

Detrimental Effect of the Characteristic-Human-Capital-Inputs-Based Horizontal Pay Dispersion on Team Member Work Role Performance via Employee Benign and Malicious Envy: An Evidence from China

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Purpose: Pay for employee characteristic human capital inputs, which results in part of horizontal pay dispersion (HPD) and is well acknowledged by organizations and employees, has been greatly ignored by scholars. This study proposes “the characteristic-human-capital-inputs-based HPD” and explores what impact it tends to exert on team member work role performance (TMWRP), why, and when. Drawing on social comparison theory, goal-setting theory, and self-regulatory depletion theory, we develop a dual-mediation model elaborating the detrimental effect of this type of HPD on TMWRP from the perspective of employee benign and malicious envy and test it using objective and subjective data of 364 members coming from 65 Chinese ordinary employee teams.

Methods: We on-site collected objective data including each member's pay level, outcome performance, and characteristic human capital inputs. Using five-point Likert rating method, team supervisors were requested to evaluate each member's TMWRP and members were asked to self-rate benign and malicious envy. Hierarchical regression analysis, simple slope analysis, and bootstrapping approach were employed to verify the model.

Results: The characteristic-human-capital-inputs-based HPD adversely affects TMWRP by reducing employee benign envy (the mediating effect = -0.053 , 95% CI = $[-0.111, -0.002]$, excluding 0) and enhancing employee malicious envy (the mediating effect = -0.025 , 95% CI = $[-0.059, -0.004]$, excluding 0). The positive linkage between employee benign envy and TMWRP is only observed in lower-paid employees (the simple slope = 0.145 , $p < 0.05$). Employee pay level does not moderate the relationship between malicious envy and TMWRP ($\beta = -0.033$, $p > 0.10$).

Conclusion: The characteristic-human-capital-inputs-based HPD, which involves the HPD part mainly resulting from employee differences in characteristic human capital inputs, tends to impair TMWRP through inhibiting employee benign envy and promoting employee malicious envy. Employee pay level is an important boundary condition constraining the positive effect of benign envy on TMWRP.

Keywords: the characteristic-human-capital-inputs-based HPD, team member work role performance, employee benign envy, employee malicious envy, employee pay level

Introduction

As organizational structures become flat and team prevails within organizations,¹ more and more horizontal pay comparisons take place among employees who are in the same hierarchy or perform similar jobs within a team. Horizontal pay dispersion (HPD), which refers to the result of the above horizontal pay comparisons,² has gradually become a non-negligible factor that profoundly influences employee behaviors. Organizational practitioners are particularly eager to know the potential effects of HPD on employees' team-oriented behaviors which are key to team effectiveness and organizational performance as organizational work systems become increasingly dynamic, uncertain, complex, and task-interdependent.

Scholars up to now have explored HPD's impacts on employee effort and engagement,^{3–5} workforce productivity,⁶ firm's financial performance,⁷ innovation performance,⁸ trust,⁹ affective commitment and turnover,¹⁰ motivation,¹¹ and behavioral performance.¹² However, these studies have not reached unanimous conclusions. Taking the possible effect of HPD on employee effort for example, some researchers failed to find empirical evidence of positive or negative impact,^{3,4} whereas, other researchers revealed that as HPD becomes larger, employee effort goes up and employee sabotage behavior turns stronger.⁵

It is the specific shaping basis of pay dispersion that largely determines the consequences of pay dispersion.^{6,12–14} As for HPD, however, only several studies exploring its specific shaping basis.^{6,11,12} Specifically, Kepes et al took drivers as sample and examined the moderation of performance- or politically based pay on the relationship between HPD and workforce productivity. They found that when larger HPD is attributable to performance-based pay, it is positively related to workplace productivity; when larger HPD is attributable to politically based pay, it is negatively related to workplace productivity.⁶ Uriesi investigated the motivational effect of HPD in a sample of employees working in companies that implement pay for performance program and revealed a positive effect of HPD on employee motivation.¹¹ Zhang et al directly proposed “performance-based HPD” and confirmed that organizations could obtain benefits from its positive influences on employee benign envy and team member work role performance.¹² These studies contribute greatly to clarifying the inconsistent findings of HPD effects.

Besides performance and political shaping bases, employee characteristic human capital inputs, such as gender, age, seniority, education, marital status, and professional or skill title, based on which most Chinese organizations usually pay to employees, are the main source of HPD.^{6,15,16} Nevertheless, almost no study pays attention to the characteristic-human-capital-inputs shaping basis. Undoubtedly, this is inconsistent with its legitimacy in organizational pay distribution. Our study targets this legitimate shaping basis of HPD and seeks to explore its potential effect on team member work role performance (TMWRP), which integrates employee team-oriented behaviors with proficiency, adaptivity, and proactivity and has gradually replaced the traditional view of employee performance under the increasingly dynamic, uncertain, complex, and task-interdependent context.^{17,18} We attempt to address the following research problems: What impact does the HPD part largely resulting from employee differences in characteristic human capital inputs tend to exert on TMWRP? Why? And when?

Based on the characteristic-human-capital-inputs shaping basis of HPD, we put forward “the characteristic-human-capital-inputs-based HPD” and defines it as the HPD part primarily arising from employee differences in characteristic human capital inputs. In answer to Shaw's call,¹⁹ we seek to explore what effect “the characteristic-human-capital-inputs-based HPD” tends to exert on TMWRP, why, and when from the perspective of employee benign envy and malicious envy, which are employees' main emotional-reactions towards HPD and are very rampant in the workplace. Drawing upon social comparison theory, goal-setting theory, self-regulatory depletion theory, and relevant research on envy, we posit that the characteristic-human-capital-inputs-based HPD tends to harm TMWRP by reducing employee benign envy and enhancing employee malicious envy. Moreover, employee pay level is an important boundary condition for the positive effect of employee benign envy on TMWRP and the negative effect of employee malicious envy on TMWRP. The dual-mediation model we construct is illustrated in [Figure 1](#). Data of employee pay, outcome performance, and characteristic human capital inputs, which was on-site collected from human resource managers, and data of employee benign/malicious envy and TMWRP, which was scale-evaluated by 364 members and 65 supervisors of Chinese ordinary employee teams from the non-listed enterprises, governments, and other organizations, basically support it.

Our study contributes to previous literature mainly in four ways. First, it concentrates on the characteristic-human-capital-inputs shaping basis of HPD, takes employees' new behavioral demands requested by the increasingly dynamic, uncertain, complex, and task-interdependent organizational work systems (ie, TMWRP) into consideration, and examines the potential effect of the characteristic-human-capital-inputs-based HPD on TMWRP, why, and when, which may be one of the pioneers in HPD effects research. Second, it unravels a dual mediating-process between the characteristic-human-capital-inputs-based HPD and TMWRP from a new perspective of employee benign and malicious envy, which makes progress in the mediating mechanism research of pay dispersion effects. Third, it distinguishes the benign and malicious attributes of employee envy and confirms that as employee benign envy becomes stronger, TMWRP level goes up, which provides evidence for the positive side of employee envy and gives employee envy a more holistic and balanced

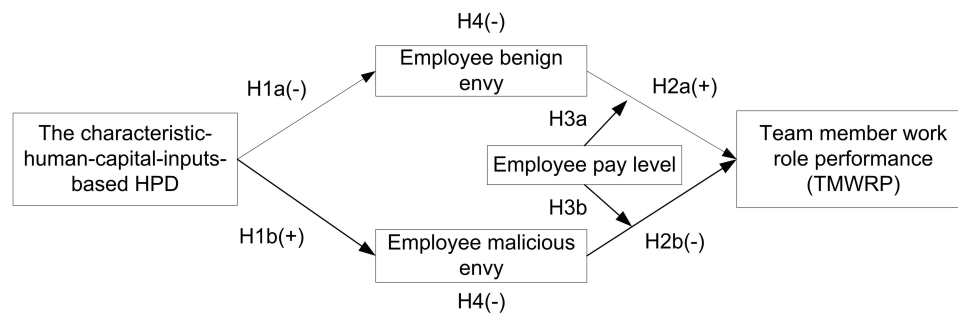


Figure 1 A dual-mediation model.

