www.ijprems.com
editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 01, January 2026, pp : 126-138

e-ISSN : 2583-1062
Impact Factor : 7.001

RELATIVE PAY BAND DEVELOPMENT AS A GOVERNANCE INSTRUMENT FOR ANALYZING COMPENSATION EQUITY DYNAMICS A PRIVACY-PRESERVING INDICATOR FOR STRUCTURAL MONITORING OVER TIME

Tomislav Logara[1]

[1]Independent Researcher.

DOI: https://www.doi.org/10.58257/IJPREMS50931

ABSTRACT

Against the backdrop of increasing demands for transparency, data protection, and employee participation, organizations face growing challenges in monitoring and communicating compensation structures without disclosing sensitive pay information. While research on pay equity extensively differentiates between procedural and distributive justice, practical instruments for observing structural developments over time remain limited. This paper introduces the Relative Pay Band Development (RPBD) as a governance-oriented indicator for analyzing changes in internal compensation structures within defined comparison groups.

Rather than assessing absolute pay levels or individual compensation, the RPBD focuses on the relative dispersion of pay and its development over time. As the indicator relies exclusively on aggregated measures – minimum, maximum, and median pay – it enables structural analysis without revealing individual or confidential information. The paper conceptually anchors the RPBD in theories of organizational justice and discusses its methodological properties with regard to data protection, scalability, social acceptance, and communicability. An illustrative example demonstrates the logic of the indicator and its interpretation.

The RPBD does not provide a normative assessment of pay equity but serves as a monitoring and early-warning instrument for governance processes. The paper concludes with a discussion of limitations and outlines implications for human resource management and co-determination.

1. INTRODUCTION

In contemporary human resource research, the issue of compensation equity plays a central role. A common distinction is drawn between procedural justice and distributive justice. Thibaut and Walker (1975) demonstrated that procedures perceived as transparent, consistent, and fair can strengthen employees' trust in organizational decisions. Adams' Equity Theory (1963) further emphasizes that perceived distributive fairness has a substantial impact on satisfaction, motivation, and organizational commitment.

Despite extensive theoretical engagement with issues of compensation and justice, organizational practice continues to lack instruments that enable the continuous monitoring of compensation structures and their development over time without requiring the disclosure of sensitive pay data. Particularly in co-determined organizations, a structural tension emerges between the legitimate interest in transparency, labor-law and data-protection constraints, and the need to avoid subjective perceptions of injustice and organizational unrest. Against this background, aggregated and relational indicators are gaining importance, as they do not assess absolute pay levels but capture structural changes over time. This is especially relevant in countries where works councils or comparable forms of employee representation are institutionally embedded by law.

This paper introduces the Relative Pay Band Development (RPBD) as such a governance-oriented instrument. Rather than measuring the absolute state of compensation equity at a given point in time, the RPBD analyzes relative changes in pay band dispersion within defined comparison groups over a freely selectable observation interval. In doing so, it enables assessments of convergence, stability, or divergence in compensation structures without disclosing individual pay data, band boundaries, or directly or indirectly identifiable personal information. Conceptually, the RPBD builds on theories of procedural and distributive justice by supporting transparent evaluation logics while simultaneously capturing dynamic aspects of compensation development.

The paper proceeds as follows. First, the conceptual foundations of compensation equity and HR governance are outlined. Next, the methodology of the RPBD is presented and its properties are discussed with regard to data protection, scalability, and social acceptance. An illustrative numerical example is then used to demonstrate the application of the indicator and to highlight organizational adaptability. Finally, the paper discusses the strengths, limitations, and implications of the RPBD for the analysis of compensation equity in organizational contexts.

The RPBD indicator was motivated by recurring governance challenges observed in practice, where transparency demands must be balanced against confidentiality and data protection constraints. Accordingly, it is intentionally designed as a parsimonious and communicable structural metric for monitoring dispersion dynamics over time, rather than as a comprehensive measure of pay equity.

2. THEORETICAL FOUNDATIONS

A. Compensation Equity: Procedural and Distributive Perspectives

The discussion of compensation equity is firmly rooted in organizational and human resource research. Central theoretical reference points are the concepts of procedural justice and distributive justice, which address distinct yet complementary dimensions of compensation equity.

The perspective of procedural justice is largely based on the work of Thibaut and Walker (1975), who demonstrated that individuals perceive processes as fairer when they are designed to be consistent, transparent, and comprehensible, regardless of the specific outcome. Subsequent studies have transferred these insights to organizational contexts and shown that procedural compensation fairness strengthens trust in organizational decisions, fosters acceptance, and reduces conflict (Leventhal, 1980; Colquitt et al., 2001).

By contrast, distributive justice focuses on the fairness of outcomes. Adams' Equity Theory (1963) posits that employees evaluate their own compensation in relation to their contributions (inputs) and outcomes, as well as in comparison to relevant referent others. Perceived inequities may lead to dissatisfaction, reduced motivation, or withdrawal behavior. Empirical studies confirm that distributive justice is particularly associated with job satisfaction and performance motivation (Greenberg, 1987; Colquitt et al., 2001).

For the analysis of compensation systems, it is important to recognize that these two dimensions of justice do not operate independently. Research findings indicate that procedural fairness can partially compensate for negative effects of perceived distributive injustice (Folger & Cropanzano, 1998). Conversely, fair procedures lose their effectiveness when outcomes are persistently perceived as inappropriate or arbitrary. Against this background, compensation equity should be understood less as a static condition and more as a dynamic, relational process that encompasses both the structure of compensation and its development over time.

B. Governance, Transparency, and Data Sensitivity in Compensation Systems

Compensation systems simultaneously function as control instruments, communication media, and cultural signals within organizations. Accordingly, they are increasingly discussed in the context of HR governance, which encompasses formal rules, informal practices, and control mechanisms for guiding human resource–related decisions (Sparrow et al., 2016).

In this context, transparency is often regarded as a prerequisite for perceived fairness. However, empirical studies show that unrestricted transparency of compensation data can have ambivalent effects. While aggregated information may foster trust and comprehensibility, individual pay disclosures frequently trigger social comparison processes, envy, conflict, and increased dissatisfaction (Bamberger & Belogolovsky, 2017). Particularly in heterogeneous or small groups, transparency can intensify unintended social tensions.

