knowledge transfer because it is the basis of autonomy that can mitigate the negative impact of job demand on employees' learning motivation, suggesting that a high-demand, low-resource situation is the worst for the retention of employees (Shih *et al.*, 2011). When the sheer amount of learning expectation and a lack of organizational capacity are perceived in tandem, HCNs experience the stress of powerlessness to solve the situation, leading to a choice of turnover.

Unbalance would also occur when AC outruns the KR. According to the learning approach, especially the well-established motivation, capacity and opportunity framework (Blumberg and Pringle, 1982; Pearson *et al.*, 2012), large AC and small knowledge input provide insufficient opportunity and motivation to ready-to-learn organizations. We explain how this unbalanced learning environment affects individual turnover by focusing on the related research stream of underemployment and overqualification (Erdogan and Bauer, 2011). Lee (2005) posited underemployment as a core relationship between environmental factors and job attitudes in the context of knowledge transfer of MNCs. The job variety factor from his study may be the most relevant to our argument because knowledge transfer inherently introduces several new tasks to HCNs (Jannesari *et al.*, 2016). Task variety can be perceived as a burden when AC is low. However, this time, the situation is when a subsidiary has excessive learning ability and resources beyond the knowledge input, which we interpret as overqualification. The empirical research of Gardner *et al.* (2011) found that the deprivation of skill-enhancing opportunities would encourage voluntary turnover because of the perceived restraints in self-development and reduced affective attachment to the current organization.

Thus, we propose that the unbalance between AC of a subsidiary compared to the KR from HQ will increase the turnover decision likelihood of HCNs at the individual level, leading to our third hypothesis:

- H3.* The unbalance between subsidiary AC and the KR from HQ will increase the turnover decision likelihood of HCNs at the individual level.

The political approach offers the same prediction on the impact of the imbalance. A larger volume of KR exceeding AC introduces an unfavorable environment to HCNs because the condition implies that expatriates from an HQ have greater political power based on their more substantial knowledge contributions than HCNs who already resided in the subsidiary (Mudambi and Navarra, 2015). As described previously, knowledge transfer is the least coercive control method used by an HQ to maintain its authority and managerial position. However, the HQ is the entity that usually decides how many and which expatriates should be appointed for each subsidiary. In contrast, the subsidiary side has little negotiation power for staffing. HCNs will not interpret the input of knowledge from HQ as an offer of new learning opportunities if there is a lack of negotiation power.

For the opposite pattern of imbalance, so to speak, when AC exceeds KR, Lee (2005) found that the perceived fulfillment of psychological contract was a key factor causing perceived

underemployment during knowledge transfer. Politically, the HCNs may perceive too little knowledge input to their subsidiary as an unfair situation where the HQ is holding their authority only based on their bureaucratic control measures instead of from expertise and know-how. [Bonache et al. \(2009\)](#) found that the perceived fair contribution of expatriates assigned by HQ was the critical factor preventing local employees' voluntary turnover. [Mudambi and Navarra \(2015\)](#) also demonstrated that too much asymmetric power skewed to a subsidiary rather than an HQ could change the knowledge transfer landscape into a political power game. The study explicitly used the terminology of "bargaining power" to discuss the impact of balance between the contributions of expatriates and HCNs during knowledge transfer. Rather than benefitting HCNs, greater bargaining power for a subsidiary instead worsens the situation by forcing the HQ to assume a more political stance because of the higher risk of rent-seeking subsidiary behavior. In a general context, [Maynard et al. \(2006\)](#) and [Erdogan and Bauer \(2011\)](#) empirically supported the idea that underemployment caused employee turnover.

Methods

Sample and study context

The study data were obtained from a high-tech manufacturing company in South Korea (hereafter, Korea) listed in the Fortune Global 500. This company has a global network of subsidiaries in sales, manufacturing, research sectors spreading over 80 countries outside Korea and uses over 50,000 HCNs. The data were gathered in two stages, namely, T1 and T2.

During a project to develop an instrument for identifying potential expatriates, we collected data from HCNs through a web-based survey in 2012. HCNs agreeing to participate in our research were provided a survey link by email (T1). A total of 4,915 employees working at overseas subsidiaries provided data for this study. The response rate was low (12%). However, global HR managers confirmed that there were no significant differences between respondents and non-respondents for gender, age and tenure. In the second stage, approximately three years after the first survey data collection, the data on participant retention and turnover and the time they left the organization were collected from its personnel records (T2).