Notes: H1a, H1b, H2a, H2b, H3a, H3b, and H4 represent the hypotheses our study develops to address the research problems: What impact will the characteristic-human-capital-inputs-based HPD exert on team member work role performance (TMWRP)? Why? And when?

treatment. Finally, it diversifies research samples and improves the practical applicability of research conclusions through focusing on ordinary employee teams in the non-listed enterprises, governments, and other organizations rather than previous sports teams and top management teams in the listed enterprises.

The remainder of the paper is structured as follows. Section “Theoretical Background and Hypotheses” proposes “the characteristic-human-capital-inputs-based HPD” and develops a dual-mediation model theoretically addressing our research problems. Section “Method” describes sample and procedure, measurement, and statistical analysis. Section “Results” reports hypotheses testing results. Section “Discussion” discusses research findings, theoretical implications, practical implications, and limitations and suggestions for future research.

Theoretical Background and Hypotheses

The Characteristic-Human-Capital-Inputs-Based HPD

Up to now, no consistent conclusion has been reached on pay dispersion’s performance effect.¹⁹ Scholars speculate that lack of scientific classification of pay dispersion is a possible reason.^{13,19,20} Therefore, they are actively exploring new types of pay dispersion. For example, to secure employee productivity-relevant inputs, Trevor et al disentangled pay dispersion into “the explained pay dispersion” and “the unexplained pay dispersion”;²⁰ after integrating the performance/non-performance shaping bases and the vertical/horizontal comparison directions, Downes and Choi suggested four categories of pay dispersion, ie, the performance-based HPD, the performance-based vertical pay dispersion, the non-performance-based HPD, and the non-performance-based vertical pay dispersion.¹³ Scholars’ efforts in exploring new types of pay dispersion not only break the existing research’s long stagnation in the traditionally “horizontal/vertical” classification, but also reflect their firm determination to ascertain pay dispersion’s performance effect through meaningful classification of pay dispersion and keen sense that specific shaping basis could powerfully explain the essence of pay dispersion effects.

HPD refers to pay gap, pay disparity, pay dispersion, pay inequality, or pay range among employees within the same hierarchy or performing similar jobs. Employee differences in performance, skill, competency, knowledge, seniority, and political behavior,^{13,21} or employee distinctions in characteristic human capital inputs, such as gender, age, seniority, education, marital status, and professional or skill title,¹⁵ are the main shaping bases of HPD. Certainly, supervisors’ favoritism, random decisions, and calculating error could result in HPD as well. As we discussed previously, the extant literature has dedicated attention to exploring the performance shaping basis of HPD.^{6,11,12} However, the characteristic-human-capital-inputs shaping basis which is as legitimate as the performance shaping basis is unexplored yet. Obviously, scholars’ ignorance of the characteristic-human-capital-inputs shaping basis fails to match the prevalence, legitimacy, and significance of pay for employee characteristic human capital inputs in organizational pay distribution.

Our study exactly targets the characteristic-human-capital-inputs shaping basis of HPD and puts forward “the characteristic-human-capital-inputs-based HPD”. We define this new type of HPD as the HPD part mainly resulting from individual-level differences in employee characteristic human capital inputs. Given that it is the specific shaping basis that determines what kind of emotions employees are likely to react to HPD and what effect HPD tends to exert on

employee behaviors and organizational performance,^{6,12–14,19} this new type of HPD can not only help our study ascertain the potential effect of HPD on TMWRP but also facilitate our study to uncover the black box from the perspective of employee emotional reactions towards HPD.

Effects of the Characteristic-Human-Capital-Inputs-Based HPD on Employee Benign and Malicious Envy

Employee envy, which refers to a kind of painful feeling employees experience when they observe that coworkers possess something important to self-concept whereas they do not have it,^{22,23} is very rampant in the workplace. “Pain” at others’ good fortune in workplace unfavorable comparison is central to the concept of employee envy. This painful feeling will upset the envious employees’ psychological balance and trigger their motivation to employ action strategies at their disposal to restore the imbalance. The envious employees may adopt the challenge-oriented action strategy, which focuses on raising the self, or the threat-oriented action strategy, which concentrates on undermining the envied employees. According to functional approach to emotions and emotion appraisal theory,^{24,25} employee envy can be subdivided into benign envy and malicious envy, which distinct with each other in emotional components, motivations, and action tendencies.^{26–28} Specifically, employee benign envy is more related to positive emotions, such as affection, admiration, and pride, which will motivate the envious employees to acquire comparative advantage and trigger their challenge-oriented actions focusing on self-improvement, whereas, employee malicious envy is more associated with negative emotions like ill will, hostility, and inferiority, which will propel the envious employees to reduce the gap and activate their threat-oriented actions focusing on pulling the envied ones down from superior position.^{26,28}

Since employee benign/malicious envy and the characteristic-human-capital-inputs-based HPD share the commonality of social comparison among similar employees, we could adopt social comparison theory and relevant research on envy to infer the possible effects of the characteristic-human-capital-inputs-based HPD on these two subtypes of employee envy. In the view of social comparison theory,²⁹ employees tend to compare themselves with similar ones in domains important to self-concept,³⁰ self-evaluation need as well stimulates employees to compare with others as frequently as possible.²⁹ When social comparison results make them feel that their self-concept is threatened, envy will occur.^{31,32} Hence, comparing with similar coworkers in domains important to employee self-concept and being disadvantaged in social comparison are the two main conditions that could engender employee envy. According to the definition of the characteristic-human-capital-inputs-based HPD and the main arguments of social comparison theory, we posit that, the characteristic-human-capital-inputs-based HPD what our study is interested in does exactly meet the above two important conditions. First, the characteristic-human-capital-inputs-based HPD is exactly the comparison result of employee pay level, which is one kind of domain important to employee self-concept,³³ among team members, who have great similarities and undertake similar jobs within the same hierarchy. Second, as employees tend to engage in “upward” comparison of pay level,²⁹ they do not have comparative advantage in pay comparison. Therefore, the characteristic-human-capital-inputs-based HPD tends to lead to employee envy.

As for the specific impacts of the characteristic-human-capital-inputs-based HPD on employee benign and malicious envy, it is necessary to make inferences comprehensively based on the legitimacy or deservedness of pay for employee characteristic human capital inputs and employees’ perceived control over unfavorable pay comparison.³⁴ As aforementioned, in addition to employee performance, employee characteristic human capital inputs, such as gender, age, seniority, education, marital status, and professional or skill title are important factors determining what pay level employees could obtain in most Chinese organizations.¹⁵ They are well acknowledged and universally accepted by organizations and employees. Due to the high legitimacy of pay for employee characteristic human capital inputs, employees’ higher pay level stemming from their higher investment of characteristic human capital inputs tends to be perceived as deservedness. However, on the one hand, employee gender is innate and employee age and seniority naturally change over time, on the other hand, education level and professional or skill title, although controllable, are usually difficult to change, which together lead to most employees’ lower perception of control over unfavorable pay comparison. In the situation of larger characteristic-human-capital-inputs-based HPD, despite that employees, who are eager to change their unfavorable pay comparison by improving education level and professional or skill title, greatly

admire other employees' higher pay level resulting from higher investment of characteristic human capital inputs, the admiration may be hampered due to their lower perception of control over unfavorable pay comparison and may in turn weaken their challenge-oriented action tendency which aims at self-improvement. Thus, the characteristic-human-capital-inputs-based HPD is more likely to inhibit employee benign envy. Meanwhile, for employees who deem it difficult to raise education level or have professional promotion, although they covet other employees' higher pay level resulting from higher investment of characteristic human capital inputs, their inability to change unfavorable pay comparison by their own is more likely to incur hostility towards other employees who have comparative advantage and may thereby lead them to think that, if it is difficult to alleviate the pain caused by unfavorable pay comparison through self-improvement, then it is a feasible way to reduce pain through harming the envied employees. Therefore, the characteristic-human-capital-inputs-based HPD is more likely to promote employee malicious envy. Accordingly, we put forward Hypotheses 1.

Hypothesis 1: The characteristic-human-capital-inputs-based HPD tends to inhibit employee benign envy (Hypothesis 1a) and promote employee malicious envy (Hypothesis 1b).