At the same time, compensation systems are subject to substantial labor-law, data-protection, and personality-rights constraints that limit the open handling of individual pay data. In co-determined organizations, this results in a structural tension: on the one hand, there is a legitimate interest in control, transparency, and the monitoring of fairness; on the other hand, data protection, confidentiality, and contractual obligations require a restrictive information policy.

Against this background, the literature increasingly refers to aggregated, relational, and time-based indicators that can support governance objectives without disclosing sensitive individual information (Kulik & Ambrose, 1992; Bamberger et al., 2014). Such approaches shift the focus away from absolute pay levels toward structures, relations, and developmental dynamics. In doing so, they address both the requirements of procedural justice – through transparent and consistent evaluation logics – and the practical demands of data-sensitive organizational contexts.

The Relative Pay Band Development (RPBD) introduced in this paper builds on this governance perspective by operationalizing compensation equity not as a normative target but as an observable development within clearly defined comparison groups.

3. RELATIVE PAY BAND DEVELOPMENT (RPBD)

A. Definition and Conceptual Scope

The Relative Pay Band Development (RPBD) is an indicator designed to analyze the temporal development of compensation structures within defined comparison groups. In contrast to indicators that capture absolute pay levels or

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 01, January 2026, pp : 126-138
www.ijprems.com
editor@ijprems.com
e-ISSN : 2583-1062
Impact Factor : 7.001

individual income differences, the RPBD focuses exclusively on relational distances within a group and their change over time.

Conceptually, the RPBD does not aim to provide a normative assessment of compensation equity at a specific point in time. Instead, it addresses how the dispersion of compensation within a comparison group evolves – whether compensation structures converge, remain stable, or diverge. The RPBD thus explicitly positions itself as a dynamic analytical instrument that makes structural changes visible without making statements about the appropriateness of individual pay levels.

This approach reflects a well-established insight in justice research: perceptions of fairness are not based solely on static snapshots but are strongly shaped by changes, trends, and comparative processes over time. The RPBD operationalizes this insight by treating compensation not as an isolated value but as a relational configuration embedded within a social and organizational context.

B. Purpose and Governance Logic

The primary purpose of the RPBD lies in its function as a governance and communication instrument. It is intended to enable organizations to systematically observe developments in compensation structures without disclosing or communicating sensitive individual information. In doing so, the RPBD specifically addresses contexts in which transparency requirements, data protection, and co-determination exist in a structural tension.

From a governance perspective, the RPBD fulfills three central functions.

First, it enables the early identification of divergences in compensation development. An increasing dispersion within a comparison group may indicate structural shifts, unevenly distributed adjustments, or external recruitment effects and can thus serve as a trigger for more in-depth analyses.

Second, the RPBD supports procedural fairness by providing a consistent, transparent, and uniformly applied evaluation logic across all comparison groups. The indicator creates transparency regarding developments rather than individual compensation levels and thereby reduces the risk of social comparison dynamics at the individual level.

Third, the RPBD contributes to the communicative de-escalation of compensation-related discussions. As only relative changes are considered, it becomes possible to discuss trends and developments without disclosing absolute figures, pay band boundaries, or personal data. This enhances the applicability of the indicator in co-determined and data-sensitive organizational contexts. In this sense, the RPBD operationalizes a central governance question: Do compensation relations within defined comparison groups converge, stabilize, or diverge over time, and does this development warrant further, context-specific analysis?

C. Mathematical Derivation and Indicator Logic

The RPBD is based on three statistical measures collected for a defined comparison group and a given observation period. The following variables are used in international notation:

Table 1: Notation and Variables Used for the Relative Pay Band Development

Variable	Description
$MinPay_t$	Lowest compensation within the comparison group in observation period t
$MaxPay_t$	Highest compensation within the comparison group in observation period t
$MedianPay_t$	Median of the compensation distribution within the comparison group in observation period t
t	Current observation period t
$t-1$	Previous observation period t-1

Note. Author, 2025.

The median is deliberately chosen as the reference measure because it is more robust to outliers than arithmetic means and therefore provides a more stable basis for relational comparisons.

The Relative Pay Band Development (RPBD) at time t is defined as:

$$RPBD_t = \frac{MaxPay_t - MinPay_t}{MedianPay_t}$$

Equation (1): $RPBD_t = (MaxPay_t - MinPay_t) / MedianPay_t$

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
www.ijprems.com
editor@ijprems.com
Vol. 06, Issue 01, January 2026, pp : 126-138
e-ISSN : 2583-1062
Impact Factor : 7.001

To analyze development over time rather than an absolute state, the change in the indicator between two observation periods is considered:

$$\Delta RPBD = RPBD_t - RPBD_{t-1}$$

Equation (2): $\Delta RPBD = RPBD_t - RPBD_{t-1}$

The interpretation of the change indicator follows a clear logic:

Table 2: Interpretation of Changes in Relative Pay Band Development (ΔRPBD)

ΔRPBD Value	Dynamics Label	Interpretation
ΔRPBD < 0	Convergence	The pay band narrows; compensation development within the comparison group becomes more consistent
ΔRPBD = 0	Stabilization	The compensation structure remains stable
ΔRPBD > 0	Divergence	The pay band widens; increasing divergence in compensation development emerges

Note. Author, 2025.

Importantly, the RPBD does not indicate whether a compensation structure is fair or unfair. It solely addresses how internal dispersion evolves relative to its own baseline. This keeps the indicator analytically well bounded and avoids normative overextension.

The two-step derivation of the change indicator can be summarized mathematically as follows:

$$\Delta RPBD = \frac{MaxPay_t - MinPay_t}{MedianPay_t} - \frac{MaxPay_{t-1} - MinPay_{t-1}}{MedianPay_{t-1}}$$

Equation (3): $\Delta RPBD = [(MaxPay_t - MinPay_t) / MedianPay_t] - [(MaxPay_{t-1} - MinPay_{t-1}) / MedianPay_{t-1}]$

The derivation above focuses on changes in RPBD between two consecutive observation periods. For retrospective analyses over longer time horizons – for example, to assess structural developments across multiple years – the RPBD can be modeled as a time series. For a sequence of observation periods t = 0, …, n, the RPBD is defined as a time-dependent indicator:

$$RPBD_t = \frac{MaxPay_t - MinPay_t}{MedianPay_t}, \quad t = 0, \ldots, n$$

Equation (4): $RPBD_t = (MaxPay_t - MinPay_t) / MedianPay_t$, for t = 0 … n

This representation allows the internal compensation structure of a defined comparison group to be observed consistently across multiple periods without reference to absolute pay levels.