We secured a minimum homogeneity and representativeness of our sample by selecting 98 subsidiaries that had individual respondents with 3 to 367 counts (mean = 54). Our focal predictors, KR and AC, are subsidiary-level composites of HCN ratings. The intraclass correlations measured by ICC(*K*) ([McGraw and Wong, 1996](#)) for KR and AC were 0.67 and 0.59, respectively, with *K* equal to 27. These values correspond to an adequate level of agreement according to the guidelines suggested by [LeBreton and Senter \(2008, p. 836\)](#), justifying the aggregation.

Measures

We adopted survey questions from the literature for the independent variables, whereas the dependent variable or HCN turnover was observed, removing the possibility of common method bias ([Podsakoff et al., 2003](#)). Moreover, we used archival and demographic data to calculate control variables such as *HCN gender*, *HCN age*, *subsidiary size* and *subsidiary age*.

All questionnaire items were presented in English except in China and Japan, where participants responded to versions of the questionnaire written in their native languages. The English version of the questionnaire was translated into Chinese and Japanese versions by two independent Chinese-English and Japanese-English bilingual translators. After reaching a consensus between the initial translators, an independent, third bilingual translator performed the back-translation in each case to ensure accuracy ([Brislin, 1970](#)).

Independent variables

Knowledge received. We used the knowledge transfer scale proposed by [Chang et al. \(2012\)](#)'s, which contains seven items. We used six items, excluding one item ("repair-related know-how and skills") that was irrelevant to this study. Participants responded on a seven-point Likert scale to the following question: "as a subsidiary, your organization may receive various knowledge from parent company through expatriates. Please indicate the amount of knowledge that your subsidiary received from expatriates as a whole in the following areas, namely, technological know-how and skills, quality control know-how and skills, product-related know-how and skills, managerial know-how and skills, knowledge about corporate culture and HR management." Factor analysis (principal component analysis) of six items produced a one-factor solution (approximately 67% of the variance explained, Cronbach's $\alpha = 0.90$). For representing the collective perception on KR, this measure was devised as an aggregated score of individual responses in the same subsidiaries.

Absorptive capacity. We measured subsidiary AC using six of the seven items from [Chang et al. \(2012\)](#) by asking HCNs to indicate the extent to which the following statements accurately described their subsidiary's employees (excluding expatriates), namely, "have the ability to acquire new knowledge from the parent company to achieve targets," "have a vision of what the subsidiary is trying to achieve through the transfer of knowledge from the parent company," "have the technical competency to absorb the knowledge from the parent company," "have the necessary skills to implement the practices from the parent company," "have the ability to convert knowledge or the practices from the parent company" and "have the ability to exploit new knowledge or practices from the parent company" (Cronbach's $\alpha = 0.92$). We conducted an exploratory factor analysis. The results indicated a one-factor solution with all loadings at 0.79 or higher. Furthermore, AC was used as an aggregated measure of individual responses.

Based on the arguments and predictions, we introduced a simple unbalance index (UBI) of absolute difference representing a pattern of knowledge transfer, which is expected to combine the predictions for *H3*:

$$\text{Unbalance Index (UBI)} = | \text{Knowledge Received (KR)} - \text{Absorptive Capacity (AC)} |$$

Dependent variable

Approximately, three years after the initial data collection, we obtained the information on the status of respondents of the first survey with the support of the company's HR team; approximately 37% of survey participants had left the organization. The data from the remaining 63% of participants were referred to as right-censored, indicating that measurement was discontinued before the event (turnover). The personnel records indicated that all turnover events were voluntary and caused by individuals' motivated choices ([Campion, 1991](#)). Given that the company had not done any intentional downsizing or lay-offs during the study interval, it was unlikely that the participants experienced involuntary turnover. Turnover was a binary variable with two categories, namely, 0 = "stayed" and 1 = "left." Each participant's retention time was computed as the number of months that elapsed between entry and exit dates. In contrast to logistic regression, which is based only on the binary outcome status, survival analysis uses both binary outcome and retention time to calculate individuals' turnover hazard ([Chang et al., 2013](#)). [Figure 1](#) illustrates the distribution of turnover rates across 98 subsidiaries. Turnover rates differ markedly across institutions, with the first quartile (Q1), median (Q2) and third quartile (Q3) at 25%, 38% and 54%, respectively.