Effects of Employee Benign/Malicious Envy and Pay Level on TMWRP

As a kind of emotion, envy was viewed as pain at others' good fortune by early Greek philosophers; research in neuroscience has as well validated that envy could activate the anterior cingulate cortex in brain which is related to pain.³⁵ Thus, Tai et al claimed that sensation of pain is the common element of benign envy and malicious envy.²⁷ It is well established in behavioral sciences that human beings instinctively seek pleasure and avoid pain.³⁶ Hence, as employees' main emotional-response to unfavorable comparison in the workplace and a source of employee cognitive tension,³⁷ workplace envy will motivate the envious employees to adopt some action strategies at their disposal to avoid pain.³⁸ Nevertheless, since employee benign envy and malicious envy differ sharply in emotional elements, motivations, and action tendencies, they may lead to divergent behavioral consequences.

When employee benign envy is elicited, the benignly envious employees usually have affection and admiration towards the envied employees and are more likely to seek an opportunity from unfavorable social comparison to alleviate pain. They tend to primarily focus on self-challenge and will take full advantage of the opportunity to build comparative advantage by goal-setting.^{26,39} It is exactly the "upward" motivation and the "challenge-oriented" action tendency embedded in employee benign envy. We wonder, whether the upward motivation and the challenge-oriented action tendency could exert impact on TMWRP and what impact. As mentioned above, along with the increasingly dynamic, uncertain, complex, and task-interdependent organizational work settings, "TMWRP", which integrates employee team-oriented behaviors with proficiency, adaptivity, and proactivity, has challenged the traditional view of employee performance.¹⁷ In detail, employee performance tends to no longer rely on to what extent individual employee assumes her/his responsibilities prescribed in the stable job description, but greatly depends on whether she/he could effectively cooperate with other members, whether she/he could successfully adapt to all kinds of changes occurring inside and outside the team, and whether she/he could actively put forward suggestions improving team effectiveness.^{12,17} Therefore, team member proficiency which describes to what extent individual employee effectively cooperates with others as a team member, team member adaptivity which depicts to what extent individual employee successfully adapts to all kinds of changes taking place inside and outside the team, and team member proactivity which reflects to what extent individual employee actively proposes suggestions improving team effectiveness have gradually become organizations' expected employee behaviors. In this case, the upward motivation and the challenge-oriented action tendency embedded in employee benign envy will guide the envious employees to directly target team member behaviors with proficiency, adaptivity, and proactivity which are desired by organizations and thereby will promote TMWRP through goal-setting.³⁹ Accordingly, we propose Hypothesis 2a.

Hypothesis 2a: Employee benign envy is positively related to TMWRP.

When employee malicious envy is triggered by unfavorable social comparison, the maliciously envious employees usually harbor ill will towards the envied ones and are more likely to view unfavorable comparison as a pure threat since it threatens the envious employees' self-concept or fails to satisfy their self-evaluation need. The threat then incurs hostility and further leads to strong revenge motivation to undermine the envied employees.²³ Since social norms do not allow employees to publicly exhibit malicious envy,²² they often use indirect actions to covertly harm the envied ones, such as reducing communication and cooperation with the envied ones, not helping the envied ones,⁴⁰ and expressing schadenfreude when the envied ones encounter obstacles in work.⁴¹ These covert, indirect behaviors primarily correspond to employees' team member proficiency, which is one dimension of TMWRP and describes to what extent individual employee effectively cooperates with others as a team member. Accordingly, we predict that employee malicious envy tends to hamper employee team-oriented behaviors with proficiency. This inference is consistent with the extant evidence that envy predicts the envious ones' possibility to hurt the envied ones,²³ hostility toward the envied ones,³⁰ schadenfreude,⁴¹ counter-productive behavior targeted at the envied ones,⁴² and some unethical behaviors, such as dishonest conducts,⁴³ overstating accomplishments,⁴⁴ and moral disengagement and social undermining.⁴⁵

In terms of the potential effects of employee malicious envy on employee team-oriented behaviors with adaptivity and proactivity, which are the other two dimensions of TMWRP, we mainly draw on self-regulatory depletion theory and relevant research on cognitive consequences of envy to make scientific speculation. Specifically, to adapt to environment, individuals tend to devote their limited attention and memory resources to specific features of particular situation,⁴⁶ thus, employee malicious envy, which is as well the maliciously envious employees' self-balancing emotion adaptively reacting to unfavorable pay comparison with other members, may lead them to devote attention and memory resources, which are mainly the lower-order cognitive resources, to information-processing related to the envied ones.³³ The maliciously envious employees' "excessive" attention to and memory of the envied ones' information will naturally deplete their higher-order self-regulation resources, which are necessary for complex tasks, such as team member behaviors with adaptivity and proactivity under the increasingly dynamic, uncertain, and complex organizational work settings, and ultimately will hamper the completion of complex tasks. Hence, we predict that employee malicious envy tends to weaken employee team-oriented behaviors with adaptivity and proactivity.

Taken the above arguments together, we state that employee malicious envy tends to weaken TMWRP through reducing employee team-oriented behaviors with proficiency, adaptivity, and proactivity. Despite that almost no study directly explores the potential relationship between employee malicious envy and TMWRP, Tai et al's inference about the negative impact of envy with ill will (ie, malicious envy) on individual performance provides evidence to support our prediction.²⁷ Hence, we propose Hypothesis 2b.

Hypothesis 2b: Employee malicious envy is negatively related to TMWRP.

We have so far discussed the potential effects of employee benign envy and malicious envy separately on TMWRP. Next, we seek to speculate the potential boundary condition that tends to restrict the effects. As discussed earlier, our study aims at exploring the potential effect of characteristic-human-capital-inputs-based HPD, which is one important feature of organizational pay system, on employee emotions (ie, employee benign and malicious envy) and behavioral performance as a team member (ie, TMWRP). Other features of organizational pay system such as employee pay level may influence the behavioral consequences of employee benign and malicious envy.¹⁰ We thus focus on employee pay level and argue that it may moderate the relationships between employee benign/malicious envy and TMWRP. The detailed explanations are as follows.

Employee pay level generally signals the focal employees' (dis)advantaged position in pay comparison, such that the lower the focal employees' pay level within a team is, the more disadvantage they have in pay comparison. If unfavorable pay comparison has elicited employee benign envy, pay comparison disadvantage with lower pay level will strengthen the benignly envious employees' challenge-oriented action tendency, enhance their motivation to set goals for team-oriented behaviors with proficiency, adaptivity, and proactivity which are eagerly expected by organizations, and promote their TMWRP ultimately. The lower the benignly envious employees' pay level is, the more disadvantage they have in pay comparison, the stronger their challenge-oriented action tendency within benign envy

and goal-setting motivation of team-oriented behaviors are, and the higher their TMWRP level becomes. Conversely, the higher the benignly envious employees' pay level is, the more advantage they have in pay comparison, which will reduce their challenge-oriented action tendency embedded in benign envy, weaken their goal-setting motivation of team-oriented behaviors, and decrease or even erase the positive effect on TMWRP. Hence, we posit that employee pay level tends to moderate the linkage between employee benign envy and TMWRP, such that when employee pay level is lower, employee benign envy promotes TMWRP. So, we propose Hypothesis 3a.

Hypothesis 3a: Employee pay level tends to moderate the relationship between employee benign envy and TMWRP, such that the positive relationship exists in employees with lower pay level.

If unfavorable pay comparison has triggered the focal employees' malicious envy, pay comparison disadvantage incurred by lower pay level will enhance the maliciously envious employees' threat-oriented action tendency, which focuses on pulling down the envied ones from superior comparison position. It is no doubt that the threatening behaviors will deplete the focal employees' self-control resources and will be detrimental to TMWRP which entails self-control resources. The lower the maliciously envious employees' pay level is, the stronger their threat-oriented action tendency embedded in malicious envy is, and the more serious the detrimental effect of threatening behaviors on TMWRP becomes. Conversely, the higher the maliciously envious employees' pay level is, the more advantage they have in pay comparison, which will alleviate their threat-oriented action tendency and reduce the detrimental effect of threatening behaviors on TMWRP. Thus, we predict that employee pay level is likely to moderate the relationship between employee malicious envy and TMWRP, such that when employee pay level is lower, employee malicious envy weakens TMWRP, which is summarized as Hypothesis 3b.