To provide a compact description of long-term development, the change in RPBD between an initial time point t = 0 and a final time point t = n can be expressed as a cumulative difference:

$$\Delta RPBD_{0 \to n} = RPBD_n - RPBD_0$$

Equation (5): $\Delta RPBD_{0 \to n} = RPBD_n - RPBD_0$

This measure captures the overall convergence or divergence of the pay band across the observation period and is particularly suitable for governance, reporting, and trend analyses.

To ensure comparability across observation periods of different lengths, an average annual change in RPBD can additionally be calculated:

$$\overline{\Delta RPBD} = \frac{RPBD_n - RPBD_0}{n}$$

Equation (6): Average $\Delta RPBD = (RPBD_n - RPBD_0) / n$

This value enables a normalized interpretation as an average annual convergence or divergence rate and is particularly useful for multi-year analyses (e.g., over five or ten years).

All extensions presented here deliberately remain within a descriptive-analytical logic. Even in time-series and trend analyses, the RPBD does not make normative statements about the appropriateness of compensation structures but

exclusively describes their relative development over time. As a result, the indicator remains scalable, comparable, and suitable for governance purposes without crossing data-protection or interpretation-critical thresholds.

4. METHODOLOGICAL PROPERTIES AND APPLICATION AREAS

A. Data Protection and Confidentiality

A central characteristic of the Relative Pay Band Development (RPBD) is its high compatibility with data-protection regulations and employment-contractual requirements, as the indicator is based exclusively on aggregated statistical measures within defined comparison groups. Neither individual compensation figures nor concrete pay band boundaries or personal data are disclosed or communicated. Moreover, the indicator explicitly aims to avoid the communication of pay band limits themselves (e.g., lower and upper boundaries of internal pay bands). This prevents even aggregated boundary values from being used as indirect reference points for individual pay comparisons or inferences.

By focusing exclusively on relative distances and temporal changes, the risk of re-identification of individual persons is largely eliminated. In particular, the use of the change indicator ΔRPBD introduces an additional level of abstraction, as not even absolute pay band widths are considered, but only their development over time. As a result, the analysis remains at a structural level that is unproblematic from a data-protection, labor-law, and communicative perspective.

Against this background, the RPBD is particularly well suited to organizational contexts in which compensation data are considered highly sensitive and disclosures – even in aggregated form – entail significant legal or social risks. The indicator enables transparency regarding developments without creating transparency regarding individual compensation levels.

B. Social, Organizational, and Communicative Acceptance

Beyond legal considerations, the social acceptance of indicators is a decisive factor for their successful application (Burchell et al., 1980). Research on organizational justice shows that compensation indicators are perceived as problematic when they promote personal comparisons, imply individual evaluations, or are interpreted as implicit performance judgments (Greenberg, 1987; Bamberger & Belogolovsky, 2017).

In this respect, the RPBD creates transparency about dynamics rather than concrete compensation levels. What is communicated is solely whether internal dispersion narrows, remains stable, or widens – not where minimum, maximum, or median values lie in absolute terms. This makes it possible to conduct governance-oriented discussions about developmental trends without disclosing sensitive compensation information.

The RPBD deliberately avoids these problematic effects. It refrains from individual attribution and addresses exclusively collective developments within comparison groups. This prevents individual employees from being placed in positions that require justification or that may be perceived as stigmatizing. The indicator does not provide statements about causes, specific responsibilities, or motives underlying compensation decisions, but restricts itself to describing development trends.

This conceptual restraint enhances the organizational applicability of the RPBD. Discussions can focus on whether a development appears plausible and consistent, rather than on who receives which level of compensation or why certain individual deviations exist. In this sense, the RPBD has a de-escalating effect and supports a fact-based discussion of compensation structures.

Methodologically, the RPBD relies on robust and widely established descriptive statistics (minimum, maximum, median, and differences over time). Precisely because the monitoring logic is easy to explain, the indicator can foster trust: developments are observed transparently without giving rise to immediate personal evaluations.

C. Scalability and Application Across Organizational Contexts

Another key advantage of the RPBD lies in its high degree of scalability. The indicator can be applied to comparison groups of varying sizes without altering its methodological logic. In larger groups, it enables the observation of group-level developments, while in smaller units it may function as an individual trend indicator without explicitly disclosing individual compensation figures.

Furthermore, the RPBD is fundamentally applicable across different organizational levels, such as role-based, functional, or qualification-based groups. However, as the heterogeneity of comparison groups increases, so does the risk of misinterpretation. In particular, organization-wide applications may be influenced by structural changes – such as new hires, strategic priority shifts, or external market adjustments – without these effects being directly explainable by the indicator itself.

www.ijprems.com
editor@ijprems.com
INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 01, January 2026, pp : 126-138
e-ISSN : 2583-1062
Impact Factor : 7.001

For organization-wide comparison groups, the RPBD is therefore only conditionally suitable for broad internal communication. The risk of misinterpretation is particularly high because heterogeneity arising from roles, career paths, external recruitment, or strategic shifts may visibly affect the indicator without the underlying causes being discernible from the indicator alone. Accordingly, large-scale applications should primarily be understood as internal monitoring tools for in-depth analyses rather than as simplified communication metrics for the entire workforce.

Against this background, the RPBD is especially well suited to clearly delineated, functionally homogeneous comparison groups. In such contexts, it demonstrates its strength as a robust monitoring instrument that makes developments visible and provides targeted triggers for further analysis. The indicator is not intended as an automated decision mechanism but as an early-warning signal that supports governance processes without replacing them.