Control variables

First, we included individual-level demographic control variables such as *age*, *gender* (Nishii and Mayer, 2009) and *tenure* (Huang *et al.*, 2006) at a subsidiary by asking the respondents to self-report (based on the previous literature) on the influences on turnover and turnover intention.

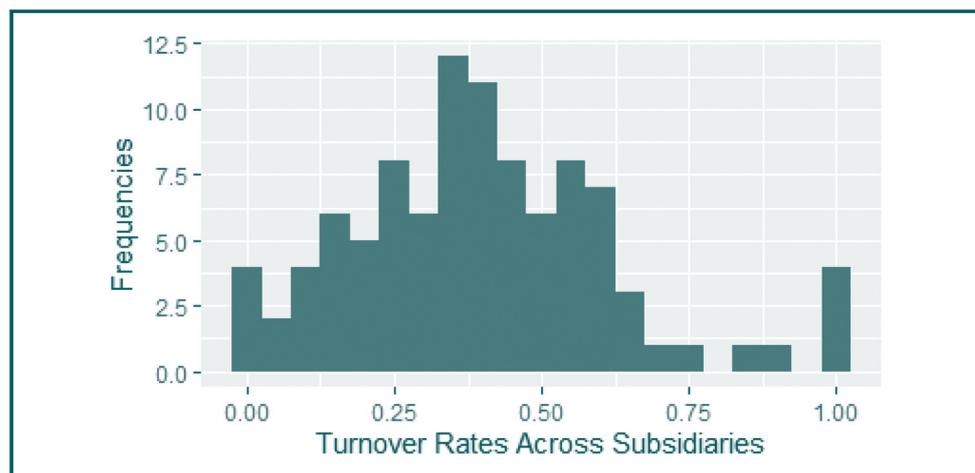
Because Coyne and Ong (2007)-related cultural distance to turnover intention, we calculated and added the control variable denoting the gap between an individual's culture and parent company's country (i.e. Korea). Korea has a unique and strong business culture and practices during internationalization, even compared with Japan (Hemmerl and Jackson, 2016). Overseas activities such as the HR management practices of Korean MNCs were affected and influenced by cultural distance with local subsidiaries (Glover and Wilkinson, 2007). It was necessary to regulate this country's effects at an individual level because the general perception of HCNs on the work environment might vary due to cultural differences. We measured participants' cultural values on five primary dimensions (collectivism, power distance, uncertainty avoidance, masculinity and work-life balance) that affected employee turnover in a previous study (Sturman *et al.*, 2012) using full items from Dorfman and Howell (1988) for the first four dimensions and selected five items from Allen (2001) for the last dimension [1]. Participants indicated how much they agreed or disagreed with nine statements, using a seven-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Second, at the organizational level, we controlled for subsidiary age and size – by accessing a third-party database, *dunandbradstreet.com* (Dun and Bradstreet, 2020) – because these two variables can influence knowledge transfer patterns (Chang *et al.*, 2012).

Models

The hypotheses addressed the multilevel association between organizational knowledge transfer and individual HCN turnover decisions. Accordingly, we analyzed the measure of turnover hazard using hierarchical generalized linear modeling. First, we fit a Cox regression model with a random intercept for each subsidiary (Therneau, 2018) to understand the heterogeneity of the hazards of turnover among the subsidiaries. The random intercepts incorporated in the Cox model represent an increased or decreased

Figure 1 Distribution of turnover rates across institutions



hazard for distinct subsidiaries relative to the average subsidiary. Cox models with random intercepts for the j^{th} subsidiary can be formulated as:

$$h_j(t; X_1, X_2, \dots, X_p) = h_0(t)\exp(X_1\beta_1 + \dots + X_p\beta_p + \alpha_j) \quad (1)$$

where $h_0(t)$ represents the baseline hazard function that depends on time t only and X_1, X_2, \dots, X_p are explanatory variables.

