



How important is a high-performance work system to improve branch-level performance?

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How Important is a High-performance Work System to Improve Branch-level Performance?

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ABSTRACT

Purpose – This study proposes and empirically examines the simultaneous complementary mediating role of bank branch collective human capital and justice climate between implemented high-performance work system (HPWS) and bank branch performance in the banking sector.

Design/methodology/approach – Data were collected at three different intervals of time between March 2022 to July 2022 from a final sample of 323 branch managers and 1369 employees of commercial banks operating in Pakistan. Partial least square structural equation modelling (PLS-SEM) was employed to test the theoretical model proposed by this study.

Findings – Study results revealed that collective human capital and justice climate simultaneously mediate the relationship between implemented HPWS and branch performance.

Originality – Drawing upon the resource-based view of the firm (RBV) and organisational justice theory, this novel study examines the simultaneous and complementary mediating effects of collective human capital and justice climate between implemented HPWS and branch performance relationships at the branch-level analysis.

Research implications – The study contributes to the strategic HRM theory by proposing the complementary mediating roles of human capital and organisational justice to reap the benefits of implementing HPWS for improving branch-level performance. The managers should focus on developing and exploiting the knowledge, skills, and experiences (human capital) of branch employees and improve their collective perceptions of justice to reap the benefits of HPWS for enhancing branch-level performance.

Keywords: High-performance work system (HPWS), strategic human resource management, human capital, justice climate, branch performance.

1. Introduction

In the ever-changing business landscape, achieving and sustaining high performance has become a challenge for contemporary organisations. Organisations are constantly working to devise new ways to outcompete competitors by designing and implementing human resource management systems that potentially translate into higher performance (Boxall et al., 2016; Jiang et al., 2013). Instead of focusing on individual practices, organisations are more inclined to an integrated HRM system that yields high performance for the organisations. Such an integrated system, termed as High-Performance Work System (HPWS), has widely been recognised as a key driver of organisational performance, fostering enhanced employee capabilities, motivation, and sustained engagement. Despite growing interest in HPWS and its outcomes, much of the existing research has primarily focused on the intended or perceived adoption of HPWS at the organisational level, leaving a significant gap in our understanding of how implemented HPWS may influence performance outcomes at a more granular level – that of individual branches or units within organisations. Thus, clear mechanisms need to be further explored on how implemented HPWS at the branch level translates into branch-level performance. Such investigations would offer more precise measures of the phenomena that are likely to enhance alignment between intended HR policies with the implemented HR policies.

The researchers undertook different routes to understand the translation of HPWS into performance. Primarily, the literature used two perspectives to document the relationship between HPWS and performance, namely the human capital perspective and the motivational perspective. These two major perspectives are acknowledged by the literature in some reviews and empirical studies (Jiang, Takeuchi, & Lepak, 2013; Karadas & Karatepe, 2019). However, the dominant trend in the discourse was to examine these two perspectives in isolation without making a rigorous attempt to integrate them. Researchers have emphasized the need to study both pathways' simultaneous influence and contribution to studying the HPWS-performance relationship (Jiang et al., 2012; Raineri, 2017, Messersmith, Ji, & Lee (2016), Zhang,

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3 Chen, & Jiang, 2022). The human capital approach argues that HPWS assists organisations to build and
4 enhance their human capital - knowledge, skills, and abilities possessed by the employees – which in turn
5 yields superior performance for the organisations (Wright et al., 2001). On the other hand, the motivational
6 approach states that HPWS influences employees' cognitions such as justice perceptions – i.e., how an
7 employer treats its employees through HPWS – which encourages them to put more effort into performing
8 (Wu and Chaturvedi, 2009). Recently, there has been increasing recognition and emphasis on studying both
9 pathways simultaneously for a holistic and integrated perspective on the HPWS-performance relationship
10 (Kim, Kwon, & Jung, 2023; Raineri & Valenzuela-Ibarra, 2022).

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12 The earlier studies that used human capital as a pathway between HPWS and organisational performance
13 mainly focused on the development of employee knowledge, skills, and abilities by adopting effective
14 practices including high-impact training in the overall high-performance work system
15 (Messersmith, Patel, Lepak, & Gould-Williams, 2011). The HPWS positively impacts human capital
16 accumulation, a process where employees acquire and develop knowledge, skills, and abilities, and thus
17 this accumulated human capital leads to improvement in organisational performance. Besides developing
18 employee skills through training and development, HPWS also encourages job autonomy and collaborative
19 teamwork that result in the accumulation of human capital (Wattoo, Zhao, & Xi, 2020). While the human
20 capital pathway literature focuses on skill and knowledge development through formal organisational
21 initiatives and facilitating environment, the motivational path, on the other hand, attempts to understand the
22 motivational processes that translate HPWS into performance including social exchange processes,
23 employee commitment, job satisfaction, work engagement, intrinsic motivation (Dorta-Afonso, González-
24 de-la-Rosa, Garcia-Rodriguez, & Romero-Domínguez, 2021; Mahdi, Liao, Muhammad, & Nader, 2014).
25 Although a variety of motivational processes are used in the HPWS-performance relationship, less attention
26 is paid to organisational justice as a motivational pathway. There is a wide recognition that the perception
27 of fairness in organisational practices and systems has a vital impact on organisational outcomes (e.g.
28 Colquitt, Hill, & De Cremer, 2023, Heffernan and Dundon, 2016; Liu *et al.*, 2019; Salin and Notelaers,
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2020; Wu and Chaturvedi, 2009), and thus it is important to examine organisational justice as a motivational pathway in HPWS-performance literature to address an important deficiency.

Further, the previous studies that attempted to integrate motivational and human capital perspectives generally measured the intended or perceived adoption of HPWS. The literature has criticised previous HPWS-performance studies for using organisation-level data of HR policies, assuming that the intended HPWS is implemented in the same manner throughout the organisation (Wright and Nishii, 2013). These top management/ HR departments reported HR practices representing their intended HR policies, which may not be implemented in the same way across the organisation (Khilji and Wang, 2006; Nishii and Wright, 2007). As a result, a new stream of research has recently emerged, focusing on implemented HPWS instead of intended (e.g., Chuang *et al.*, 2016; Pak and Kim, 2018). By measuring the implemented HPWS across different branches of the bank, we offer a more precise measure of HPWS to contribute to this knowledge area. By measuring implemented HPWS using theoretically enriched models testing both motivational and human capital pathways, the current study takes the literature forward that would be helpful for a better understanding of the outcomes of HPWS.

To address the deficiencies relating to the lack of integrated and holistic perspective and lack of attention to implemented HPWS, the current research aims to address the following research questions 1) How organisational justice as a motivational pathway connects HPWS and performance 2) How does HPWS lead to performance through motivational and human capital pathways 3) How implemented HPWS across different branches of an organisation lead to performance using branch-level analysis.