5. ILLUSTRATIVE APPLICATION EXAMPLE

A. Data Structure and Assumptions

To illustrate the Relative Pay Band Development (RPBD), a simplified, hypothetical application example is used in the following. The data presented serve exclusively to demonstrate the logic of the indicator and do not allow any conclusions to be drawn about real individuals, organizations, or compensation levels.

The starting point is a clearly delineated comparison group, such as a functionally homogeneous role- or qualification-based group within an organization. For two consecutive observation periods ($t-1$ and t), aggregated compensation information is available, from which the lowest, highest, and median compensation levels of the group can be determined. Individual compensation figures are neither considered nor communicated in the main analysis; in the present example, they are used solely to illustrate the derivation of the aggregated measures.

It is assumed that the composition and task profile of the comparison group do not fundamentally change over the observation period. Any structural effects – such as new hires, promotions, or market-driven adjustments – affect the analysis only through the aggregated indicators and are not modeled separately. These assumptions reflect typical application scenarios within governance-oriented monitoring contexts.

For further illustration, the example is extended to two separate, functionally homogeneous comparison groups (Group A and Group B). For both groups, aggregated compensation indicators are available across multiple observation periods. The objective is to demonstrate how different structural developments, despite comparable initial conditions, are reflected in the RPBD and, in particular, in the change indicator ΔRPBD. The following tables present the underlying data, with MinPay, MaxPay, and MedianPay derived from the individual total compensation values within each comparison group. Individual-level data are not reported in the main analysis.

Table 3: Illustrative Individual Compensation Data Used to Derive Aggregated Metrics (Group A)

Calendar year	Observation	Pay per year	Non-cash benefits	Total
2023	Employee 1	70,000.00 €	- €	70,000.00 €
2023	Employee 2	50,000.00 €	- €	50,000.00 €
2024	Employee 1	77,000.00 €	- €	77,000.00 €
2024	Employee 2	55,000.00 €	- €	55,000.00 €
2024	Employee 3	53,000.00 €	5,000.00 €	58,000.00 €
2025	Employee 1	80,000.00 €	- €	80,000.00 €
2025	Employee 2	60,000.00 €	- €	60,000.00 €
2025	Employee 3	55,000.00 €	5,000.00 €	60,000.00 €

Note. Data shown for illustrative purposes only. Author, 2025.

www.ijprems.com
editor@ijprems.com
INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 01, January 2026, pp : 126-138
e-ISSN : 2583-1062
Impact Factor : 7.001

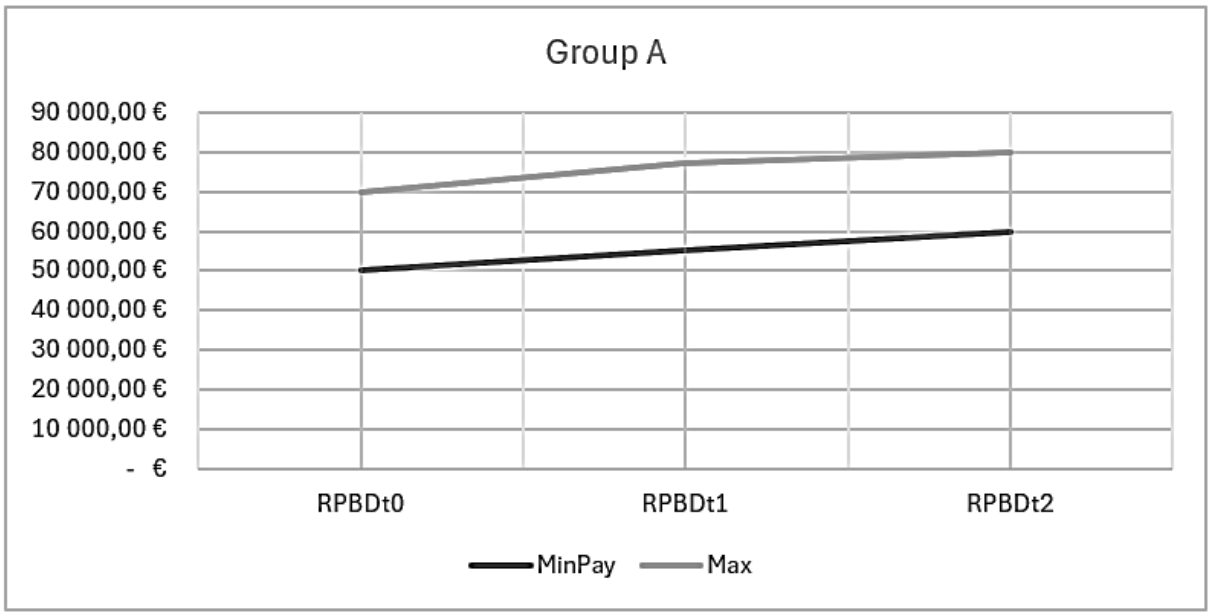

Figure 1: Illustrative Pay Band Structure for Group A Across Observation Periods

Note. Figures use German numeric formatting as generated by the source spreadsheet; values are identical. Author, 2025.

Table 4: Illustrative Individual Compensation Data Used to Derive Aggregated Metrics (Group B)

Calendar year	Observation	Pay per year	Non-cash benefits	Total
2023	Employee 4	55,000.00 €	- €	55,000.00 €
2023	Employee 5	58,500.00 €	- €	58,500.00 €
2023	Employee 6	62,000.00 €	- €	62,000.00 €
2024	Employee 4	57,000.00 €	- €	57,000.00 €
2024	Employee 5	59,000.00 €	- €	59,000.00 €
2024	Employee 6	62,000.00 €	- €	62,000.00 €
2025	Employee 4	60,000.00 €	2,000.00 €	62,000.00 €
2025	Employee 5	60,000.00 €	2,000.00 €	62,000.00 €
2025	Employee 6	63,000.00 €	2,000.00 €	65,000.00 €

Note. Data shown for illustrative purposes only. Author, 2025.

