Pay Dispersion and Performance in Teams

Source: plos | **Author:** Alessandro Bucciol, Nicolai J. Foss, Marco Piovesan | **Published:** November 12, 2014 | **PMS Relevance:** PMS RELATED | **Type:** Research Study | **Geography:** Europe

Source URL: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0112631

Executive Summary

This peer-reviewed study, published in PLoS ONE (2014) by Bucciol, Foss, and Piovesan, addresses the longstanding contradictory findings in pay dispersion research by examining how the definition of 'team' affects measured outcomes. Using two seasons (2009–2011) of Italian Serie A soccer data across 666 matches and 925 players, the authors demonstrate that the same dataset produces positive, null, or negative relationships between pay dispersion and team performance depending on how team membership is operationalized. When only active team members (weighted by minutes played) are considered, higher pay dispersion is associated with a statistically significant reduction in winning probability (doubling pay dispersion reduces win probability by approximately 6%). This negative effect disappears when substitute players are included and reverses to positive when the full team roster is used. The mechanism appears to operate through degraded individual performance rather than reduced cooperation, as measured by subjective individual performance assessments from three Italian sports newspapers. The authors acknowledge an unresolved confound: pay dispersion may proxy for skill dispersion, making causal attribution uncertain.

Key Insights

1. The definition of 'team' — whether restricted to active contributors or expanded to the full roster — is the primary driver of whether pay dispersion shows a positive, null, or negative effect on performance, which may explain decades of contradictory findings in the literature.

2. When team membership is defined precisely (active players weighted by minutes played), pay dispersion has a measurable negative impact on team performance; doubling the Theil index reduces the probability of winning by approximately 6%, falling from 0.56 to 0.24 at maximum observed dispersion.

3. Pay dispersion's detrimental effect appears to operate through reduced individual performance rather than reduced cooperation: individual subjective performance assessments decline with higher pay dispersion, while the number of passes (a cooperation proxy) shows no significant relationship with pay dispersion.

Practical Takeaways

• Organizations and researchers measuring the effect of pay dispersion on team outcomes may reach opposing conclusions depending on whether they include all enrolled members or only those who actively contributed to the task — suggesting that precision in team boundary definition is a critical methodological variable.

• The numerical examples in the study illustrate that concentrating pay in one high earner while compressing pay for the remainder produces worse aggregate individual performance than a more equalized distribution at the same total payroll cost, though this conclusion carries the caveat of the unresolved skill-dispersion confound.

Critical Analysis

Strengths: The study uses a natural dataset with objective performance metrics, detailed salary information, and repeated observations across matches, enabling within-team variation analysis rarely available in organizational research. The methodological innovation of distinguishing 'active team members' from full rosters is a substantive contribution. Multiple robustness checks using alternative inequality measures (Gini index), alternative outcome definitions, and homogeneous sub-samples strengthen confidence in the core finding. No competing interests are declared and data are publicly available. Limitations: The study cannot resolve whether pay dispersion drives lower performance or whether both are caused by underlying skill heterogeneity — the authors explicitly acknowledge this confound. The use of subjective individual performance assessments (SIPA) from journalists introduces measurement subjectivity, though inter-rater correlations of approximately 0.7 are reported. The dataset covers only the first half of two seasons due to transfer market complications, limiting temporal scope. The Italian Serie A context involves unusually high salary transparency (public media reporting), which may amplify social comparison effects beyond what is typical in most organizational settings. Generalizability to non-sports workplaces is asserted but not demonstrated, as the authors rely on the dimensionless nature of the pay dispersion index rather than direct cross-context validation.

Organizational Practice

The study documents the practice of within-team pay differentiation in professional sports organizations, where rosters of 25–30 players receive highly variable salaries that are publicly disclosed through media. Italian Serie A teams during 2009–2011 maintained average active-player pay dispersion (Theil index) of 0.114, rising to 0.493 when full rosters were included. Coaches are observed to adjust team composition match-by-match based on injuries and disqualifications rather than strategic manipulation of pay dispersion. Salary information is reported to be known to all players within a team at least until the January transfer window.

Strategic Implications

The findings point toward a measurement problem in pay dispersion research that has likely produced the contradictory literature — organizations assessing the effects of pay structures on team output may be systematically mismeasuring dispersion by including non-contributing members. The evidence that individual performance, rather than cooperation, mediates the pay dispersion-performance relationship has implications for how firms attribute poor team outcomes. The unresolved skill-dispersion confound is a standing challenge for any organization attempting to isolate pay structure effects from talent composition effects. The salary transparency condition present in the sports context — where pay is publicly known — may amplify social comparison effects, raising questions about whether opacity in organizational pay practices moderates the dispersion-performance relationship in non-sports settings.

Validation Status: passed