In our research, we have three focal explanatory variables, *KR*, *AC* and *UBI*, in addition to several covariates such as tenure, gender, culture distance, firm size and firm age. The exponents of the regression coefficients, $\exp(\beta_1), \exp(\beta_2), \dots, \exp(\beta_p)$, are referred to as the relative risk or hazard ratio. The regression coefficients are frequently referred to as fixed effects because they do not involve the subscript j and do not vary across subsidiaries. In contrast, the last term in the linear predictor, α_j , denotes the random effects associated with the j^{th} subsidiary. The exponent of the random effect functions multiplicatively on the hazard function such that subsidiaries with $\exp(\alpha_j) > 1$ are “more frail” than the typical subsidiary with $\exp(\alpha_j) = 1$ whereas subsidiaries with $\exp(\alpha_j) < 1$ are “less frail.” The same random effect is shared by all HCNs within the same subsidiary, and therefore, the random effect is often referred to as “shared frailty.” Accordingly, the model in equation (1) is also labeled the *shared-frailty model* (Austin, 2017). For mathematical convenience, the shared frailty term is most often assumed to follow a gamma distribution with a mean of 1 and a variance of σ^2 .

Results

Hypothesis test

Table 1 presents the descriptive statistics of control variables and predictors. The results that we obtained from fitting the shared-frailty model are presented in Table 2. The first two columns in Table 2 present the fixed and random effects for the baseline model, which includes the control variables only. For the predictor AC (Model 1 columns), we found no significant difference in turnover hazards as a function of AC after controlling for the covariates of both HCN-level (i.e. Tenure, Age and Sex) and firm-level (i.e. firm age and firm size). The effect of the subsidiary’s AC on turnover hazards was not statistically significant (i.e. p -value = 0.91), and therefore, $H1$ was not supported.

For the predictor KR (Model 2 columns), the coefficient and its exponent, at -0.43 and 0.65 , were statistically significant (i.e. p -value = 0.03), suggesting that a one-unit increment in KR reduces turnover hazard by 35%, holding other covariates constant. Thus, $H2$ was

Table 1 Descriptive statistics of control variables and predictors

Variables	Mean	SD	Median	Min	Max	Skewness	Kurtosis	Correlations				
<i>HCN level</i>												
								Tenure	Age	Gender ^a	Culture distance	
Tenure	2.273	2.422	1.000	0.000	15.000	1.183	0.632	1.000				
Age	32.046	6.896	30.000	20.000	68.000	1.370	2.255	0.287***	1.000			
Gender*	0.727	0.446	1.000	0.000	1.000	-1.017	-0.966	-0.005	0.174***	1.000		
Culture distance	-0.033	0.997	-0.083	-3.266	3.498	0.131	-0.122	-0.026*	0.170***	-0.017	1.000	
<i>Firm level</i>												
								Firm age	Firm size	AC	KR	UBI
Firm age	1,999.373	8.200	1,997	1,978	2,013	-0.071	-1.029	1.000				
Firm size	13.778	1.239	13.931	9.851	16.242	-0.813	1.305	-0.198	1.000			
AC	5.207	0.510	5.213	3.500	6.667	-0.025	1.327	-0.090	-0.015	1.000		
KR	4.139	0.760	4.346	1.000	5.667	-1.242	2.195	0.026	-0.222	0.159	1.000	
UBI	1.098	0.806	0.877	0.083	3.833	1.284	1.361	-0.068	0.171	0.406***	-0.814***	1.000

Notes: ^aWomen and men are coded as 0 and 1, respectively. Thus, the mean of Gender indicates the proportion of men in the sample; * Coefficient is significant at the 0.10 level; ** Coefficient is significant at the 0.05 level; *** Coefficient is significant at the 0.01 level

supported. The coefficient of UBI in Model 3 (last two columns) was also statistically significant (i.e. p -value = 0.02) [2]. The exponentiated coefficient, i.e. $\exp(-0.34) = 1.41$, suggests that a one-unit increase in UBI increases the hazard of turnover by 41%. The unbalance between KR and AC negatively impacts turnover hazard. This result supports $H3$.