Since we are testing two concurrent pathways that lead to branch-level performance to integrate the literature, we used social exchange theory and resource-based view to elucidate two pathways. We used these two theories based on the reasoning presented in the earlier literature (Gong, Chang, & Cheung, 2010; Wang, Chen, & Lawler, 2022; Zhang *et al.*, 2019) and their close alignment with the research questions under investigation. Social exchange theory is used to expound the motivational pathway that connects HPWS with performance while resource-based view is used to explain the human capital pathway.

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3 The context used for the study was the banking sector of Pakistan. The banking sector is the largest sector
4 of the economy in Pakistan contributing 55% to the country's GDP. The central bank regulates the banking
5 sector and issues guidelines to the banks to improve governance and customer experience that put pressure
6 on the banks to develop high-performance HR policies to meet these goals (SBP, n.d.). A recent report from
7 KPMG states that the banks in Pakistan are devising new ways of working due to high customer
8 expectations and banks are transforming their HR practices (KPMG, 2022). Based on the context, the choice
9 of the banking sector to study high-performance work systems is appropriate as the banking sector is
10 actively working on these systems. Further, the bank branches have largely independent operations and
11 financial autonomy as each branch serves as a profit centre. Thus, the bank branches are suitable for
12 studying implemented HR practices in branch-level performance.
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25 The current study contributes to the HPWS-performance literature in several ways. First, it presents a
26 holistic model that simultaneously tests the complementary mediation of collective human capital and
27 justice climate. By presenting a holistic conceptualisation encompassing generally overlooked motivational
28 pathways i.e. justice climate, the current study offers an important contribution to the literature that is likely
29 to expand the theoretical lens to study HPWS. Second, this study examines the effects of implemented,
30 instead of intended, HPWS as a more appropriate measure of HPWS to capture a more precise picture of
31 this relationship. By studying the implemented HPWS, the study addressed the deficiency pointed out in
32 the literature (Phuong & Ngan, 2023; Valizade, Cook, Forde, & MacKenzie, 2023; Wattoo et al., 2020)
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34 Third, this study investigates the validity and relevance of analysing the relationship among the variables
35 at the branch level of banks. Earlier studies often used data from different departments as work units (Cao,
36 Zhao, & Zhao, 2020; Jo, Aryee, Hsiung, & Guest, 2020). Different departments in a single organisation
37 often work in the same facility and have close day-to-day interaction. Closely-knit departments are not
38 financially or operationally independent and their working largely depends on other departments. Thus, we
39 argue that the departments are not very effective units for measuring the unit level performance as
40 autonomous entities. We used bank branches in Pakistan to examine the implemented HPWS which are
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3 arguably better settings as the branches are geographically dispersed as opposed to the departments working
4 in a single facility, have more operational independence, and more financial autonomy that may bring about
5 more variation in implementation of HR policies. By using a more relevant sample of work units, we add
6 rigour to the method in HPWS literature. Fourth, this research contributes to HPWS-performance literature
7 through empirical findings based upon a sample from developing countries like Pakistan adding new
8 evidence to the literature. Lastly, the current study used a rigorous and robust method where multisource
9 data from 323 bank branches were collected. Most of the studies in HPWS literature used data from less
10 than 200 branches (see Behraves, Tanova, & Abubakar, 2020; Dastmalchian et al., 2020; Ehrnrooth,
11 Koveshnikov, Wechtler, & Hauff, 2023). The current study design and the sample present more
12 generalisable findings based on a reasonably large sample size.
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27 **2. Literature Review and Hypotheses Development**

28 **2.1. High-performance Work System (HPWS) and Human Capital**

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31 Human capital refers to the skills, abilities, and knowledge possessed by the workforce of an organisation
32 and is valuable for the organisation too (Subramaniam and Youndt, 2005). Strategic HRM literature argues
33 that one of the major objectives of HRM is “buying” and “making” employees’ skills, knowledge, and
34 abilities that could be used in value creation for the organisation (e.g., Boon *et al.*, 2018; Delery and Shaw,
35 2001). Organisations exist to achieve some objectives for which their HRM assists them through arranging
36 and developing employees’ knowledge, skills, and abilities as required.
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46 Many components of HPWS contribute towards arranging, developing, and keeping human capital,
47 such as extensive training, competitive compensation, performance appraisals, and job design, which
48 contribute to the high-level human capital pool of an organisation (e.g., Huselid, 1995; Takeuchi *et al.*,
49 2007; Wright *et al.*, 2001). For example, Lepak and Snell (1999) highlight the role of extensive training
50 and development initiatives to enhance the workforce's competence level. Competitive pay and benefits
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3 assist employers in attracting, hiring, and retaining individuals who have higher competencies (e.g.,
4 Huselid, 1995). In addition, feedback received from performance appraisals (Snell and Dean, 1992) is also
5 used to improve or develop human organisational capital. Similarly, flexible job design provides employees
6 with opportunities to learn more and develop their competency level (Takeuchi *et al.*, 2007).
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12 Although much emphasis has been placed on the theoretical underpinning of human capital (Jackson
13 and Schuler, 1995), few studies have examined this concept as a mediator linking implemented HPWS with
14 work-unit performance. Previously, Liao *et al.* (2009) concluded that human capital mediates the
15 relationship between perceived HPWS and employee service performance. Further, Takeuchi *et al.* (2007)
16 concluded that establishment-level aggregated human capital mediated the relationship between intended
17 HPWS and establishment performance. Moreover, a meta-analysis by Jiang *et al.* (2012) highlighted that
18 many studies had used different proxies, such as employees' level of education and customer knowledge,
19 to measure human capital. Such proxies like education level to measure human capital might not capture
20 the accurate picture. A worker with a higher education level might not have the competence needed in his
21 current job, which might not contribute to better performance. In such cases, the actual effects of human
22 capital on performance might remain underestimated. Messersmith *et al.* (2011) argued that the relationship
23 between HPWS and human capital may vary depending upon the type of practices adopted in HPWS. If the
24 HPWS is more focused on training and development, it is likely to enhance human capital and vice versa.
25 In a similar vein, Chang, Son, and Pak (2020) argue that the impact of HPWS on employee knowledge
26 sharing and human capital development is not uniform across all contexts. The experienced HPWS may
27 have different levels of effect on human capital in the presence of different contextual variables. Although
28 most of the literature suggests that HPWS has a positive impact on human capital development, the
29 inconsistent findings in some studies are mainly due to different contextual variables and study settings. As
30 the current study investigates implemented HPWS in branch-level settings, it is important to test the
31 relationship between HPWS and performance in the given setting. Further, the resource-based view posits
32 that favourable organisational actions including HPWS serve as a resource that is likely to enhance the
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collective human capital of the organisation by imparting training and skills to employees. Based on the reasoning presented in the resource-based view and HPWS literature, we propose the following hypothesis.