Hypothesis 3b: Employee pay level tends to moderate the relationship between employee malicious envy and TMWRP, such that the negative effect exists in employees with lower pay level.

Dual Mediation of Employee Benign and Malicious Envy

Based on Hypotheses 1, which predicts the possible effects of the characteristic-human-capital-inputs-based HPD on employee benign and malicious envy, and Hypotheses 2a and 2b, which separately infer the potential relationships between employee benign/malicious envy and TMWRP, we further argue that the characteristic-human-capital-inputs-based HPD is likely to inhibit TMWRP by weakening employee benign envy and strengthening employee malicious envy. Put differently, employee benign and malicious envy may play dual mediating roles in the negative linkage between the characteristic-human-capital-inputs-based HPD and TMWRP, which could be generalized as Hypothesis 4. Kim et al's study which discovered the mediation of employee (malicious) envy in the relationship between leader-member exchange and employee work engagement,⁴⁷ Shu and Lazatkhani's survey which found that employees with lower leader-member exchange tend to experience (malicious) envy and ultimately have lower level of organizational citizenship behavior,⁴⁸ and Zhang et al's investigation which revealed that performance-based HPD is more likely to enhance TMWRP via employee benign envy provide indirect evidence of our prediction.¹²

Hypothesis 4: The characteristic-human-capital-inputs-based HPD tends to reduce TMWRP by weakening employee benign envy and strengthening employee malicious envy.

Method

Sample and Procedure

Recently, the existing literature of pay dispersion effects research presents an apparent sample shift from sports teams and top management teams in the listed enterprises to ordinary employee teams in the non-listed enterprises and other organizations, which makes research samples more diversified and representative.^{12,15} Correspondingly, data collection shows a growing preference for the combination of objective and subjective data, which breaks through the heavy-reliance of previous studies on the publicly available data. The above two trends indeed facilitate the maturity of pay dispersion effects research, but at the same time make empirical research more difficult. First, unlike the listed

enterprises, the non-listed enterprises and other organizations do not need to disclose employee pay data and usually carry out pay confidentiality policy, therefore, researchers cannot obtain employee pay data from the non-listed enterprise and other organizations as easily as from the listed enterprises. They have to go to the field to collect individual-level pay data of ordinary employees in the non-listed enterprises and other organizations, which indicates the huge difficulty of objective data collection. Second, due to the overreliance on publicly available data, a large number of studies have investigated the main and moderating effects of pay dispersion whereas research on the mediating effect is stagnant and has urgent need for innovation,¹⁹ thus, researchers have to adopt scale-appraisal to acquire employee attitudes or behaviors data that could explain pay dispersion effects when they on-site collect employee pay data, which suggests the great difficulty of subjective data collection.

Due to the above difficulties of data collection, particularly the huge difficulty of objective data collection, we employed convenience sampling method to obtain our research sample. Specifically, based on our team's long-term collaboration with companies, governments, and other organizations, we recruited 82 ordinary employee teams with 511 members in the non-listed enterprises, governments, and other organizations at first. Then, we went to the chosen teams to collect objective data of employee pay level (year t-1), outcome performance (year t-2), and characteristic human capital inputs (year t-2) including gender, age, seniority, education, marital status, and professional or skill title from human resource managers. Simultaneously, we adopted questionnaire-survey to acquire subjective data of employee benign/malicious envy (year t) and TMWRP (year t). Specifically, using five-point Likert rating method (1=strongly disagree, 5=strongly agree), each team supervisor was requested to evaluate her/his subordinates' TMWRP (year t) one by one and each member was asked to self-rate benign and malicious envy (year t) in the workplace. It took a total of 6 months to complete the field-survey and questionnaire-survey.

Because of the missing objective data or the mismatch between team members' objective data and subjective data, we deleted 17 teams. Finally, we got valid data of 364 members within 65 ordinary employee teams from the non-listed companies, governments, and other organizations. Of 65 teams, 23.077%, 21.538%, 20.000%, 10.769%, and 24.616%, respectively, came from education sector, sales sector, governments, manufacturing sector, and other sectors. The average team scale was 6 members. As shown in Table 1, of 364 members, 51.923% were male, 93.132% had completed vocational college or university, 72.527% were married, and 63.736% were below 36 years old; with respect to seniority, 73.626% reported no more than 10 years; regarding professional or skill title, 11.539% were at senior-level.

Measurement

The Characteristic-Human-Capital-Inputs-Based HPD

The characteristic-human-capital-inputs-based HPD (year t-1) at individual level is our study's independent variable. Based on Trevor et al's decomposing process to estimate "the explained pay dispersion" and "the unexplained pay dispersion",²⁰ we at first run regression analysis of employee characteristic human capital inputs (year t-2) on employee pay level (year t-1), and then bring employee characteristic human capital inputs (year t-2) into the regression equation to estimate employee characteristic-human-capital-inputs-based pay level (year t-1). Through calculating the difference value between employee characteristic-human-capital-inputs-based pay level (year t-1) and the average characteristic-human-capital-inputs-based pay level (year t-1) of the team where the focal employee is in,^{12,49} we ultimately get the estimate of each member's characteristic-human-capital-inputs-based HPD (year t-1).

TMWRP

TMWRP (year t) is the dependent variable. We measure it using Griffin et al's nine-item scale,¹⁷ which has been validated by Zhang et al in the Chinese context.¹² Each team supervisor was requested to rate her/his subordinates' TMWRP level (1=strongly disagree, 5=strongly agree). The Cronbach alpha for this nine-item scale (see in Appendix) is 0.879.

Employee Benign and Malicious Envy

Each member's benign envy (year t) and malicious envy (year t) are the hypothesized mediators. Drawing on envy scale developed by Lange and Crusius in English,³¹ we adapted it to workplace comparison situations and then back-translated the adapted items between English and Chinese to ensure the accuracy.⁵⁰ We as well took a pilot survey (N=125) to gain

Table 1 Characteristics of the Sample (N=364)

Variable	Value	N	Ratio (%)
Gender	Male	189	51.923
	Female	175	48.077
Education	High school or below	25	6.868
	Vocation college	116	31.868
	Undergraduate in university	118	32.418
	Graduate in university	105	28.846
Age	<25 years	28	7.692
	25–30 years	141	38.736
	31–35 years	63	17.308
	36–50 years	110	30.220
	>50 years	22	6.044
Marital status	Married	264	72.527
	Single	100	27.473
Seniority	<2 years	47	12.912
	2–5 years	147	40.385
	6–10 years	74	20.330
	11–20 years	58	15.934
	>20 years	38	10.440
Professional or skill title	Assistant	140	38.462
	Intermediate	182	50.000
	Associate senior	38	10.440
	Full senior	4	1.099

the formal items, of which the results suggested good reliability and validity of the adapted ten items. In our formal survey (N=364), these ten adapted measuring items of employee benign and malicious envy were self-evaluated by each member using five-point Likert rating method (1=strongly disagree, 5=strongly agree). The Cronbach alphas for these two five-item scales separately of employee benign envy and malicious envy (see in [Appendix](#)) are 0.831 and 0.931.

Employee Pay Level

Employee pay level (year t-1) is the hypothesized moderator. We measure it by the logarithm of each member's annual pay level (year t-1),^{10,12} which was on-site collected.

Control Variables

As HPD's shaping bases such as employee performance and political behavior are confirmed to be associated with employee behaviors and performance,^{6,11,12} we control performance-based HPD (year t-1) and others-based HPD (year

t-1) when analyzing the potential effects of the characteristic-human-capital-inputs-based HPD on employee benign/malicious envy and TMWRP.

Performance-based HPD refers to the HPD part primarily resulting from employee performance differences whereas others-based HPD involves the HPD part arising from employee differences neither in performance nor in characteristic human capital inputs. Based on the data of employee outcome performance (year t-2) and employee pay level (year t-1), we use the same estimating method of characteristic-human-capital-inputs-based HPD (year t-1) to obtain the estimate of performance-based HPD (year t-1). We subtract employee characteristic-human-capital-inputs-based pay level (year t-1) and employee performance-based pay level (year t-1) from employee pay level (year t-1) to get the estimate of employee others-based pay level (year t-1), and then calculate the difference value between each member's others-based pay level (year t-1) and the average others-based pay level (year t-1) of the team to obtain the estimate of others-based HPD (year t-1).