At the bottom of Table 2 are presented the frailty estimates for the three models, which are approximately 0.40 when converted to standard deviations. Exponentiating this frailty estimate, $\exp(0.40) = 1.491$ or $\exp(-0.40) = 0.670$, indicates that the employees in a subsidiary with frailty one standard deviation above (below) the average have 49.1% (33.0%) higher (lower) risk of turnover than employees in an average organization with the same observed covariate values. The results indicate that a combination of KR and AC indexed by UBI, rather than either by itself, is a more critical driver of turnover.

Follow-up for hypothesis 1

Because the main effect of AC was not statistically significant in the preliminary test, we conducted follow-up analyzes to reveal clues about possible causes of the non-significance of the effect of AC. Figure 2 illustrates survival probabilities and cumulative hazard functions as functions of AC. For a simplified presentation, we trichotomized the predictor, AC, into Low (below the first quartile, Q1), High (above the third quartile, Q3) and Medium (between Q1 and Q3) groups. The survival and cumulative hazard functions (top two panels) for AC suggest that the risk of turnover is higher for AC-Low than AC-High during the early period of follow-up time (i.e. before four years since hire). However, the functions also suggest that such a pattern of impact might be reversed in the later period of follow-up time and that eventually, the AC-High group may run a higher risk of turnover. Such a time-varying pattern may offer a clue regarding how to interpret statistically non-significant coefficients for AC in Model 1.

Discussion and conclusion

This paper analyzed knowledge transfer's impact on HCN turnover with a sample of 98 subsidiaries governed by a Korean MNC composed of 4,915 individual respondents. We developed three hypotheses arguing that the HCNs are affected by the patterns of organizational level knowledge transfer. AC and KR were suggested as shaping a positive learning and political environment for HCNs, but the balance between the two factors was deemed to compel more turnover. Our empirical tests supported the primary effects of KR

Table 2 Results from fitting the shared frailty models

Estimated effects	Baseline model		Model 1 (H1)		Model 2 (H2)		Model 3 (H3c)	
	coef (SE)	exp (coef)						
HCN level								
Tenure	-0.365 (0.050)***	0.694	-0.365 (0.050)***	0.694	-0.366 (0.050)***	0.693	-0.361 (0.050)***	0.697
Age	0.004 (0.008)	1.004	0.004 (0.008)	1.004	0.002 (0.008)	1.002	0.001 (0.008)	1.001
Sex	0.090 (0.087)	1.094	0.089 (0.087)	1.093	0.096 (0.087)	1.101	0.089 (0.087)	1.093
Cultural distance	0.070 (0.040)*	1.072	0.069 (0.039)*	1.071	0.064 (0.004)	1.066	0.061 (0.040)	1.063
Firm level								
Age	-0.023 (0.012)*	0.978	-0.022 (0.013)*	0.979	-0.020 (0.011)*	0.98	-0.015 (0.012)	0.985
Size	-0.115 (0.072)	0.892	-0.114 (0.072)	0.892	-0.121 (0.069)*	0.886	-0.119 (0.070)*	0.888
AC			0.059 (0.211)	1.061				
KR					-0.428 (0.199)**	0.652		
UBI							0.341 (0.156)**	1.406
Random effects	Variance		Variance		Variance		Variance	
(Shared frailty)	0.138		0.138		0.125		0.126	