H1. Implemented-HPWS is positively related to collective human capital.

2.2. HPWS and Justice Climate

Organisational justice refers to “the extent to which people perceive organisational events as fair” (Colquitt and Greenberg, 2003 p. 166). Thus, the work-unit justice climate refers to the shared cognition about fairness perceptions formed by the work-unit members (Naumann and Bennet, 2000). The conceptualisation of the overall justice climate is also consistent with Ambrose and Schminke (2009) studies. They used the overall justice climate as a mediating mechanism for the relationship between justice dimensions (i.e., distributive, procedural, and interactional justice) and employee outcomes. Organisational justice scholars have reported that employees evaluate the fairness of at least three categories of events, including (i) the outcomes received from their employer (distributive justice), the procedures for distribution of these outcomes (procedural justice), and the interpersonal treatment they receive from their employer (interactional justice: Cohen-Charash and Spector, 2001) to form overall justice perceptions. Scholars have argued that it is vital to understand how HPWS motivates employees to exert efforts on behalf of their employer (Delery and Shaw, 2001; Huselid, 1995). Greenberg (1990) argued that perceptions of fairness are “a basic requirement for the effective functioning of organisations and the personal satisfaction of the individuals they employ” (p. 339) which, in turn, shapes employee attitudes and behaviours.

This study used organisational justice construct as branch-level aggregated justice perceptions which form branch-level justice climate. Kozlowski and Klein (2000) asserted that it is more appropriate to consider perceptions, emotions, attitudes, and behaviours of employees as a shared and aggregated construct that “describes the characteristics that are common to—that is, shared by—the members of a unit” (p. 30). Researchers in organisational justice recognise that a group develops shared cognitions of fairness

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3 besides individual fairness clues (Roberson and Colquitt, 2005). Through interaction, group members learn
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5 how their employer treats each group member. They become involved in aggregated sense-making based
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7 on the discussions and interpretations of the incidents of justice or injustice in the workplace (Roberson,
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9 2006). As a result, a collective perception of justice (justice climate) emerges in the work unit with several
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11 explanations (Li and Cropanzano, 2009). For instance, the social information processing perspective
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13 (Salancik and Pfeffer, 1978) argues that employees make sense of their workplace-related experiences
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15 based on other members of their work unit and influence each other's cognitions and attitudes to develop
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17 shared perceptions of workplace experiences. Thus, a justice climate emerges when group members share
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19 their experiences that influence the justice perceptions of co-workers. Similarly, according to the cognitive
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21 contagion framework (Degoey, 2000), a justice climate emerges from individuals sharing with their co-
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23 workers their experience of emotionally charged incidents, which leads to a higher level of cooperation
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25 among group members and performance.
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29 In a review study, Colquitt et al. (2023) noted that organisational justice is related to a wide variety of
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31 positive employee and organisational outcomes. They argued organisational practices including HR
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33 practices are significantly related to the development of justice perception about the organisations. While
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35 the dominant literature used organisational justice as an individual-level construct, there has been an
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37 increasing realisation that the aggregate justice perceptions within an organisation or a work unit constitute
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39 a justice climate that is more pertinent to analysing positive organisational or unit outcomes. Organisational
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41 efforts in the form of implemented HPWS shape the work-unit justice climate (Ambrose *et al.*, 2021, Li
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43 and Cropanzano, 2009). For instance, the existence of performance-based rewards in implemented HPWS
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45 and the rules and decisions regarding their distribution among employees influence employees' perceptions
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47 of the overall fair treatment they receive from their employer (Folger and Cropanzano, 1998). The HR
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49 practices like performance evaluation and promotion, incentives, information sharing, teamwork, and
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51 employee participation in decision-making also influence employees' perceptions of overall fairness (e.g.,
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53 Heffernan and Dundon, 2016; Wu and Chaturvedi, 2009). Collectively, it can be said that when HPWS is
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3 implemented effectively, it develops an overall sense of fair treatment of employees (Coyle-Shapiro and
4 Conway, 2005). Consequently, it can be assumed that employees see implemented HPWS as signals of the
5 intentions of their employers, whom they further perceive as fair or unfair, to form a work-unit justice
6 climate.
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12 Extant literature highlights that a few studies have examined the role of individuals' justice perceptions
13 in the HPWS-performance relationship. For instance, Wu and Chaturvedi's (2009) findings revealed that
14 intended HPWS procedural justice perceptions mediated the association of HPWS with job satisfaction and
15 affective commitment. Next, Heffernan and Dundon (2016) also investigated the mediating role of all three
16 dimensions of justice perceptions (distributive, procedural, and interactional) for the relationship between
17 intended-HPWS and employee outcomes (i.e., job satisfaction, affective commitment, and perceived work
18 pressure). Imran and Atiya (2020) also found a positive association between HPWS and human capital to
19 improve organisational performance. Furthermore, Liu *et al.* (2019) also concluded that all three justice
20 dimensions mediate the relationship between perceived HPWS and employees' organisational
21 identification. While positive organisational initiatives including favourable HR practices are found related
22 to the development of a justice climate, the literature provides some inconsistent evidence as well. HR
23 practices may not lead to a collective perception of a fair climate in a highly competitive work environment
24 where employees are in stiff competition with each other (Oubrich, Hakmaoui, Benhayoun, Söilen, &
25 Abdulkader, 2021). Further, Conway and Monks (2008) suggested that the mere presence of high-
26 performance HR practices documented in the literature may not appeal to the employees and may not
27 generate positive outcomes. The implementation of the policies valued by the employees leads to a positive
28 sentiment. To add evidence to resolve such inconsistencies, it is important to study the relationship between
29 implemented HPWS as opposed to adopted HPWS with a justice climate. In line with the reasoning offered
30 by social exchange theory that suggests that favourable organisational initiatives generate an obligation to
31 respond to the organisation. The implemented HPWS would signal a favourable initiative from the
32 organisation that would generate a perception of fairness and justice among employees at the branch/ unit
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3 level. Thus, in line with the reasoning offered by social exchange theory and HPWS literature, we offer the
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5 following hypothesis:

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8 *H2. Implemented-HPWS is positively related to the justice climate.*
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10 11 12 13 **2.3. Human Capital and Branch Performance**