Additionally, due to that our research sample came from different sectors, we control for sector type, for which 1, 2, 3, 4, and 5 represent education sector, government, sales sector, manufacturing sector, and other sectors respectively.

Statistical Analysis

We primarily adopt hierarchical regression analysis with SPSS, simple slope analysis with EXCEL, and bootstrapping approach with MPLUS to verify our hypotheses. To ensure the reliability and validity of empirical data used to test hypotheses, we at first run reliability analysis, descriptive statistics, and correlation analysis with SPSS and confirmatory factor analysis (CFA) with MPLUS.

Results

Reliability and Validity Analysis

As aforementioned, employee benign envy, employee malicious envy, and TMWRP are subjectively evaluated using scale-appraisal. The corresponding scales' Cronbach alphas are 0.831, 0.931, and 0.879, which suggest good reliability. Table 2 presents CFA fit results of our hypothesized three-factor model and its possible, alternative two-factor and one-factor models, which show that the hypothesized three-factor model (ie, Model "M₁, M₂, Y") has a satisfactory fit ($\chi^2(24) = 49.196$, $\chi^2/df = 2.050$, CFI=0.987, TLI=0.981, RMSEA=0.054, SRMR=0.030) and is significantly superior to alternative models at 0.001 level. Table 3 summarizes the results of mean, standard deviation, correlation coefficient, AVE, square root of AVE, and CR, which suggest that AVE values all exceed 0.500,⁵¹ none of the correlation coefficients (ie, -0.002, 0.417, and -0.188) exceed the corresponding AVE square roots (ie, 0.801, 0.901, and 0.834),⁵² and CR values (ie, 0.843, 0.928, and 0.872) all exceed 0.700.⁵³ Thus, employee benign envy, employee malicious envy, and TMWRP have good reliability and validity.

Table 2 Fit Results of Confirmatory Factor Analyses (N=364)

Model	χ^2	DF	χ^2/DF	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2(\Delta DF)$
M ₁ , M ₂ , Y	49.196	24	2.050	0.987	0.981	0.054	0.030	–
M ₁ +Y, M ₂	391.590	26	15.061	0.816	0.745	0.197	0.112	342.394(2)***
M ₁ , M ₂ +Y	647.410	26	24.900	0.686	0.566	0.256	0.203	598.214(2)***
M ₁ +M ₂ , Y	940.376	26	36.168	0.539	0.361	0.311	0.202	891.180(2)***
M ₁ +M ₂ +Y	1245.379	27	46.125	0.385	0.180	0.352	0.214	1196.183(3)***

Notes: ***p<0.001. Model "M₁, M₂, Y" is the hypothesized three-factor model; Models "M₁+Y, M₂", "M₁, M₂+Y", and "M₁+M₂, Y" are the possible, alternative two-factor models; Model "M₁+M₂+Y" is one-factor model. All Chi-square differences of two-factor models and one-factor model are based on the Chi-square of three-factor model. M₁, M₂, and Y respectively represent employee benign envy, employee malicious envy, and team member work role performance. χ^2 , DF, CFI, TLI, RMSEA, and SRMR respectively represent Chi-square, degree of freedom, comparative fit index, Tucker-Lewis index, root mean square error of approximation, and standardized root mean square residual. $\Delta\chi^2$ and ΔDF separately represent Chi-square difference and degree difference of freedom.

Table 3 Results of Mean, Standard Deviation, Correlation Coefficient, AVE, Square Root of AVE, and CR (N=364)

	1	2	3	4	5	6	7	8
1.C ₁	1.000							
2.C ₂	0.121*	1.000						
3.C ₃	-0.365**	0.255**	1.000					
4.M ₀	-0.189**	0.605**	0.837**	1.000				
5.X	-0.378**	0.270**	0.595**	0.580**	1.000			
6.M ₁	0.150**	0.083	-0.182**	-0.059	-0.168**	1.000		
7.M ₂	-0.071	-0.004	-0.186**	-0.098	0.018	-0.002	1.000	
8.Y	0.068	0.114*	-0.003	0.062	-0.007	0.417**	-0.188**	1.000
M	3.049	-1.153	-0.086	4.859	-0.029	3.985	2.013	4.088
SD	1.708	2.031	0.447	0.206	0.262	0.616	0.923	0.438
AVE						0.642	0.811	0.695
Square Root of AVE						0.801	0.901	0.834
CR						0.843	0.928	0.872

Notes: **p<0.01; *p<0.05. C₁-C₃ separately represent sector type, performance-based HPD, and others-based HPD. M₀, X, M₁, M₂, and Y respectively represent employee pay level, the characteristic-human-capital-inputs-based HPD, employee benign envy, employee malicious envy, and team member work role performance.

Abbreviations: M, mean; SD, standard deviation; AVE, the average variance extraction; CR, the composite reliability.

Descriptive Statistics and Correlation Analysis

The results of correlation coefficient in Table 3 suggest that the characteristic-human-capital-inputs-based HPD is not significantly associated with employee malicious envy ($r=0.018$, $p>0.05$) and TMWRP ($r=-0.007$, $p>0.05$), but is negatively related to employee benign envy ($r=-0.168$, $p<0.01$). TMWRP is positively associated with performance-based HPD ($r=0.114$, $p<0.05$) and employee benign envy ($r=0.417$, $p<0.01$), whereas, it is negatively related to employee malicious envy ($r=-0.188$, $p<0.01$). Employee benign envy and employee malicious envy are not significantly related ($r=-0.002$, $p>0.05$).

Hypotheses Testing Results

We mainly adopt hierarchical regression analysis with SPSS to test Hypotheses 1, 2a, 2b, 3a, and 3b, of which the results are reported in Tables 4 and 5. As the biggest variance inflation factor, ie, 7.623, is well below 10, Models 1–9 do not have serious collinearity problem.⁵⁴

Hypothesis 1 posits that the characteristic-human-capital-inputs-based HPD (X) tends to inhibit employee benign envy (Hypothesis 1a) and elicit employee malicious envy (Hypothesis 1b). As shown in Model 2, after controlling for the potential influences of sector type (C₁), performance-based HPD (C₂), others-based HPD (C₃), and employee pay level (M₀) on employee benign envy, the characteristic-human-capital-inputs-based HPD (X) is significantly, negatively related to employee benign envy ($\beta=-0.303$, $p<0.10$), which indicates that as the characteristic-human-capital-inputs-based HPD becomes larger, the level of employee benign envy goes down, and thereby supports Hypothesis 1a. Similarly, as shown in Model 4, the characteristic-human-capital-inputs-based HPD (X) is significantly, positively related to employee malicious envy ($\beta=0.466$, $p<0.05$), which suggests that the larger the characteristic-human-capital-inputs-based HPD is, the stronger employee malicious envy becomes, and thereby provides empirical evidence of Hypothesis 1b. Hence, Hypothesis 1 is established.

Table 4 Results of Regression Analyses on Employee Benign and Malicious Envy (N=364)

Predictor Variables	Employee Benign Envy		Employee Malicious Envy	
	Model 1	Model 2	Model 3	Model 4
Intercept	3.934(0.074)***	-0.624(2.048)	2.310(0.110)***	-3.992(3.046)
C ₁	0.024(0.020)	0.009(0.021)	-0.098(0.030)***	-0.087(0.031)***
C ₂	0.038(0.017)**	0.006(0.024)	0.040(0.025)	-0.024(0.035)
C ₃	-0.262(0.080)***	-0.500(0.164)***	-0.567(0.120)***	-1.129(0.244)***
M ₀		0.933(0.416)**		1.267(0.619)**
X		-0.303(0.157)*		0.466(0.234)**
R ²	0.055***	0.075**	0.064***	0.088**
F	6.965***	5.789***	8.163***	6.886***

Notes: ***p<0.01; **p<0.05; *p<0.10. The regression coefficients are unstandardized with standard errors in parentheses. C₁-C₃ separately represent sector type, performance-based HPD, and others-based HPD. M₀ and X respectively represent employee pay level and the characteristic-human-capital-inputs-based HPD. F represents F-statistic. R² represents coefficient of determination.