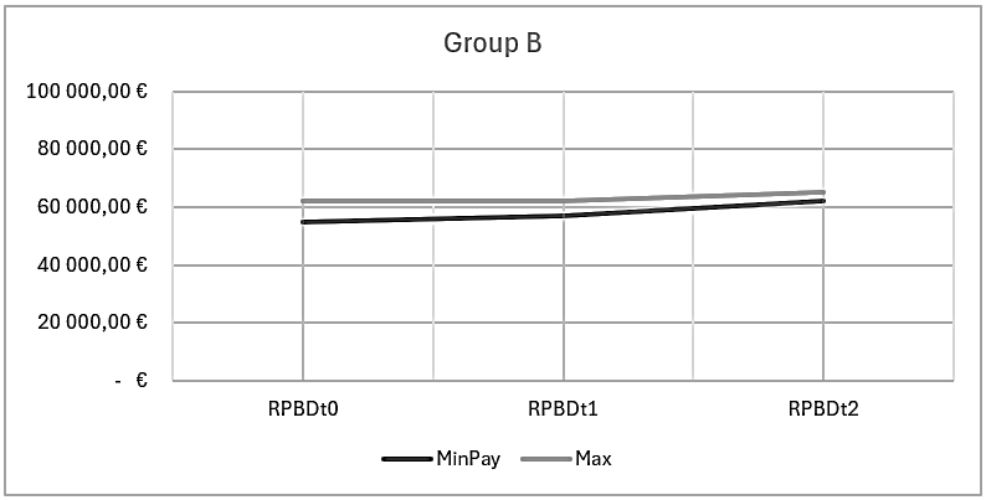

Figure 2: Illustrative Pay Band Structure for Group B Across Observation Periods

Note. Figures use German numeric formatting as generated by the source spreadsheet; values are identical. Author, 2025.

www.ijprems.com
editor@ijprems.com
INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 01, January 2026, pp : 126-138
e-ISSN : 2583-1062
Impact Factor : 7.001

B. Calculation of RPBD and the Change Indicator (ΔRPBD)

Based on the aggregated measures, the Relative Pay Band Development (RPBD) is first calculated for each observation period. The calculation follows the formula introduced in Section III:

$$RPBD_t = \frac{MaxPay_t - MinPay_t}{MedianPay_t}$$

Equation (7): $RPBD_t = (MaxPay_t - MinPay_t) / MedianPay_t$

The calculation is carried out exemplarily for two comparison groups across multiple observation periods. Table 5 presents the aggregated measures and the resulting RPBD values for both groups.

Table 5: Aggregated Compensation Metrics and RPBD Values for Groups A and B Across Observation Periods

Group	Period	MinPay	MaxPay	MedianPay	RPBD
A	t0	50,000.00 €	70,000.00 €	60,000.00 €	0.333
A	t1	55,000.00 €	77,000.00 €	58,000.00 €	0.379
A	t2	60,000.00 €	80,000.00 €	60,000.00 €	0.333
B	t0	55,000.00 €	62,000.00 €	58,500.00 €	0.120
B	t1	57,000.00 €	62,000.00 €	59,000.00 €	0.085
B	t2	62,000.00 €	65,000.00 €	62,000.00 €	0.048

Note. Author, 2025.

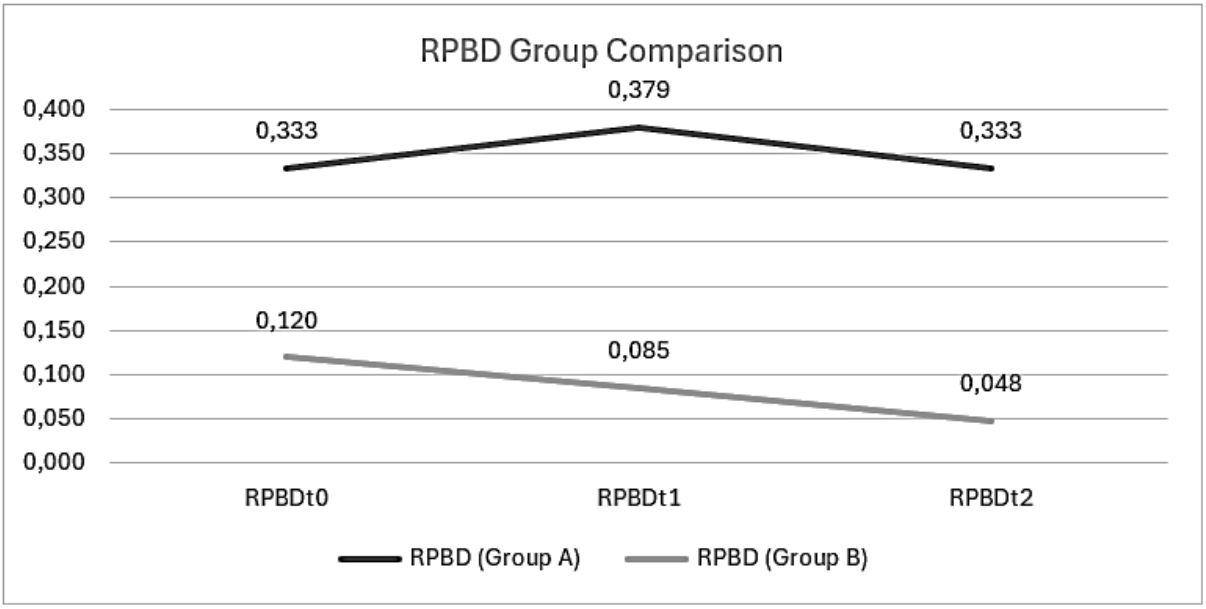

Figure 3: Comparison of RPBD Values for Groups A and B Across Observation Periods

Note. Figures use German numeric formatting as generated by the source spreadsheet; values are identical. Author, 2025.

Analogously, the indicator is determined for the preceding observation period (t − 1). Subsequently, the change – i.e., the delta – of the relative pay band development between the two periods is calculated:

$$\Delta RPBD = RPBD_t - RPBD_{t-1}$$

Equation (8): $\Delta RPBD = RPBD_t - RPBD_{t-1}$

Based on the period-specific RPBD values, the change in relative pay band development (ΔRPBD) is calculated for each group and observation period, as shown in Table 6.

www.ijprems.com
editor@ijprems.com
INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 01, January 2026, pp : 126-138
e-ISSN : 2583-1062
Impact Factor : 7.001

Table 6: RPBD and Changes in Relative Pay Band Development (ΔRPBD) for Groups A and B

Group	Period	$RPBD_t$	$RPBD_{t-1}$	ΔRPBD
A	t0	0.333	-	-
A	t1	0.379	0.333	0.046
A	t2	0.333	0.379	-0.046
B	t0	0.120	-	-
B	t1	0.085	0.120	-0.035
B	t2	0.048	0.085	-0.036

Note. Author, 2025.