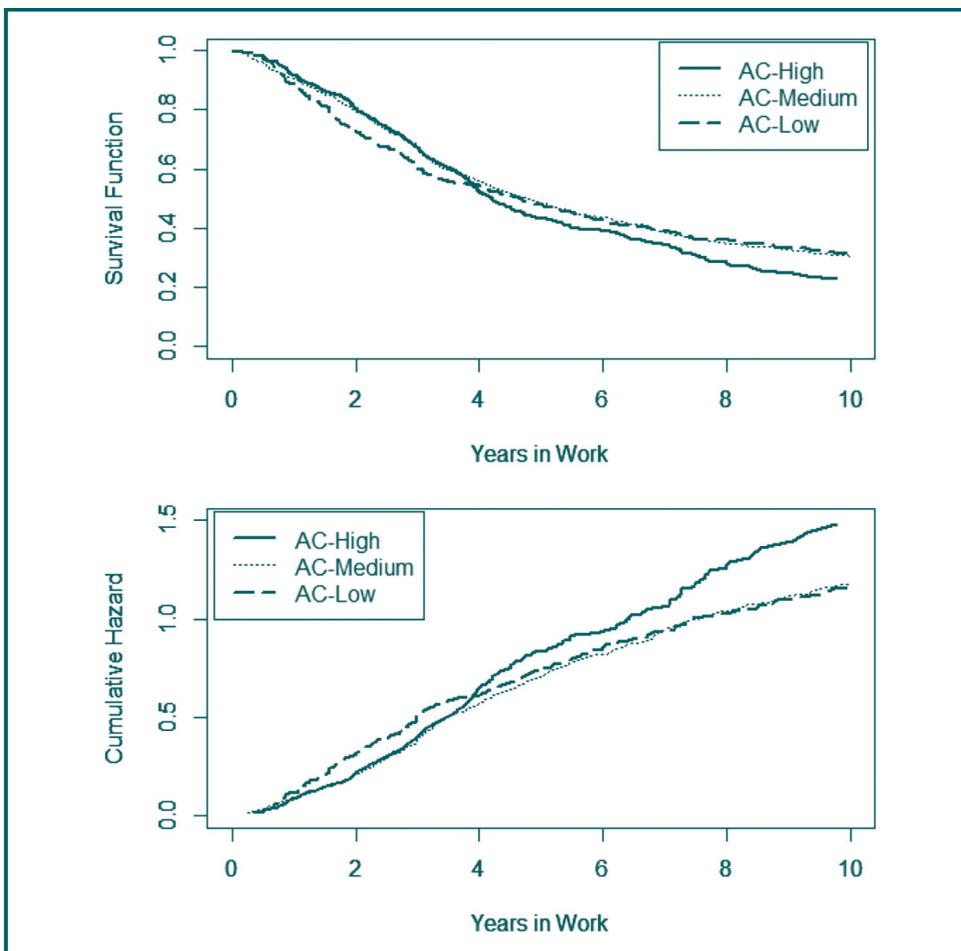
Notes: *Coefficient is significant at the 0.10 level; **Coefficient is significant at the 0.05 level; ***Coefficient is significant at the 0.01 level; The concordance-index for Models 1–3 are all equal to 0.646

and unbalance on turnover, whereas AC did not have a significant effect on turnover. These propositions and methodologies were rooted in the foundational mechanism of linking the organizational context to individual behaviors. Hence, the most general but still immediate implication would be to demonstrate supportive evidence that the employees perceived and reacted to their learning and political environments with a turnover decision. Our findings also have more concrete theoretical and managerial implications.

First, this is arguably the first attempt to empirically measure the turnover hazard of HCNs by setting knowledge transfer as a predictor, drawing a complete picture of the knowledge transfer process in subsidiaries from receiving to retaining knowledge. Because expatriates have been the focus group of research instead of HCNs (Hitotsuyanagi-Hansel *et al.*, 2016), ample studies were conducted for the earlier stage of knowledge transfer conducted by expatriates.

Expatriate turnover after repatriation has also been studied intensively (Hitotsuyanagi-Hansel *et al.*, 2016), implying that HCN turnover has been ignored. Given that knowledge transfer is the core strategic intention of expatriation and HCNs are the pivotal members who learn and maintain the acquired knowledge for organizational success (Chang *et al.*, 2012), attempts of not omitting the last of the story at a subsidiary, such as our study, should have been performed earlier and more often. Even though HCN turnover implies a

Figure 2 Absorptive capacity (AC) on survival probability and cumulative hazard for turnover during follow-up



knowledge loss (Dess and Shaw, 2001; Eckardt *et al.*, 2014), few studies have extended the investigation to the importance of maintaining the acquired knowledge at a local subsidiary (García-Cabrera and García-Soto, 2012; Lee *et al.*, 2017).

This study's findings enhance the understanding of this less examined but crucial demographic group's turnover. In particular, our findings the HCN turnover in the middle of the knowledge transfer process: acquisition, sharing, creation and codification (Kianto *et al.*, 2016). We successfully demonstrated that there was a missing link in the knowledge transfer literature by collecting data on the turnover of HCNs, enabling the empirical examination of some subsidiaries losing a larger volume of acquired knowledge than others because of two knowledge transfer patterns, namely, a low level of KR and an unbalance between AC and KR. Therefore, this study contributes insight to the knowledge management literature that knowledge retention is affected by the previous knowledge transfer process. This insight can be elaborated by the various stages of knowledge management. For a hypothetical example, a subsidiary with a shared knowledge acquired from HQ would increase or decrease the risk of knowledge loss or HCN turnover, resulting in success or failure in knowledge codification.