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15 Drawn on the arguments of the resource-based view of the firm (RBV), the impending effects of human
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17 capital on various organisational performance metrics have been widely accredited in HPWS and SHRM
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19 literature (e.g., Barney, 1991; Coff, 1999; Hatch and Dyer, 2004). According to RBV, (Barney, 1991),
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21 competitive advantage results from organisational resources that are valuable, inimitable, rare, and non-
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23 substitutable.
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26 Competence embedded in human organisational capital places it as one of the universal resources that
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28 fulfil the above criteria (Grant, 1991) and has a substantial capacity for achieving and sustaining
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30 competitive advantage (Coff 1999; Takeuchi *et al.*, 2007). Beyond its conventional contribution, the human
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32 capital of any organisation is rooted in the complex social systems of that organisation that make it more
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34 valuable for that employer than for others (Takeuchi *et al.*, 2007). For instance, an organisation develops
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36 human capital that fits its strategy, structure, and culture and has complex integrations with other financial,
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38 physical, and legal resources (e.g., Grant, 1991). Therefore, this organisation-specific human capital is less
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40 likely to be traded freely (Dierickx and Cool, 1989) or require significant cost and effort to replicate or
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42 substitute (Barney, 1991). This firm-specific human capital and its relationship with performance thus assist
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44 an organisation in benefiting from human capital steadily and for a longer term than any other organisational
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46 resource.
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50 Collective human capital in a work unit or a branch represents possessing a high level of skills,
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52 creativity, innovation, and the ability to transfer knowledge among colleagues (Pasban & Nojehdeh, 2016).
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54 As the employees are equipped with these resources, the organisation or the unit acquires the capability to
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3 augment its performance, in accordance with the principles outlined in the resource-based view. Thus, we
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5 hypothesize that:

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8 *H3. Collective human capital is positively related to branch performance.*
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10 11 12 13 **2.4. Justice Climate and Branch Performance**

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15 Organisational fairness is widely considered as a universal antecedent of various employee, team, unit, and
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17 organisational outcomes (Pan, *et al.*, 2018). Subsequently, based upon the arguments drawn from the social
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19 exchange theory (Blau, 1964) and the findings of extant studies related to the association between
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21 aggregated attitudes of employees and organisational performance (e.g., Harter *et al.*, 2002; Fulmer *et al.*,
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23 2003; Ostroff, 1992), a positive relationship could be expected between fairness climate and bank branch
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25 performance. Social exchange can be understood as “favours that create diffuse future obligations, not
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27 precisely specified ones, and the nature of the return cannot be bargained about but must be left to the
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29 discretion of the one who makes it” (Blau 1964, p. 93).
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32 Employees’ evaluation of their employer’s HR practices determines organisational performance
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34 through their shared attitudes and behaviours. Employees’ justice perceptions are related positively to their
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36 performance and subsequent work-unit and organisational performance (e.g., Aryee *et al.*, 2002; Niehoff
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38 and Moorman, 1993). The relationship between employees’ justice perceptions and their behaviours and
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40 performance has been extensively studied (see Colquitt *et al.*, 2001). However, studies are rare that have
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42 investigated the relationship of justice climate with subsequent work-unit performance (Ambrose *et al.*,
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44 2021). Based on the reasoning presented by the social exchange theory, that suggests fairness perception
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46 about implemented-HPWS such as performance-based pay, performance appraisals, and promotion
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48 decisions influence the justice climate and lead to enhanced employee engagement and motivation to work
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50 harder. A justice climate is likely to help organisations attract, motivate, and retain high-calibre employees
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52 and generate superior performance. This has led to the following hypothesis:
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56 *H4. Justice climate is positively related to branch performance.*
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2.5 High-performance Work System (HPWS) and Branch Performance

There is plenty of research available in the context of HPWS and performance-related outcomes, for instance, Imran and Atiya (2020) examine the association between HPWS and job performance. Organisations make tremendous investments in developing HPWS to improve performance (Combs *et al.*, 2006). In an important study, Ali *et al.*, (2019) and Ali *et al.*, (2022) examine the role of HPWS in improving performance in state-owned banks in China. In another research, Purcell, and Hutchinson (2007) hold that it is important to study how branch-level corporate HR policies are implemented at the branch level to yield positive outcomes. Although the related stream of the literature suggests that HPWS leads to a high level of performance, there is relatively less evidence available in the literature that examines the impact of HPWS on improving branch-level performance in the banking industry. Further, our reasoning is aligned with both the resource-based view and social exchange theory. The resource-based view treats HPWS as favourable resources for the organisation that is likely to enhance employee performance as social exchange theory postulates that employees reciprocate the favourable HR practices with the enhanced commitment that in turn augments branch-level performance. Drawing upon the theories and relevant literature, we proposed the following hypothesis:

H5: There is a positive association between HPWS and branch performance.

2.6 Mediating Roles of Collective Human Capital and Justice Climate

By viewing the above discussion collectively, work-unit level factors like collective human capital and justice climate should mediate the association between implemented HPWS and bank branch performance. This argument is also consistent with the work of Delery and Shaw (2001), who acknowledged workforce knowledge, skills, and motivation as intermediary mechanisms that link HPWS with labor productivity. Additionally, Greenberg (1990 p. 339) argues that organisational justice perceptions are “a basic

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3 requirement for the effective functioning of organisations” in a way that employers’ workplace-related
4 practices form and contour fairness perceptions which further impact organisational performance through
5 their reactions.
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10 The previous studies in the domain of HPWS examined the mediated paths between HPWS and
11 performance. However, these studies generally lack a holistic picture. Most of the studies focused on one
12 of the two pathways, either the motivational pathway or the human capital pathway (see Edgar, Blaker, &
13 Everett, 2021; Jo et al., 2020; Kloutsiniotis & Mihail, 2020). Further, the studies generally measured
14 mediation paths using intended HPWS instead of implemented HPWS which has been criticised in the
15 recent literature as a less precise measure (Valizade et al., 2023; Wattoo et al., 2020). In addition, the
16 previous research generally used organisational-wide performance or individual employees' performance
17 as a measure, and branch-level performance is generally overlooked. To address these deficiencies, we
18 examined two mediated paths simultaneously using motivational and human capital pathways. Addressing
19 the gaps in the literature, we used human capital as a mediator between HPWS and branch-level
20 performance in line with the reasoning of the resource-based view. The resource-based view proffers that
21 favourable HR practices lead to enhanced human capital as employees are equipped with the skills and
22 knowledge required for performance. Based on this reasoning, we argue that implemented HPWS would
23 lead to the development of human capital that in turn would augment branch-level performance. For the
24 motivational pathway, we argue that justice climate provides an important mediating mechanism consistent
25 with the social exchange theory that has not been paid attention to in previous studies. HPWS, if
26 implemented fairly leads to a collective perception of organisational justice that generates a justice climate.
27 The justice climate in turn obliges employees to reciprocate organisation with hard work and better
28 performance. In the light of shortcomings identified in the literature and reasoning embedded in social
29 exchange theory and resource-based view, we propose the following hypotheses:
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52 *H6.* Collective human capital mediates the relationship between implemented HPWS and branch
53 performance.
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H7. Justice climate mediates the relationship between implemented-HPWS and branch performance.