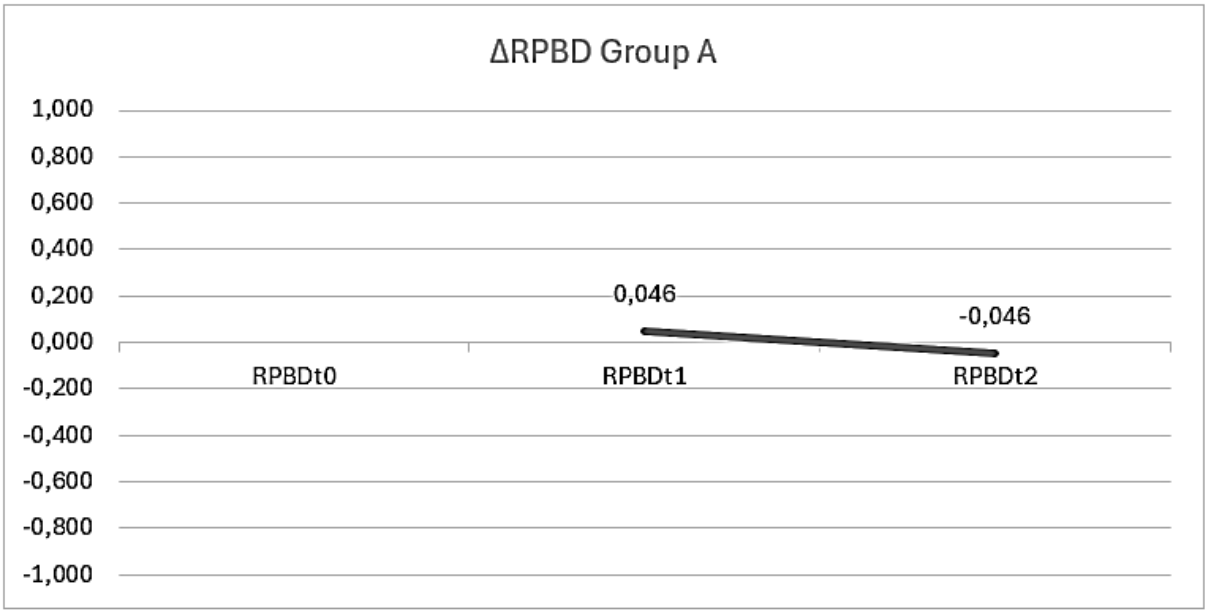

Figure 4: Changes in Relative Pay Band Development (ΔRPBD) for Group A Across Observation Periods

Note. Figures use German numeric formatting as generated by the source spreadsheet; values are identical. Author, 2025.

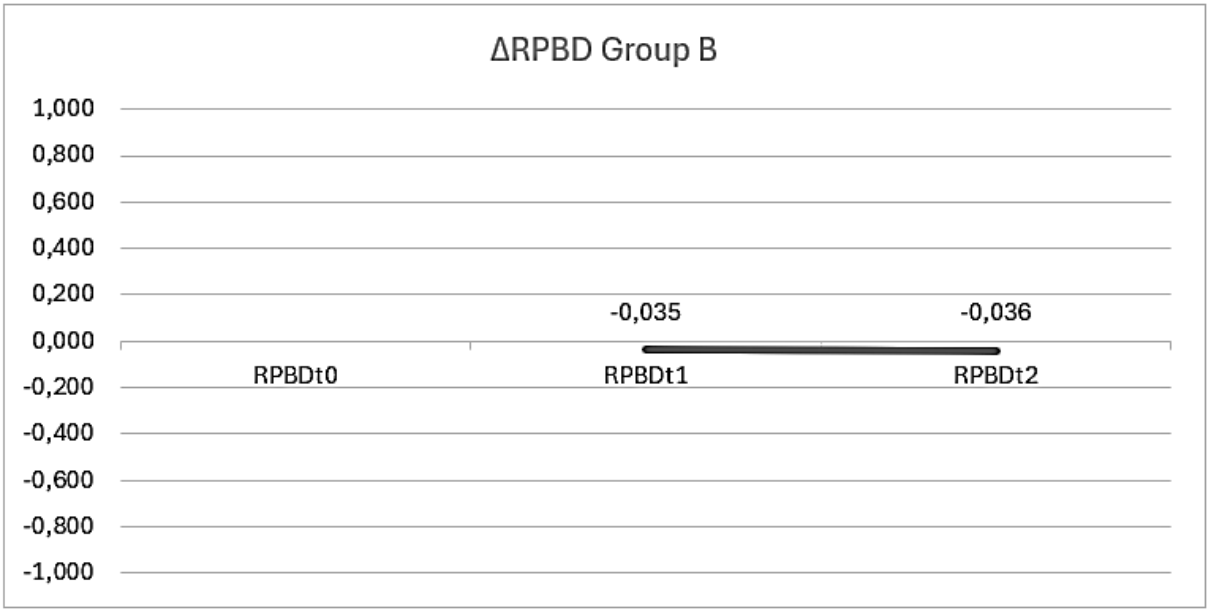

Figure 5: Changes in Relative Pay Band Development (ΔRPBD) for Group B Across Observation Periods

Note. Figures use German numeric formatting as generated by the source spreadsheet; values are identical. Author, 2025.