Table 5 Results of Regression Analyses on TMWRP (N=364)

Predictor Variables	Team Member Work Role Performance (TMWRP)				
	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	4.080(0.055)***	2.987(1.370)**	1.176(1.415)	2.405(1.476)	0.239(2.068)
C ₁	0.012(0.015)	0.007(0.014)	0.008(0.014)	0.001(0.015)	0.000(0.015)
C ₂	0.025(0.012)**	0.013(0.016)	0.007(0.016)	0.012(0.017)	0.009(0.017)
C ₃	-0.006(0.066)	0.059(0.111)	-0.031(0.111)	-0.203(0.121)*	-0.242(0.124)*
X	-0.029(0.114)	0.049(0.106)	-0.006(0.104)	0.004(0.114)	0.007(0.114)
M ₀		-0.021(0.280)	0.327(0.288)*	0.386(0.301)	0.832(0.424)*
M ₁		0.301(0.035)***	0.325(0.035)***		
M ₂				-0.099(0.026)***	-0.102(0.026)***
M ₀ ×M ₁			-0.090(0.022)***		
M ₀ ×M ₂					-0.033(0.022)
R ²	0.016	0.184***	0.220***	0.058***	0.064
F	1.494	13.419***	14.312***	3.655***	3.461***

Notes: ***p<0.01; **p<0.05; *p<0.10. The regression coefficients are unstandardized with standard errors in parentheses. C₁-C₃ separately represent sector type, performance-based HPD, and others-based HPD. M₀, X, M₁, and M₂ respectively represent employee pay level, the characteristic-human-capital-inputs-based HPD, employee benign envy, and employee malicious envy. F represents F-statistic. R² represents coefficient of determination.

Abbreviation: TMWRP, team member work role performance.

Hypothesis 2a predicts that employee benign envy (M₁) tends to be beneficial to TMWRP whereas Hypothesis 2b posits that employee malicious envy (M₂) tends to be detrimental to TMWRP. Results of Models 6 and 8 suggest that employee benign envy (M₁) is significantly, positively related to TMWRP ($\beta=0.301$, $p<0.01$), which supports Hypothesis 2a, and employee malicious envy (M₂) is significantly, negatively related to TMWRP ($\beta=-0.099$, $p<0.01$), which

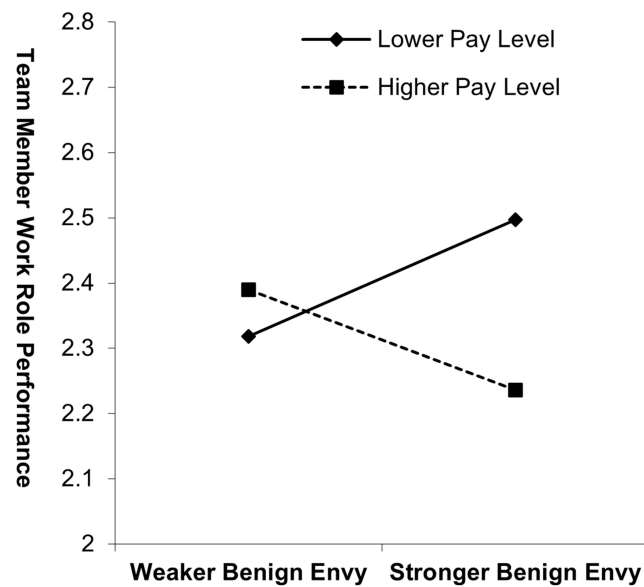


Figure 2 The moderation of employee pay level on the relationship between employee benign envy and team member work role performance.

supports Hypothesis 2b. Thus, employee benign envy is more likely to strengthen TMWRP whereas employee malicious envy tends to weaken TMWRP.

Hypothesis 3a proposes a potential moderation of employee pay level (M_O) on the relationship between employee benign envy and TMWRP ($M_1 \rightarrow Y$), which predicts that the positive linkage exists in employees with lower pay level. As shown in Model 7, the product term of M_O and M_1 (ie, $M_O \times M_1$) is significantly related to TMWRP ($\beta = -0.090$, $p < 0.01$), which provides initial support for Hypothesis 3a. We further do a simple slope analysis with EXCEL,⁵⁵ of which the results are depicted in Figure 2. Specifically, when employee pay level is lower (ie, 1 SD below the mean), the simple slope of employee benign envy regressed on TMWRP is significantly positive (the simple slope = 0.145, $t = 2.175$, $p < 0.05$), whereas, when employee pay level is higher (ie, 1 SD above the mean), the corresponding simple slope is not significant (the simple slope = -0.125 , $t = -0.968$, $p > 0.10$). Hence, Hypothesis 3a is empirically established.

Hypotheses 3b raises a potential moderation of employee pay level (M_O) on the relationship between employee malicious envy and TMWRP ($M_2 \rightarrow Y$), which posits that for lower-paid employees, their malicious envy is more likely to reduce their TMWRP. As shown in Model 9, the product term of M_O and M_2 (ie, $M_O \times M_2$) is not significantly related to TMWRP ($\beta = -0.033$, $p > 0.10$). Therefore, Hypothesis 3b is not established.

Hypothesis 4 puts forward a dual-mediation that employee benign envy and employee malicious envy simultaneously play mediating roles in the negative linkage between the characteristic-human-capital-inputs-based HPD and TMWRP. As aforementioned, we mainly adopt bootstrapping approach (sample size = 5000) with MPLUS to verify Hypothesis 4, of which the results are summarized in Table 6.

Table 6 Results of Dual Mediation of Employee Benign/Malicious Envy

Bootstrapping	Estimate	Boot SE	LL 95% CI	UL 95% CI
Mediation of employee benign envy	-0.053	0.028	-0.111	-0.002
Mediation of employee malicious envy	-0.025	0.014	-0.059	-0.004
Dual mediation	-0.078	0.033	-0.145	-0.018
Mediation Difference	-0.028	0.030	-0.089	0.027

Note: Bootstrapping sample size = 5000.

Abbreviations: SE, standard error; LL, lower limit; UL, upper limit; CI, confidence interval.

As shown in Table 6, the indirect effect of the characteristic-human-capital-inputs-based HPD on TMWRP via employee benign envy is significant ($\beta=-0.053$, Boot SE=0.028, 95% CI=[-0.111, -0.002], excluding 0), the indirect effect of the characteristic-human-capital-inputs-based HPD on TMWRP via employee malicious envy is significant ($\beta=-0.025$, Boot SE=0.014, 95% CI=[-0.059, -0.004], excluding 0), the dual mediation of employee benign and malicious envy in the relationship between the characteristic-human-capital-inputs-based HPD and TMWRP is significant ($\beta=-0.078$, Boot SE=0.033, 95% CI=[-0.145, -0.018], excluding 0) as well. Besides, the mediating effects of employee benign envy and employee malicious envy have no significant difference (the mediation difference estimate=-0.028, Boot SE=0.030, 95% CI=[-0.089, 0.027], including 0). Thus, employee benign envy and employee malicious envy are important dual mediators that together transmit negative influence of the characteristic-human-capital-inputs-based HPD to TMWRP. Accordingly, Hypothesis 4 is established.

Discussion

Research Findings

As organizational work systems are becoming more and more dynamic, uncertain, complex, and task-interdependent and organizational structures are getting flatter, team has been widely adopted, which brings about much more horizontal pay comparisons among team members and makes horizontal pay dispersion (HPD) exert extensive influences on employee behaviors. Meanwhile, team member work role performance (TMWRP) which integrates employee team-oriented behaviors with proficiency, adaptivity, and proactivity has turned to be an important measurement of employee performance due to its key to team effectiveness and organizational performance.^{17,18} Our study is greatly concerned with what impact HPD tends to exert on TMWRP. As almost no study explores pay for employee characteristic human capital inputs, which is universal and of legitimacy in organizational pay system,^{6,15,16} and research on pay dispersion effects entails innovation in mediating mechanism from the perspective of employee emotional reactions towards HPD,¹⁹ our study focuses on the characteristic-human-capital-inputs shaping basis of HPD and employee benign and malicious envy which are employees' common emotional reactions towards HPD. We at first put forward "the characteristic-human-capital-inputs-based HPD", then construct a dual-mediation model that could elaborate what effect the new type of HPD tends to exert on TMWRP, why, and when from the perspective of employee benign and malicious envy drawing upon social comparison theory,²⁹ goal-setting theory,³⁹ and self-regulatory depletion theory.³³ Finally, following two trends emerging in pay dispersion effects research recently, we use employees' individual-level pay data, outcome performance data, and characteristic human capital inputs data, which were on-site collected, and employee benign and malicious envy data and TMWRP data, which were scale-evaluated by 364 members and 65 supervisors of 65 Chinese ordinary employee teams in the non-listed enterprises, governments, and other organizations, to test the dual-mediation model. Our main findings are as follows.

