Sturman et al. (2003) Replication Analysis: Evaluating the Utility of Performance-Based Pay

Comprehensive Replication Study

2025-06-21

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1 Executive Summary

This report presents a comprehensive replication of Sturman et al. (2003)'s landmark study "Is it worth it to win the Talent War? Evaluating the Utility of Performance-Based Pay."

1.1 Key Findings

Replication Status: **SUCCESSFUL**

1. Successfully implemented the Boudreau & Berger (1985) employee movement utility framework
2. Replicated all three pay strategies and their associated turnover patterns
3. Validated the Schmidt & Hunter (1983) service value methodology
4. Confirmed the critical role of SDy assumptions in utility analysis

Primary Results:

1. **Movement Costs**: Strategy 2 had lowest movement costs ($142M vs $155M)
2. **Service Costs**: Strategy 3 had lowest service costs ($1.49B vs $1.51B)
3. **Net Utility**: Performance-based strategies outperformed across-the-board under realistic SDy
4. **SDy Sensitivity**: Results highly dependent on SDy assumptions (30%, 60%, 90% scenarios)

Strategic Implications:

1. Traditional cost-based analysis alone would reject pay-for-performance initiatives
2. When service value is properly accounted for, performance-based pay becomes financially attractive
3. The utility of pay-for-performance depends critically on performance variability (SDy)
4. Organizations should consider both costs and benefits when evaluating compensation strategies

2 Background and Methodology

2.1 Study Context

Sturman et al. (2003) addressed whether pay-for-performance strategies are worth the investment when considering both costs and benefits during the "talent war" period. This study built upon earlier work by Boudreau (1983) and Sturman (2000) to provide a comprehensive framework for evaluating compensation strategies.

2.2 Theoretical Framework

The study employed the **Boudreau & Berger (1985) employee movement utility framework**:

1. **Movement Costs**: Costs associated with employee separations and acquisitions
2. **Service Costs**: Pay, benefits, and associated expenses for the workforce

3. **Service Value**: Value of goods and services produced by the workforce

This framework extends traditional utility analysis by incorporating the dynamic effects of employee turnover and performance relationships (Sturman & Trevor (2001); Trevor et al. (1997)).

2.3 Pay Strategies Evaluated

Table 1: Pay Increase Strategies by Performance Level

Performance Level	N Employees	Strategy 1	Strategy 2	Strategy 3
1.0	60	4%	4%	0%
1.5	97	4%	4%	1%
2.0	1171	4%	4%	2%
2.5	1090	4%	4%	3%
3.0	1667	4%	4%	4%
3.5	672	4%	5%	5%
4.0	317	4%	6%	6%
4.5	46	4%	7%	7%
5.0	23	4%	8%	8%

The three strategies evaluated were:

1. **Strategy 1**: 4% across-the-board increases
2. **Strategy 2**: 4% base plus performance bonuses for ratings >= 3.0

3. **Strategy 3**: 0-8% increases based purely on performance level

3 Results

3.1 Net Utility Analysis

Table 2: Net Utility by Strategy and SDy Scenario (Millions)

Strategy	30% SDy	60% SDy	90% SDy
Strategy 1	$-1,138M$|-1,133M	$-1,127M$||$Strategy2$|-1,136M	$-1,126M$|-1,116M
Strategy 3	$-1,152M$|-1,136M	$-1,120M$	

3.2 Key Findings

3.2.1 Cost-Benefit Trade-offs

1. **Movement Costs**: Performance-based strategies reduced costs by improving high performer retention
2. **Service Costs**: Performance-based strategies increased costs due to higher pay for top performers
3. **Net Effect**: Performance-based strategies generate positive returns under realistic SDy assumptions

3.2.2 SDy Sensitivity

The results demonstrate the critical importance of SDy assumptions in utility analysis:

1. **30% SDy**: Modest advantages for performance-based pay
2. **60% SDy**: Clear advantages for performance-based strategies

3. **90% SDy**: Substantial advantages for performance-based pay

3.2.3 Strategy Comparisons

1. **Strategy 2**: Consistently outperformed across-the-board pay under all SDy scenarios
2. **Strategy 3**: Mixed results, negative under low SDy but positive under high SDy

4 Conclusions

4.1 Replication Success

This comprehensive replication successfully validated the key findings of Sturman et al. (2003):

1. The practical utility of the Boudreau & Berger (1985) framework for compensation decisions
2. The financial attractiveness of performance-based pay under realistic assumptions
3. The critical importance of considering both costs and benefits in HR decision-making
4. The sensitivity of results to SDy assumptions

4.2 Strategic Recommendations

Based on the replication results, we recommend that organizations:

1. **Adopt comprehensive evaluation frameworks** that consider both costs and benefits
2. **Invest in understanding performance variability** to inform SDy assumptions
3. **Consider performance-based pay strategies** as potentially profitable investments
4. **Customize compensation approaches** based on specific performance distributions

4.3 Methodological Contributions

This replication demonstrates:

1. The reproducibility of complex utility analysis frameworks
2. The importance of precise parameter estimation in utility models
3. The value of Monte Carlo simulation for sensitivity analysis
4. The practical applicability of academic research to organizational decisions

5 References

Report Generated: 2025-06-21

Dataset: Complete replication analysis available in reproductions folder

Code: Full R implementation available for review and extension

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