2.5 Theoretical Model

The theoretical model of this study is presented in Figure I below, the independent variable is an implemented high-performance work system that contributes to the development of collective human capital and justice climate. The collective human capital and justice climate improves bank branch performance (dependent variable). Whereas collective human capital and justice climate also mediate the relationship between implemented HPWS and branch performance. All relationships proposed in this model are positive.

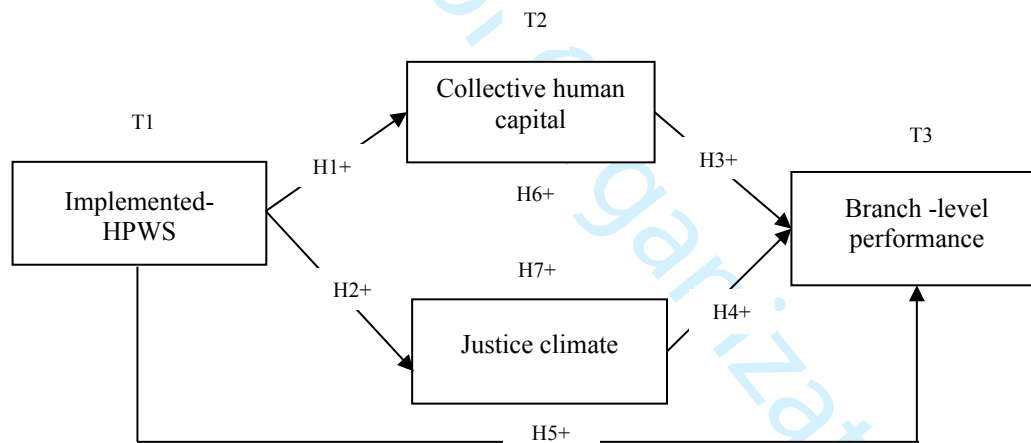


Figure 1: Conceptual model

3. Methods

3.1. Sample and Procedures

Data were obtained from 323 bank branches at three different times (between March to July 2022), in Time 1 (March 2022) with two months intervals between each wave of data collection. A close-ended survey questionnaire related to the implementation of HPWS was distributed to 323 branches of 31 commercial banks operating in Pakistan, which includes 5 public sector, 22 private, and 4 foreign banks with 14881 branches of these banks all over Pakistan (State Bank of Pakistan, 2022). The data for this research is collected from 10 cities of Pakistan (including large and small cities with metropolitan and rural areas). The managers of selected branches in these cities were requested to distribute the survey questionnaires to 5 employees in their branches in the first two waves (T1 and T2), in the third wave (T3) the managers were requested to fill the questionnaires related to bank branch performance by themselves. The survey was self-administered by the research team to collect data from branch managers and employees. A total of 1415 usable responses were collected in T1 with a response rate of 72%. Two months later in May, the second wave of data was collected related to collective human capital and justice climate from the same respondents and a total of 1369 usable responses were collected. Finally, in the third wave, the data about bank branch performance was collected from the branch managers, the questionnaire related to branch performance was distributed in July 2022 (with an interval of two months), and 323 usable responses were received for analysis purposes, thus the final sample from T1, T2, and T3 is 1369 employees of 323 commercial banks of Pakistan. The perceptions towards all constructs were aggregated across bank branches to form the branch-level constructs. An ethical approval was obtained from the ethics committee where the first author works for the collection of data, to ensure informed consent from the respondents and data handling as per the University's ethics policies. Participation in the survey was voluntary and the respondents were free to leave the survey at any stage.

The average branch size was 12.92 employees ($SD = 6.07$), with 133 (41.2%) bank branches having up to 10 employees, 151 (46.7%) having 11-19 employees, and the remaining 39 (12.1%) branches having 20 and above employees. Moreover, bank branches had an average age of 14.03 years ($SD = 11.92$):

(28.4%) branches were up to seven years old, 99 (30.7%) belonged to the category of 8-15 years, 38 (11.8%) were 16-24 years old, and the remaining 62(19.2%) were 25 years old and above. Out of 323 bank branches, 54 (16.7%) branches were public sector ones, and the remaining 269 (86.3%) were bank branches of privately owned banks. In addition, in the case of individual employees, 1067 (77.9%) were male, and 302 (22.1%) were female, while the average age of employees was 29.7 years (SD = 3.41) and their average tenure with the current bank was 5.44 years (SD = 3.33).

3.2. Measures

Implemented-HPWS was measured using a 37-item scale developed by Liao *et al.* (2009) for the service context. This HPWS scale comprises eight practices: extensive service training, information sharing, interdepartmental services, self-managed teams and participation, service discretion, compensation linked with service quality, job design for quality work, and service quality-based performance appraisals. The sample item for this scale was ‘The formal orientation programs to new employees are helpful for them to perform their jobs.’ Bank branch managers were asked to rate the degree to which each of these items was implemented in their branch. We used HPWS as a unitary index to consider it a set of HR practices rather than examining their impact individually (e.g., Huselid, 1995; Ostroff and Bowen, 2000; Takeuchi *et al.*, 2007). Response options ranged from 5 (strongly agree) to 1 (strongly disagree).

Collective human capital was gauged using a 5-item scale by Subramaniam and Youndt (2005). The sample item for this scale was: ‘Our employees working in this branch are creative and bright.’ Response options ranged from 5 (strongly agree) to 1 (strongly disagree).