First, the characteristic-human-capital-inputs-based HPD is an important antecedent variable that can effectively predicts not only employee benign envy but also employee malicious envy, such that it tends to inhibit employee benign envy while it promotes employee malicious envy. Second, employee benign envy and employee malicious envy exert divergent influences on TMWRP, such that employee benign envy is likely to strengthen TMWRP whereas employee malicious envy tends to weaken TMWRP. Third, employee pay level is a significant boundary condition of the relationship between employee benign envy and TMWRP, such that benign envy of lower-paid employees tends to positively influence TMWRP. Finally, employee benign envy and employee malicious envy are two important mediators that simultaneously transmit the negative influence of the characteristic-human-capital-inputs-based HPD to TMWRP. Hence, other than Hypothesis 3b, the hypotheses proposed by our study are established.

Regarding the unestablished Hypothesis 3b, which predicts the moderating effect of employee pay level on the relationship between employee malicious envy and TMWRP, we mainly draw on social comparison theory and self-regulatory depletion theory to speculate the detailed moderation. Specifically, the comparison disadvantage of lower-paid employees tends to enhance their threat-oriented action tendency within malicious envy, which in turn on the one hand directly leads to the negative effect of employee malicious envy on team-oriented behaviors with proficiency and on the other hand indirectly causes the adverse influences of employee malicious envy on team-oriented behaviors with

adaptivity and proactivity through extremely excessive attention to the envied ones' information and large depletion of self-regulatory resources entailed by complex job and tasks. It should be noted that our study focuses on employee malicious envy which is primarily triggered by the characteristic-human-capital-inputs-based HPD. Perhaps, it is just the following two factors that combine to result in the insignificant moderating effect of employee pay level on the relationship between employee malicious envy and TMWRP. First, due to that the legitimacy of pay for employee characteristic human capital inputs naturally makes employee malicious envy lack of reasonableness at the root,^{12,15,16} and social norms generally do not allow employees to publicly display malicious envy,²² team members' self-reported malicious envy level is more likely to be lower than the actual level. Second, the maliciously envious members' threat-oriented behaviors are often covert and indirect,^{40,41} thus, each subordinate's TMWRP level that were observed and evaluated by team supervisor may deviate from the actual level, particularly the level of team member proficiency which depicts to what extent team member effectively cooperates with others.

As we mentioned previously, Zhang et al's study is almost the first one to directly explore the potential influence of HPD's specific shaping basis on TMWRP. Careful contrast of our study and theirs, however, shows two important differences which signal our study's new contributions. The first one involves two studies' distinct but complementary research problems. It is well established that the legitimate shaping bases of HPD include employee differences not only in performance but also in characteristic human capital inputs.^{6,12-14} Therefore, research on what effects the performance shaping basis and the characteristic-human-capital-inputs shaping basis of HPD separately exert on TMWRP, why, and when is of great significance and entails large amounts of investigations. Hence, two studies both aim at this significant research topic. However, they are different regarding the concrete research problems, such that Zhang et al's study mainly focuses on the performance shaping basis whereas our study primarily concentrates on the characteristic-human-capital-inputs shaping basis. To some extent, these two studies complement each other well with respect to HPD shaping bases research. Moreover, since pay for employee characteristic human capital inputs, based on which our study puts forward a new type of HPD (ie, the characteristic-human-capital-inputs-based HPD), is of legitimacy but has not been explored in HPD effects research, our study makes progress in HPD classification.

The second difference pertains to two studies' distinct research perspectives, as well as the divergent effects and the different influencing mechanisms they reveal. Although both studies respond to Shaw's call to unravel the black box of pay dispersion effects from the perspective of employee emotional reactions towards HPD,¹⁹ they focus on not-the-same employee emotional reactions and reveal divergent effects and different influencing processes due to the sharply distinct features of these two kinds of HPD shaping bases. Specifically, the performance shaping basis is relatively simple in composition, has more prominent future-orientation and stronger employee perceived control over unfavorable pay comparison, and is legitimate in organizational pay distribution, which together enable Zhang et al' study to find a "positive" effect of performance-based HPD on TMWRP and a "single" mediating mechanism of "employee benign envy" in the above "positive" effect. As for our study, despite that the characteristic-human-capital-inputs shaping basis is legitimate, it not only consists of employee gender, age, and seniority, which are natural and can hardly be changed by human beings, but also includes employee education level and professional or skill title, which can be changed but usually with great difficulty. Moreover, pay for employee characteristic human capital inputs has more prominent past-orientation. Therefore, most employees are inclined to have lower control when the characteristic-human-capital-inputs-based HPD is large. Consequently, the characteristic-human-capital-inputs-based HPD may exert more complicate effects on employee envy and TMWRP, in terms of which our study reveals a "detrimental" effect of the characteristic-human-capital-inputs-based HPD on TMWRP and "dual" mediating mechanisms of employee benign and malicious envy in the above "detrimental" effect.

Theoretical Implications

Our study has the following four theoretical implications. First, it is among the pioneers to focus on pay for employee characteristic human capital inputs which is of legitimacy in organizational pay distribution and one of the main sources of HPD, propose "the characteristic-human-capital-inputs-based HPD" which is a new type of HPD, and explore its potential influence on "TMWRP" which is a new, comprehensive kind of employee performance that can largely reflect employee behavioral demands as a team member under the ongoing dynamic, uncertain, complex, and task-

interdependent working contexts. The specific shaping basis of HPD is universally argued to be essential to HPD's consequences.^{6,11,12} Like the performance shaping basis, organizations and employees widely acknowledge pay for employee characteristic human capital inputs as a legitimate shaping basis of HPD. The extant literature, however, primarily aims at the performance shaping basis of HPD. To our knowledge, our study is the first one to dedicate attention to the characteristic-human-capital-inputs shaping basis of HPD and propose "the characteristic-human-capital-inputs-based HPD" which is a new but effective type that could capture the nature of HPD effects. Besides, as organizational work systems are becoming increasingly dynamic, uncertain, complex, and task-interdependent and team prevails in organizations, employee team-oriented behaviors with proficiency, which primarily respond to the increasingly interdependent work systems, and employee team-oriented behaviors with adaptivity and proactivity, which mainly cope with the growingly dynamic, uncertain, and complex work systems, have become employees' new behavioral requirements. As a new, comprehensive kind of employee performance, however, TMWRP which integrates employee team-oriented behaviors with proficiency, adaptivity, and proactivity has yet to be adequately addressed in terms of its antecedents. To our knowledge, our study is as well the first one to explore the potential effect of "the characteristic-human-capital-inputs-based HPD" on TMWRP. Taken together, our study contributes to HPD classification and the antecedents research of TMWRP.

Second, our study innovates the mediating mechanism of pay dispersion effects from a new perspective of employee benign and malicious envy. Prior research on pay dispersion effects is largely based on the publicly available pay data, which leads to a number of studies on the main and moderating effects but scarce research on the mediating effect. In addition, the existing research on mediating mechanism of pay dispersion effects has been stagnant for a long time in team process variables, such as team conflict, team cohesion, and team efficacy revealed by Ensley et al,^{19,56} which entails innovation from new perspectives, such as employee emotional reactions towards HPD to fully understand HPD effects.¹⁹ Regarding the main research problems that our study seeks to address, ie, what impact "the characteristic-human-capital-inputs-based HPD" tends to exert on "TMWRP", why, and when, according to social comparison theory, goal-setting theory, self-regulatory depletion theory, and relevant research on envy, we develop a dual-mediation model from the perspective of employee benign and malicious envy which are employees' common and main emotional reactions towards HPD. Besides, we test the model using objective and subjective data of 364 members within 65 Chinese ordinary employee teams from the non-listed enterprises, governments, and other organizations. Therefore, our study is to some extent a breakthrough in the mediating mechanism research of pay dispersion effects.