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
www.ijprems.com
editor@ijprems.com
Vol. 06, Issue 01, January 2026, pp : 126-138
e-ISSN : 2583-1062
Impact Factor : 7.001

In aggregated form, the change indicator can be expressed as:

$$\Delta RPBD = \frac{MaxPay_t - MinPay_t}{MedianPay_t} - \frac{MaxPay_{t-1} - MinPay_{t-1}}{MedianPay_{t-1}}$$

Equation (9): $\Delta RPBD = [(MaxPay_t - MinPay_t) / MedianPay_t] - [(MaxPay_{t-1} - MinPay_{t-1}) / MedianPay_{t-1}]$

The calculation is purely mechanical and based exclusively on aggregated compensation data. Crucially, it is not the absolute value of the indicator that is decisive, but the direction and magnitude of the change between observation periods. The indicator thus does not function as an evaluative benchmark but as a signal of structural dynamics within the comparison group.

C. Interpretation of Results

The interpretation of the change indicator follows a clearly defined logic. A negative value of the change indicator ($\Delta RPBD < 0$) indicates that the pay band within the comparison group has narrowed relative to the median. This suggests increasing consistency in compensation development without making statements about absolute compensation levels.

A value of $\Delta RPBD = 0$ signals structural stability. In this case, the relative dispersion of compensation has not changed compared to the previous observation period, indicating a uniform development within the group.

A positive value ($\Delta RPBD > 0$) indicates an increasing dispersion of the compensation structure. Such divergence may have various causes, including asymmetric adjustments, external recruitment effects, or structural shifts within the group. The indicator itself does not explain these developments but marks them as triggers for further, context-specific analyses.

Importantly, the RPBD does not provide a normative assessment of the observed development. It does not answer whether a compensation structure is fair or unfair, but rather makes visible whether and how internal relations change over time. In this function, the indicator supports governance processes by directing attention to relevant dynamics without encouraging premature conclusions.

The comparison of the two groups illustrates the analytical value of the RPBD. While comparable absolute compensation levels may emerge in both groups over the observation period, the underlying development dynamics differ markedly. Group A initially exhibits a positive change indicator ($\Delta RPBD > 0$), suggesting a temporary divergence in compensation development, followed by a negative change ($\Delta RPBD < 0$), indicating subsequent convergence. By contrast, Group B displays consistently negative $\Delta RPBD$ values across all observation periods, pointing to a continuous narrowing of relative pay dispersion.

Notably, these differences are based exclusively on aggregated measures and can be identified without knowledge of individual compensation figures or specific pay band boundaries. The RPBD thus makes structural processes of divergence and convergence visible that would remain hidden in purely point-in-time analyses or mean-based comparisons.

The illustrative example demonstrates how the RPBD can be applied as a governance-oriented monitoring instrument, providing a transparent yet non-invasive basis for further organizational analysis.

6. DISCUSSION

A. Explanatory Power and Limitations of the RPBD

The Relative Pay Band Development (RPBD) provides a specific analytical approach to observing compensation structures that deliberately focuses on relational and temporal changes. Its central strength lies in making developments visible and communicable without disclosing individual compensation figures or absolute pay levels. This makes the indicator particularly suitable for governance contexts in which transparency, data protection, and social acceptance must be carefully balanced.

At the same time, the explanatory power of the RPBD is clearly limited. The indicator does not allow for a normative assessment of compensation equity and does not provide statements as to whether an existing compensation structure is appropriate, market-aligned, or fair. Moreover, it cannot identify the causes underlying observed changes. An increasing or decreasing dispersion may result from a wide range of factors, such as external market adjustments, internal role changes, or strategic recruitment decisions. These causes lie outside the analytical scope of the RPBD and must be identified and interpreted in a context-specific manner.

Furthermore, the application of the RPBD presupposes that the comparison groups under consideration remain sufficiently stable over time. Significant structural disruptions – for example, due to reorganizations or fundamental

changes in job profiles – may limit comparability and require cautious interpretation of results. The RPBD should therefore be understood as a monitoring instrument rather than as a standalone basis for decision-making.

B. Differentiation from Alternative Compensation Metrics

In organizational compensation reviews, developments are frequently observed using level-based indicators such as mean and median values, sometimes complemented by percentiles (Armstrong & Brown, 2023). While such indicators provide a rapid overview of general trends, they are only of limited suitability for capturing structural changes within groups and often prove problematic in communicative contexts. A central limitation of purely level-based indicators is that they may obscure distributional and structural changes. For example, average or median compensation levels may visibly increase while internal dispersion simultaneously grows significantly, for instance due to asymmetric adjustments or the introduction of a small number of very high compensation values. Mean values, in particular, are sensitive to outliers and may suggest developments that coincide with increasing internal inequality.

The RPBD addresses this blind spot by focusing not on compensation levels but on the relative dispersion of compensation within a comparison group, normalized by the median. As a result, changes in internal structure become visible as governance signals, even when central compensation levels improve concurrently. Compared to simple range measures or ratios of extreme values, normalization by the median enhances comparability across groups and time periods without unnecessarily complicating the indicator.

Although more complex dispersion measures for analyzing inequality exist – such as the Gini coefficient or the Theil index – the RPBD deliberately remains simple and governance-oriented in order to ensure interpretability, transparency, organizational applicability, and acceptance in communication and monitoring contexts. Such inequality measures are primarily established in macroeconomic analyses (cf. Cowell, 2011), whereas the RPBD explicitly targets microeconomic, organization-level comparison groups.

C. Implications for HR Governance and Co-Determination

From an HR governance perspective, the RPBD offers the opportunity to observe compensation developments continuously and in a structured manner without conflicting with data-protection regulations or employment-contractual agreements. The indicator is particularly suitable as an early-warning signal that highlights potentially explanation-requiring developments and thus provides a sound basis for further analysis. For co-determined organizations, the RPBD offers an additional advantage: it enables fact-based discussions about developments without addressing personal data or problematizing individual compensation decisions. In this way, it can help depersonalize compensation debates and shift them to a structural level that is accessible to both management and employee representatives.

At the same time, the RPBD does not replace qualitative or context-specific evaluation processes. Its strength lies not in decision-making itself but in supporting decision-making processes. In this sense, the RPBD should be understood as a complementary instrument within a broader HR governance framework, providing transparency about developments without imposing normative judgments.

7. CONCLUSION

This paper has introduced the Relative Pay Band Development (RPBD) as a governance-oriented instrument that enables the analysis of compensation structures over time without disclosing individual compensation data. In doing so, the RPBD addresses a central tension faced by modern organizations between the need for transparency and communicability, data-protection requirements, and the social sensitivity of compensation-related issues.