Justice Climate was measured using a 20-item scale from Niehoff and Moorman’s (1993) study covering distributive (05 items), procedural (06 items), and interactional (09 items) to form overall justice. Sample item included ‘Overall, the rewards employees receive in this branch are quite fair.’ As this research focused on a justice climate, the statements were rewarded to refer to all employees instead of only the individual respondent, and ‘bank branch’ was used as the reference work-unit entity. Response options ranged from 5 (strongly agree) to 1 (strongly disagree). To determine overall justice perceptions of the

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3 branch as climate, an average of justice perception ratings of the individuals across the branches was taken
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5 to form the justice climate construct (Ambrose *et al.*, 2021).
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8 *Bank branch performance* was measured by a 4-item scale developed by Delaney and Huselid (1996)
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10 to measure the relative market performance of bank branches. Branch managers were required to rate the
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12 last three years' performance of their own branch by comparing it with their nearby competitors. The items
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14 in this scale focused on marketing performance, growth in sales, accounting profitability, and market share.
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16 Although researchers always showed concerns about subjective measures, it is still appropriate to use
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18 subjective measures for branch performance for many reasons (Delaney and Huselid, 1996). For instance,
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20 researchers reported that objective performance information of individual work units is very difficult or
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22 even sometimes impossible to obtain (Gupta, 1987; Gupta and Govindarajan, 1984, 1986). Next, Wall *et*
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24 *al.* (2004) reported: (a) a positive association between subjective and objective performance measures; (b)
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26 those relationships were stronger compared to the relationships between measures of different facets of
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28 performance using the same method; and (c) the subjective and objective measures showed equivalent
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30 relationships with a range of predictor variables (p. 95). Besides this, extensive precedents for using
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32 subjective performance measures exist in the literature (e.g., Aryee *et al.*, 2012; Delaney and Huselid, 1996;
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34 Takeuchi *et al.*, 2007). Response options ranged from 5 (much better) to 1 (much worse).
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40 **3.3. Control Variables**

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42 In this study, we controlled the effects of branch size (number of employees), branch age, ownership type
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44 (public or private), and average employee tenure with the current branch (Takeuchi *et al.*, 2007).
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50 **3.4. Data Aggregation**

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52 To empirically justify branch-level data aggregation in the case of justice perceptions, the calculation of
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54 within-group-agreement (rwg) and intra-class correlation coefficients (ICCs) was also done as a
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56 prerequisite for data aggregation. The rwg value for aggregated fairness perceptions was 0.90, greater than
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3 the acceptable cut-off level of 0.70 (George, 1990). Additionally, the value of intra-class correlation
4 coefficients i.e., ICC (1) and ICC (2) were 0.373 and 0.922 respectively ($F=12.89, p < .001$). The value of
5 ICC (1) exceeded the acceptable level of 0.12 (Glick, 1985; James, 1982) and the value of ICC (2) was also
6 higher than the standard cut-off value of 0.70 (Glick, 1985), justified the aggregation of justice perceptions
7 to branch-level.
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13 14 15 16 17 **4. Results**

18 This study employed a partial least square structural equation model (PLS-SEM) using Smart-PLS to assess
19 the hypothesized relationships of the study. This data analysis approach has several advantages over other
20 techniques, including conventional regression analysis and covariance-based SEM. It is less restrictive
21 about data assumptions like the normality of data and its capability to handle complex theoretical models
22 (Hair *et al.*, 2014). Bootstrapping (with 5000 resamples) was used to generate standard errors and t-statistics
23 to test the study's proposed relationships.
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34 35 **4.1. Measurement Model**

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37 Prior to hypotheses testing, the measurement model was assessed to ensure the reliability and validity of
38 the key variables of the study. Tables I and II show the results of construct reliability convergent and
39 discriminant validity of latent constructs of the study. As shown in Table I, Cronbach's alpha and composite
40 reliability values were well above the acceptable value of .70 (Hair *et al.* 2009), which established the
41 reliability of the scales used in this study. Next, the average variance extracted (AVE) scores of all the
42 constructs exceeded the cut-off value of .50, which ensured the convergent validity of the constructs
43 (Henseler *et al.*, 2009).
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55 **Table I.** Mean, standard deviation (SD), reliability, and average variance extracted (AVE) scores.
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Constructs	Mean	SD	Cronbach's Alpha	Composite Reliability (CR)	AVE
HPWS	3.92	.50	.89	.91	.57
Collective Human Capital	3.89	.67	.84	.89	.62
Justice Climate	3.75	.49	.95	.96	.55
Branch Performance	4.06	.59	.79	.86	.61

Table II reports the results of the discriminant validity of the variables. According to the Fornell and Larcker (1981) criterion, the square root of AVE for each construct should be greater than its correlation scores with the other constructs, which is well achieved in this study. Recently, a novel approach known as the Heterotrait-monotrait (HTMT) ratio of correlations proposed by Henseler *et al.* (2015) has also been used because the Fornell and Larcker (1981) criterion may not adequately assess discriminant validity in many research situations. According to this approach, the HTMT ratio value must be less than .85. In the case of this study, discriminant validity is well established using both approaches, as reported in Table II.

Table II. Discriminant validity: Fornell and Larcker criterion and Heterotrait-Monotrait Method (HTMT)

	1	2	3	4
1. HPWS	.75	.76	.44	.44
2. Collective Human Capital	.66	.78	.37	.42
3. Justice Climate	.42	.34	.74	.14
4. Branch Performance	.39	.34	0.12	0.78

Note: Diagonal and bold are the square roots of the AVE. Below the diagonal are the correlation values between the variables. Above the diagonal are HTMT values

4.2. Hypotheses Testing

Table III shows the standardized path coefficient of the relationships among the study variables. The relationships between implemented-HPWS and collective human capital ($\beta = .67$, $t = 17.76$; H1), implemented-HPWS and justice climate ($\beta = .42$, $t = 8.55$; H2), collective human capital and branch performance ($\beta = .16$, $t = 2.01$; H3) justice climate and branch performance ($\beta = .11$, $t = 2.03$; H4) and HPWS and branch performance ($\beta = .32$, $t = 3.07$; H5) were statistically significant. Overall, these results empirically support all the direct relationships proposed in the study.

Table III. Results of direct effects

Relationships	β	t-value	F square	Decision
HPWS → Collective Human Capital	.67	17.76	.81	Supported
HPWS → Justice Climate	.42	8.55	.21	Supported
Collective Human Capital → Branch Performance	.16	2.01	.12	Supported
Justice Climate → Branch Performance	.11	2.03	.09	Supported
HPWS → Branch Performance	.32	3.07	.16	Supported

4.3. Mediation Analysis

The final hypothesis of the study claims that collective human capital (H6) and justice climate (H7) mediate the relationship between implemented HPWS and branch performance, respectively. Mediation effects of collective human capital and justice climate were simultaneously tested. The bootstrapping approach was used as being nonparametric resample procedure that retests the mediation effects in thousands of subsamples. This approach calculates confidence intervals for the significance of mediation effects, which does not require the assumption of normal distribution of sample to be fulfilled and is considered a more robust statistical technique to measure the effects of mediation. The results of the mediation analysis are presented in Table IV. These results revealed that the mediating role of collective human capital ($\beta = .08$, $t = 2.04$; H5) and justice climate ($\beta = .03$, $t = 1.99$; H6) was significant. Further, the confidence interval

results, as presented in Table IV, also validated the mediation effects of both the proposed mediators. Moreover, as the direct relationship between HPWS and branch performance ($\beta = .32$, $t = 3.07$) was also significant, therefore both the collective human capital and justice climate partially mediated the relationship between implemented HPWS and branch performance. Overall, these results showed that the collective human capital and justice climate act as complementary mediators for the relationship between implemented HPWS and branch performance.