Third, our study distinguishes the benign and malicious attributes of employee envy and enriches the antecedent and consequence research. As employee envy is sometimes more related to affection, admiration, and challenge-oriented action tendency focusing on self-improvement, which largely displays its benign attribute, and is sometimes more associated with hate, hostility, and threat-oriented action tendency aiming at undermining others, which greatly shows its malicious attribute, our study disentangles it into two separate types: employee benign envy and employee malicious envy. We then examine the different effects of "the characteristic-human-capital-inputs-based HPD" on these two sub-types of employee envy to enrich the antecedent research. Additionally, we extend research on employee envy consequences by revealing divergent impacts of benign envy and malicious envy separately on "TMWRP". Particularly, the empirical finding that employee benign envy is positively related to TMWRP provides convincing evidence for the positive side of employee envy rather than merely the negative side, which is beneficial to scientifically understand employee envy.

Finally, our study diversifies research samples and improves the practical applicability of our research conclusions by sample shift from previous sports teams and top management teams in the listed enterprises to ordinary employee teams in the non-listed enterprises, governments, and other organizations, which are huge in number and have more representativeness. Considering the availability of empirical data, prior research mainly chose sports teams and top management teams in the listed enterprises, of which members' pay data is publicly available. Our study selects ordinary employee teams in the non-listed enterprises, governments, and other organizations as research sample and tries our best to overcome the obstacles of on-site collection of objective data such as employee pay data, outcome performance data, and characteristic human capital inputs data and the difficulties of the matched scale-evaluation data like employee benign/

malicious envy data and TMWRP data. Due to the large number of ordinary employee teams in all kinds of organizations, our study not only diversifies research samples of pay dispersion effects but also improves the practical applicability of our research conclusions.

Practical Implications

Our study has the following three practical implications for organizations' decision-making in employee pay distribution and employee envy management. First, organizations should take into account the scientificity and the negative instrumentality of pay for employee characteristic human capital inputs when making employee pay distribution decisions. Pay for employee characteristic human capital inputs is of scientificity since it is in line with the return-on-investment principle of human capital, such that organizations should provide employees with equivalent pay for their human capital investment to work. Besides, pay for employee characteristic human capital inputs is of legitimacy due to its universally acknowledged recognition from organizations and employees.¹⁶ Nevertheless, it is empirically established by our study that the characteristic-human-capital-inputs-based HPD, which involves the horizontal pay comparison result of pay for employee characteristic human capital inputs, is detrimental to TMWRP by weakening employee benign envy and strengthening employee malicious envy. Thus, the negative instrumentality of pay for employee characteristic human capital inputs objectively exists. So, when organizations aim at encouraging or enhancing employee team-oriented behaviors with proficiency, adaptivity, and proactivity, they should weigh the scientificity of pay for employee characteristic human capital inputs against its negative instrumentality to avoid the adverse effect of characteristic-human-capital-inputs-based HPD on TMWRP.

Second, organizations should distinguish between the benign and malicious attributes of employee envy and take differentiated management strategies. Everything has two sides. However, for a long time, research on envy has extremely emphasized its negative consequences and greatly ignored its positive roles. Our study subdivides employee envy into benign envy and malicious envy according to its benign and malicious attributes and confirms that the benign subtype is more likely to promote TMWRP, while the malicious subtype tends to impair TMWRP. So, just like everything else, employee envy has both positive and negative sides. Therefore, it is unwise for organizations to blindly view employee envy in general as a "taboo" or a shameful, socially condemned kind of emotion.⁵⁷ Organizations should carefully observe employee envy and accurately identify whether it is a benign one or a malicious one. If it is the former one, organizations should publicly recognize, support, and encourage it; if it is the latter one, organizations should help employees discharge it.

Third, organizations should pay more attention to lower-paid employees and intensively encourage their workplace benign envy. Pay level is an important domain for employees to define themselves in the society,³³ and pay comparison is also employees' internal need for self-evaluation.²⁹ Although lower pay level often signals that the focal employees are at a disadvantageous comparison position, our study confirms that, for lower-paid employees, if unfavorable pay comparison elicits their benign envy, the inherent upward motivation and the embedded challenge-oriented action tendency will promote their TMWRP. Therefore, organizations who wish to enhance lower-paid employees' TMWRP should particularly adopt measures to activate their benign envy and in turn take full advantage of the challenge-oriented action tendency within this emotion as well as the goal-setting principle to strengthen their team-oriented behaviors with proficiency, adaptivity, and proactivity.

Limitations and Suggestions for Future Research

Our study's first limitation pertains to some flaws of empirical data collection. As aforementioned, the extant literature of pay dispersion effects research presents two trends in terms of sample and data collection, of which one refers to sample shift from sports teams and top management teams in the listed enterprises to ordinary employee teams in the non-listed enterprises and other organizations and the other one involves researchers' preference for a combination of objective and subjective data-collection, such that employee pay data and outcome performance data are more likely to be on-site collected and employee attitudes data and behaviors data tend to be scale-evaluated by employees and supervisors. Surely, following these two trends is necessary for research progress but undoubtedly will confront barriers such as organizational pay confidentiality policy and supervisors' unwillingness to take part in survey. Due to these obstacles, we

adopt convenience sampling method to recruit our research sample and request supervisors to provide approximate rather than accurate employee annual pay data, which together affect the measurement accuracy of “the characteristic-human-capital-inputs-based HPD” and the validity of hypotheses testing results. Hence, future research should improve the above flaws.

Our study’s second limitation pertains to the potential boundary condition that may affect the relationships between employee benign/malicious envy and TMWRP. Some situational factors or individual heterogeneities tend to restrict the effects of employee benign and malicious envy on TMWRP, such as employee pay position,¹² employee dispositional envy,^{23,31} employee core self-evaluation,²⁷ and leader-member exchange relationship.³⁷ Since pay for employee characteristic human capital inputs and employee pay level are two main features of organizational pay system, we focus on the potential effect of characteristic-human-capital-inputs-based HPD on TMWRP and the possible moderations of employee pay level on the relationships between employee benign/malicious envy and TMWRP. To better understand the boundary condition, future research should explore more situational or individual moderators.

Our study’s third limitation involves the non-consideration of cross-cultural differences, which may affect the generalizability of findings. Ordinary employee teams in the non-listed enterprises, governments, and other organizations, which have greater representativeness of teams in current Chinese organizations and can greatly expand the practical applicability of research findings, are our research sample. Besides, the characteristic-human-capital-inputs shaping basis of HPD, which mainly refers to employee differences in gender, age, seniority, education, marital status, and professional or skill title, is based on Chinese organizational pay distribution. These two features reflect the distinctive Chinese characteristics of our study as well as a limitation pertaining to research context. Focusing on the Chinese context without taking cross-cultural differences into account undoubtedly confines the generalizability of findings. Thus, future research should conduct cross-culturally comparative studies to improve the external validity.

Conclusion

With respect to what effect HPD, which is very common along with the prevalence of team in organizations, will exert on team member work role performance (TMWRP), which is an important measurement of employee performance in the ongoing dynamic, uncertain, complex, and task-interdependent work settings, why, and when, our study develops a dual-mediation model from the perspective of HPD’s characteristic-human-capital-inputs shaping basis and employee benign/malicious envy. The objectively and subjectively relevant data of 364 members within 65 Chinese ordinary employee teams from the non-listed enterprises, governments, and other organizations generally supports the model. Specifically, the characteristic-human-capital-inputs-based HPD, which is a type of HPD newly proposed by our study and is defined as the HPD part mainly resulting from employee differences in characteristic human capital inputs, tends to hamper TMWRP through weakening employee benign envy and strengthening employee malicious envy. Employee pay level moderates the relationship between employee benign envy and TMWRP, such that the positive linkage is only observed in lower-paid employees. The potential moderation of employee pay level on the relationship between employee malicious envy and TMWRP is not empirically supported. These findings generally address the research problems with which our study is concerned.

Ethical Statement

Our study was approved by the Human Research Ethics Committee (HREC) at School of Mathematics and Statistics, Xuzhou University of Technology. All procedures involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards with written informed consent from all subjects.

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Disclosure

The authors report no conflicts of interest in this work.

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