Conceptually, the RPBD is not intended as a measure of absolute compensation equity. Instead, it is designed as a relational indicator that makes structural developments within clearly delineated comparison groups visible over time. By focusing on relative dispersion and its change across multiple observation periods, the indicator contributes to procedural fairness without making normative statements about the appropriateness of individual compensation levels. This deliberate limitation constitutes a key analytical strength of the RPBD.

The methodological properties discussed demonstrate that the RPBD is particularly well suited for governance and monitoring contexts in which personal compensation information cannot be communicated, or only to a very limited extent. As an early-warning indicator, it can support organizations in identifying developments that require explanation at an early stage and in initiating targeted, in-depth analyses. At the same time, the indicator remains compatible with co-determined organizational structures, as it shifts compensation discussions from a personalized level to a structural and depersonalized one.

Several avenues for future research emerge from this contribution. Empirical studies could examine how changes in RPBD affect perceptions of compensation equity, trust, or organizational acceptance. Further research could also

explore how the indicator may be combined with other governance instruments or assess its applicability across different organizational forms and industries. In this way, the RPBD may evolve into an established building block of data-sensitive and reflexive HR governance.

From a methodological perspective, alternative operationalizations of RPBD dynamics may also be considered. These include, for example, relative change rates or factorized representations that explicitly separate median shifts from changes in pay band dispersion. While such approaches allow for additional analytical nuance, the present paper deliberately focuses on a simple, difference-based representation to ensure interpretability, organizational applicability, and practical usability in governance and management contexts.

A ratio-based relative change can be expressed as follows:

$$\Delta RPBD_{rel} = \frac{RPBD_t}{RPBD_{t-1}} - 1$$

Equation (10): Relative Change in Relative Pay Band Development (ΔRPBD_rel). The relative change is defined as the ratio of RPBD at time t to RPBD at time t − 1, minus one.

A factorized representation of the absolute RPBD change can be formulated as follows:

$$\Delta RPBD_{fact} = \frac{MaxPay_t - MinPay_t}{MedianPay_t} \cdot \left(1 - \frac{MedianPay_t}{MedianPay_{t-1}} \cdot \frac{MaxPay_{t-1} - MinPay_{t-1}}{MaxPay_t - MinPay_t}\right)$$

Equation (11): Factorized Representation of the Absolute RPBD Change (ΔRPBD_fact). The absolute change in RPBD is algebraically decomposed into a dispersion-related component and a median-related component. In textual form, ΔRPBD_fact corresponds to (MaxPay at time t − MinPay at time t) / MedianPay at time t, multiplied by one minus the product of (MedianPay at time t / MedianPay at time t − 1) and ((MaxPay at time t − 1 − MinPay at time t − 1) / (MaxPay at time t − MinPay at time t)).

To capture a relative growth logic and a trend-based perspective, a logarithmic representation may additionally be applied. This approach separates additive from multiplicative effects and is particularly suitable for long-term time series analyses. Due to its lower interpretability in applied governance contexts, however, this variant remains primarily research-oriented:

$$\Delta RPBD_{0\to n}^{\log} = \ln\left(\frac{RPBD_n}{RPBD_0}\right)$$

Equation (12): Logarithmic Change in Relative Pay Band Development ($\Delta RPBD\_log_{0\to n}$). The logarithmic change in RPBD over the period from t = 0 to t = n is defined as the natural logarithm of the ratio of RPBD at time n to RPBD at time 0. In textual form: ΔRPBD_log from 0 to n equals the natural logarithm of RPBD at time n divided by RPBD at time 0. A positive value indicates relative divergence over the observation period, while a negative value indicates relative convergence.

8. REFERENCES

[1] Adams, J. S. (1963). Toward an understanding of inequity. Journal of Abnormal and Social Psychology, 67(5), 422–436. https://doi.org/10.1037/h0040968

[2] Armstrong, M., & Brown, D. (2023). Armstrong's handbook of reward management practice: Improving performance through reward (7th ed.). Kogan Page.

[3] Bamberger, P. A., & Belogolovsky, E. (2017). The dark side of transparency: How and when pay administration practices affect employee helping. Journal of Applied Psychology, 102(4), 658–671. https://doi.org/10.1037/apl0000184

[4] Bamberger, P. A., Biron, M., & Meshoulam, I. (2014). Human resource strategy: Formulation, implementation, and impact (2nd ed.). Routledge. https://doi.org/10.4324/9780203075838

[5] Burchell, S., Clubb, C., Hopwood, A. G., Hughes, J., & Nahapiet, J. (1980). The roles of accounting in organizations and society. Accounting, Organizations and Society, 5(1), 5–27. https://doi.org/10.1016/0361-3682(80)90017-3

[6] Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. Journal of Applied Psychology, 86(3), 425–445. https://doi.org/10.1037/0021-9010.86.3.425

[7] Cowell, F. A. (2011). Measuring inequality (3rd ed.). Oxford University Press.

https://doi.org/10.1093/acprof:osobl/9780199594030.001.0001

[8] Folger, R., & Cropanzano, R. (1998). Organizational justice and human resource management. Sage Publications, Inc. https://doi.org/10.4135/9781452225777

[9] Greenberg, J. (1987). A taxonomy of organizational justice theories. Academy of Management Review, 12(1), 9–22. https://doi.org/10.5465/amr.1987.4306437

[10] Kulik, C. T., & Ambrose, M. L. (1992). Personal and situational determinants of referent choice. Academy of Management Review, 17(2), 212–237. https://doi.org/10.2307/258771

[11] Leventhal, G. S. (1980). What should be done with equity theory? In K. J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), Social exchange: Advances in theory and research (pp. 27–55). Springer. https://doi.org/10.1007/978-1-4613-3087-5_2

[12] Sparrow, P., Brewster, C., & Chung, C. (2016). Globalizing human resource management (2nd ed.). Routledge. https://doi.org/10.4324/9781315668611

[13] Thibaut, J. W., & Walker, L. (1975). Procedural justice: A psychological analysis. Lawrence Erlbaum Associates.