Table IV. Results of Mediation Analysis

Relationships	β	t-value	Confidence Intervals		Decision
			Lower Level CI	Upper Level CI	
Direct Effect (HPWS → Branch Performance)	.31	3.07	.26	.53	Supported
Total Indirect Effect	.13	1.98	.03	.21	Supported
Total Effect	.44	5.83	.26	.53	Supported
HPWS → Collective HumCap → Branch Performance	.09	2.04	.02	.22	Partial Mediation
HPWS → Justice Climate → Branch Performance	.04	1.99	.02	.08	Partial Mediation

Moreover, the coefficient of determination (R^2), the cross-validation redundancy (Q^2) of dependent variables due to independent variables, and the variance inflation factor (VIF) for multicollinearity between variables were also calculated and presented in Table V. The R square values were .45, .18, and .17 for collective human capital, justice climate, and branch performance. Further, Q^2 values were also measured using the blindfolding procedure in PLS-SEM to determine the predictive relevance of all the independent variables over the dependent variables (Chin, 1998). The Q^2 values for collective human capital, justice climate, and branch performance were .27, .09, and .10, respectively, which were larger than 0, showing that all predictors possess predictive relevance over the outcome variables (Fornell and Cha, 1994). Further,

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all the VIF values were below 3.3, indicating no that no issue of collinearity between the variables of the study (Kock and Lynn, 2012).

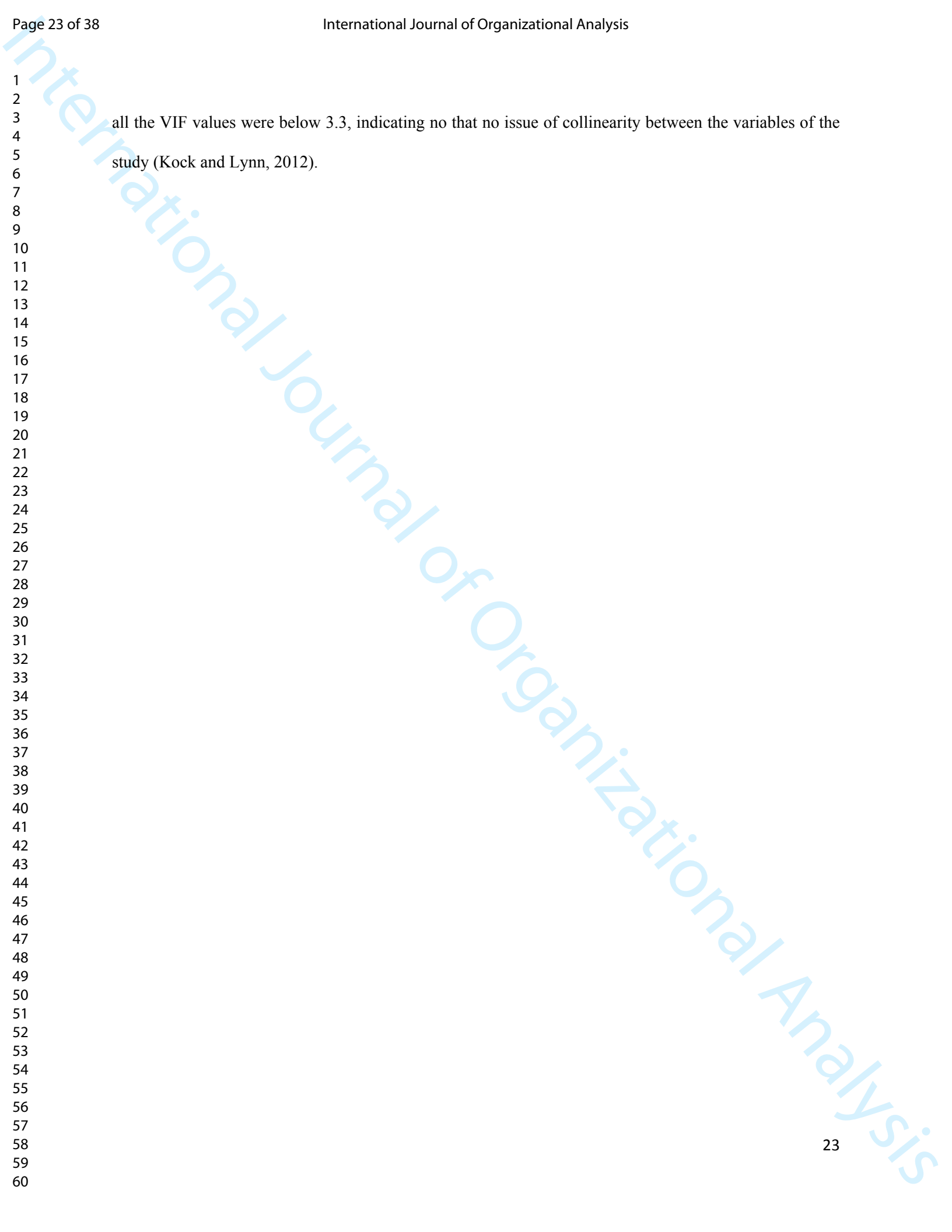


Table V. R square and Q square values

	R square	Q square	VIF
HPWS			2.71
Collective Human Capital	.45	.27	2.43
Justice Climate	.18	.09	2.54
Branch Performance	.17	.10	

5. Discussion and Contributions

The current study brings new insights to the literature by empirically testing the impact of implemented HPWS on branch-level performance through two important mediating mechanisms human capital and justice climate. The findings of the current study respond to different research calls that emphasise examining implemented HPWS and simultaneous testing of intermediary mechanisms between HPWS and performance (see Wattoo, Zhao et al. 2020, Phuong and Ngan 2023, Valizade, Cook et al. 2023, Jiang *et al.*, 2013; Raineri, 2017). The findings of the study suggest that implemented HPSW has a positive impact on branch-level performance, however, this impact is transmitted through two key mechanisms. One, the HPWS helps organisations to develop collective human capital as the implementation of HPWS nurtures a culture in which employees feel a conducive environment in which they develop their knowledge, skills, and attitudes needed for enhanced performance (Javed, Khan, Michalk, Khan, & Kamran, 2023; Zhou, Fan, & Son, 2019). Such new skills gained by the employees are not only due to their learning tendencies, rather the acquisition of such skills and knowledge is due to high-performance practices including impactful training, the reward for competencies development, recognition, and promotional opportunities for the employees with enhanced skills. Since it is the result of an overall high-performance system rather than individual inclination, it develops a collective human capital for the organisations that in turn leads to higher performance at the branch level. The cumulative effect of the enhanced branch-level performance leads to an overall improvement in organisational performance (Siddique, Procter, & Gittel, 2019). The variation