Second, the most consistent finding of our analysis in the context of knowledge transfer is that HCN turnover was explained when KR and AC were considered together. This study introduced the UBI as a key pattern of knowledge transfer at the organizational level. The demonstrated impact of UBI is that the larger the difference between KR and AC, the higher the risk of HCN turnover. Theoretically, this finding extends existing research on intra-organization knowledge transfer within MNCs (Bader, 2017; Chang *et al.*, 2012). Former work typically assumed that AC or the subsidiary's role is entirely passive or reactive to KR or HQ's commands. Chang *et al.* (2012) identified the role of AC as a moderating factor for KR's primary effect, even though their study's outcome was subsidiary performance. Bader (2017) successfully argued that HCNs are essential during knowledge transfer but that their contribution was limited to offering "social support" for expatriate adjustment.

Our findings, however, suggest that a subsidiary's contributions or AC are commensurate to HQ's strategic implementation or KR to make an impact. According to the findings, one disastrous knowledge-transfer pattern is too much KR without AC, resulting in enormous knowledge loss. Similarly, too much AC can ruin the balance with KR, which also increases turnover hazards. This finding resonates with the analogy of a *water bucket* to the MNC studies by revealing to theorists inconsistent findings about the knowledge spillover effect (Marin and Giuliani, 2011) and the opposite situation of a relative shortage. It also implies the existence of an optimal point in the tensions between an HQ and a subsidiary to realize a potential synergy. One of the most insightful theoretical extensions in this study is that organizational level balance fosters individual level balance. According to Sherif *et al.* (2013), an organizational structure established to balance two knowledge orientations also facilitated employee balance. Consequently, it may be productive to consider HCNs' individual development efforts based on their perception of the balance between AC and KR.

Third, our analysis of the separate impacts of KR and AC does not consistently support the hypotheses. Instead, we recognized the possibility of nonlinear trends of KR and AC on the turnover hazard. The medium groups were not necessarily located between Low and High groups, both for AC and KR. This result indicates that KR and AC might exert both a time-varying and a complex nonlinear effect on the hazard of turnover. This study developed hypotheses mainly based on the mechanisms of job satisfaction (and dissatisfaction) that can discourage (or encourage) employee turnover, suggesting linear causality between knowledge transfer and HCN turnover.

However, when the argument extends to an external opportunity or alternative options in the labor market (Ngo-Henha, 2017), the nonlinear chronological change can be explained theoretically. March and Simon (1958) suggested that the turnover decision would occur when an employee's job satisfaction was insufficient to overrun the perceived easiness of

movement. When this factor of job mobility is included in the explanation, there is a possibility that AC and KR affect turnover differently over time. In a hypothetical scenario of a high AC subsidiary, the AC would function as prevention of HCN turnover because the employees in an early stage of self-development might think there is no better alternative than the current organization, which aligns with our suggested hypothesis. Nevertheless, over time, the ease of job mobility can increase if HCNs become competitive enough in the labor market because of the high AC environment.

Moreover, the apparent practical message is that providing knowledge is insufficient for cultivating a local subsidiary environment. In an extreme case, one-sided knowledge transfer can harm the learning culture of an MNC. Our findings and arguments imply that the HCNs deserve much more attention from top management teams who have already been biased given the obvious and inevitable importance of retaining expatriates (Tsang, 1999; McNulty and Tharenou, 2004). When implementing such balanced ideas between an HQ and a subsidiary, managers also can benefit from our two-fold view incorporating both knowledge and politics during the process. Even if the strategic intention of expatriation was intended to improve the subsidiary's learning environment, it might have concluded with increasing political pressure on HCNs.

Mir *et al.* (2008) also demonstrated that a knowledge transfer is likely to be perceived as a foreign "threat" by HCNs when there was dominant input from one side – in their case, from HQ. Any managerial decision must not disregard the reality that learning and politics will inevitably mingle into knowledge transfer. Finally, we also call managers' attention to the high turnover rates of HCNs by articulating that this represents a loss of invaluable knowledge. In our data, 37% of HCNs had left within the three years of our study. Froese and Xiao (2012) reported that the range of Chinese HCNs turnover was from 10% to 40% as evidence of low commitment to foreign HQs.

Related to the turnover issues, a substantial body of research has offered evidence on the crucial role of HR management in raising or reducing the turnover risk (Chang *et al.*, 2013; Hom *et al.*, 2017; Minbaeva, 2005). If the theoretical linkage between contextual factors and individual turnover is the collective perception and reaction of the employees, HR practices are the managerial tool for influencing employees' perceptions in the workplace. The appropriate implementation of HR management practices such as training, compensation, job security and justice systems would help the employees align values and goals between them and their organizations, a status labeled as *job embeddedness* (Ansari *et al.*, 2018; Hom *et al.*, 2017). The managers of HQs and subsidiaries can apply this idea to the context of AC and KR because previous findings demonstrated that effective HR practices induced "an individual's perception regarding his [or her] compatibility with the community and organization" (Ansari *et al.*, 2018, p. 67). A training program for an individual's skills and abilities might serve as a helpful example for managers to consider to align individual and organizational capacities, increasing job embeddedness and decreasing the turnover risk of HCNs.

Although this study provides an increased understanding of knowledge transfer and its impact on HCN turnover, it is not without its limitations concerning directions for future research in the theme. Underlying psychological mechanisms, such as perceived fairness and sense of power, were not measured, despite their inclusion in the conceptual arguments. Alternative explanations such as external job availability influencing the job mobility perceived by HCNs were not eliminated. Moreover, our study could not confirm the impact of knowledge loss or HCN turnover on MNCs' performance. For our UBI, we measured the absolute value of differences to align with our conceptual assumption of symmetric direction, limiting the test for an asymmetric mechanism. Due to methodological limitations, we only hinted at, but could not provide evidence for, whether the impact of KR and AC is time-varying, complex nonlinear or both by addressing the mechanisms of the perceived ease. Thus, future studies should further explore individual-level mechanisms by confirming the possibility of the asymmetric and curved influence of unbalance.

Due to the limited availability of some critical factors during data collection, we could not include industry, organizational and individual control variables that might contribute to HCN turnover. Although we were able to control the home country effect by calculating the cultural distance between Korean national culture and the individual value of the respondents, this ironically would restrain the potential theoretical and empirical contributions of this study. We assumed that distance was a cost of doing business across borders. However, adopting the Korean HQ's unique strengths – including culture – could be an invaluable opportunity for the subsidiaries to thrive in the long-term. Thus, another venue for future studies to investigate country-specific contexts with more intensive background research and comprehensive data collection that can reflect multiple critical contingencies of knowledge transfer. In particular, the geo-economic location of subsidiaries might affect these learning dynamics with HQ.

Transferred knowledge from an HQ in a developed country to a subsidiary in an emerging market might be processed effectively in a somewhat favorable atmosphere (Zhu *et al.*, 2018). However, a disparate culture or knowledge from an emerging country's HQ to a developed country may still function as a cost rather than an opportunity. Finally, the consequence of knowledge loss or turnover hazard on organizational performance was discussed only with previous literature rather than an empirical test. Focusing on the outcomes of HCN turnover remains a relevant future direction.

Notes

- 1 Following Yeganeh (2014)'s recommendation, we used the Mahalanobis distance (MD) when calculating participants' cultural values. When calculating the cultural distance of an HCN, MD considers the variances and correlations among the primary dimensional scores from the parent country. In this study, we used the scores obtained from 459 Korean expatriate candidates in 2012 to generate the variances and correlations among the five primary dimensions.
- 2 As an alternative to this Wald-type test, the likelihood ratio test statistics were calculated as the difference of the integrated log-likelihoods between the baseline model and Models 1–3. The resulting χ^2 difference tests were consistent with the Wald-type tests, with *p*-values of 0.77, 0.04 and 0.038 for Models 1–3, respectively.

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Corresponding author

Taehun Lee can be contacted at: lee.taehun@gmail.com

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