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3 in the branch-level performance would also offer important indications to the top management that the
4 implementation of HPWS may not be uniform across branches and thus the management needs to take
5 corrective measures for the implementation of the HPWS across different branches in a more
6 comprehensive way. The findings also underscore the importance of the resource-based view that advocates
7 the pivotal role of internal assets including knowledge, skills, attitudes, and competencies in shaping
8 organisational performance that eventually leads to the establishment of sustained competitive advantage
9 (Collins, 2021).
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18 In addition, the findings suggest that the second mediating path that connects HPWS with branch-level
19 performance is through the social exchange mechanism (i.e. justice climate). The current study goes beyond
20 the dominant literature that generally links HPWS with individual-level perceptions about favourable
21 organisational initiatives (Heffernan and Dundon, 2016; Liu et al., 2018; Salin and Notelaers, 2020; Wu
22 and Chaturvedi, 2009), By conceptualising justice climate as a linking mechanisms between HPWS and
23 branch-level performance, the study not only extends HPWS literature by introducing important social
24 exchange route towards performance but also expound how climate level variables translate system level
25 initiatives (i.e. HPWS) into branch-level performance. While the findings of the current study are aligned
26 with the existing literature that acknowledges social exchange as an important motivational mechanism
27 between HPWS and performance (Mahdi, Liao, et al. 2014, Dorta-Afonso, González-de-la-Rosa et al.
28 2021), it further elaborates the link by introducing justice climate in this line of reasoning. Based on the
29 results, we argue that HPWS encompasses various high-commitment HR practices including effective
30 appraisal, reward, and recognition policies that shape a climate featured with fairness. This justice climate
31 puts employees under a moral obligation to reciprocate to the organisation with heightened effort and
32 commitment that improves their performance at individual and collective levels. Thus, the current study
33 makes up for deficiencies in the previous literature by offering a theoretically more plausible model where
34 implemented systems instead of intended systems are focused.
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5.1 Contributions to the Theory

As indicated in the preceding discussion section, the study offers several contributions to the literature in terms of extending theoretical understanding as well as employing rigorous methods that may be replicated in future studies. Firstly, it integrates the two pathways (i.e. motivational and human capital pathways) in "implemented HPWS-performance" literature thus going beyond the existing literature that generally focuses on a single pathway or intended HPWS. Secondly, the current study not only tested two important pathways in implemented HPWS but also introduced two collective-level intermediary mechanisms (collective human capital and justice climate). By introducing two collective mediating variables, the current study goes beyond the existing literature that generally revolves around individual-level mediating mechanisms. Thirdly, the current study adds fresh insight to the extant literature by testing the implemented HPWS, instead of the intended HPWS. Arguably, the implemented HPWS offers a more precise measure for examining the HPWS-performance relationship. Fourthly, the current study offers methodological refinement by investigating the HPWS-performance relationship in bank branches. The previous studies generally used data from different departments as work units (Cao et al., 2020; Jo et al., 2020). Branches, compared with departments, are financially and operationally more independent units. Since each branch is a separate profit centre, studying implemented HPWS in branch-like settings is more relevant. The current study offers guidelines for future studies in the selection of the target population for studying this phenomenon. Fifthly, this research contributes to HPWS-performance literature by bringing evidence from developing countries like Pakistan. Lastly, the current study used a rigorous and robust method where multisource data from 323 bank branches were collected. Most of the branch/unit-level studies in this domain used single-sourced data with a small sample size generally less than 200 branches (see Behraves et al., 2020; Dastmalchian et al., 2020; Ehrnrooth et al., 2023). The current study design and the sample present more generalizable findings based on a reasonably large sample size. Thus, the current study offers a holistic conceptualization to examine the implemented HPWS by integrating two important pathways in a large sample size with multisource, multi-wave data contributing to HPWS, strategic HRM, and organisational justice streams of literature.

5.2 Implications for Practice

The findings of this study also have significant implications for practitioners and policy makers, particularly in the banking sectors in developing countries. The results of this research indicate that implemented HPWS has direct and indirect effects on bank branch performance. It enhances branch performance by increasing the collective human capital of bank branches and their members' aggregated justice perceptions in the form of a justice climate. Therefore, organisations need to bridge the gap between the intended HPWS and the implemented HPWS. In large organisations with multiple branches across different regions, the intended practices may largely vary from the implemented practices in different branches. If an organisation wishes to benefit from its HR system, it needs to ensure that the implemented HPWS enhances the work unit's human capital and collective fairness perceptions. In this regard, the barriers to implementing HPWS at the branch level must be overcome by rigorous training for the branch managers focused on the implementation of the desired practices. Further, the managers need to realize that HPWS should offer an enabling environment where collective human capital can flourish. In this regard, specific targets for human capital development for each branch may be used to measure branch performance instead of relying solely on the finances of the branch. Such targets to develop the competencies of branch employees would motivate branch managers to act more strategically instead of only focusing on immediate financial results. Similarly, managers should realize that the HPWS can only translate effectively into performance when employees have a collective perception of fairness. To inculcate a justice climate, the HR departments should train branch managers to identify and address potential sources of perceived inequality. Further, the organisation should use different communication tools to send a message to employees that rewards are fairly distributed, and procedures are uniformly applied at the organisation as well as branch level. This research study has also highlighted the role of line managers in the enactment of HR practices (Gilbert *et al.*, 2011; Sanders and Frenkel, 2011) in bank branches, and therefore the HR professionals of an organisation need to work closely with line managers to ensure the effective implementation of its intended HR policies to benefit from its HR system (Purcell and Hutchinson, 2007).

5.3. Limitations and Future Research Directions

The study offers valuable contributions to literature, yet it has some limitations, like all other research studies. First, the findings may have inferential limitations because of their cross-sectional design. Thus, future studies with a longitudinal design would be needed to authenticate the causal relationship. Second, this study used a sample from bank branches. Therefore, the findings should be generalised to other sectors with care. Similar studies should therefore be conducted in different industrial and cultural settings to verify the findings of this study. Future studies may also use some relevant boundary conditions to examine their potential role.

Last, this study has used subjective measures of branch performance because of the difficulties in obtaining objective performance metrics (Gupta, 1987). Even though Wall *et al.* (2004) reported the construct, convergent, and discriminant validity of relative performance, these performance measures do not capture the dollar change associated with the degree of change in HPWS; they limit the practical significance of HPWS (Huselid, 1995). Future researchers are therefore needed to bring into play objective parameters for performance.

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