

MIDOCEAN UNIVERSITY

College of Management

The Impact of Employee Motivation on Employee Performance

Assignment 3

Chapter Four: Statistical Analysis and Discussion of Findings

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Chapter Four: Statistical Analysis and Discussion of Findings

Introduction

This chapter reports the statistical analysis used to examine the relationship between employee motivation and employee performance. It presents the data source and preparation procedures, describes the sample, evaluates the measurement properties of the motivation and performance scales, answers the research questions, tests the main hypothesis, and connects the findings with the literature reviewed in Assignment 1. The analysis was conducted using a reproducible Python script so that all scoring and calculations can be checked and repeated.

The chapter uses a real, openly available secondary dataset published by Mgamal and Al-Matari [8]. The original cross-sectional survey was administered to employees in Saudi Arabia and Yemen during June and July 2020. The public dataset contains 307 usable responses after the source study's screening procedures. The pandemic context and non-probability sampling limit generalization, but the dataset provides transparent empirical evidence suitable for demonstrating the statistical procedures required by the project.

Interpretive Boundary

The analysis identifies association and statistical prediction, not definitive causation. The dataset is cross-sectional and self-reported. In addition, the employee-performance scale showed weak internal consistency; therefore, its results must be interpreted as exploratory evidence rather than a precise estimate of a universal effect.

Data Source, Preparation, and Scoring

The source questionnaire includes six work-motivation items measured on a seven-point response scale and five work-performance items measured on a four-point response scale. The response anchors follow the source questionnaire. The public workbook and questionnaire were retained with the project files, and no observations were invented or manually altered.

Three negatively phrased motivation items were reverse-scored: feeling downhearted, feeling bothered, and feeling tired or exhausted. Three negatively phrased performance items were also reverse-scored: difficulty completing work on time, leaving tasks until the last minute, and disappointment with one's performance. After reverse scoring, higher values consistently represent stronger motivation or better performance. Each composite score is the arithmetic mean of its valid items.

Construct	Items	Native scale	Reverse-scored items	Composite interpretation
Employee motivation	6	1–7	Q27, Q28, Q31	Higher mean = stronger work motivation
Employee performance	5	1–4	Q21, Q23, Q24	Higher mean = better self-reported performance

The cleaned dataset contained complete values for the eleven analyzed items, producing an analytical sample of $N = 307$. Descriptive statistics, Cronbach's alpha, corrected item-total correlations, the Kaiser–Meyer–Olkin (KMO) measure, Bartlett's test of sphericity, Pearson's

correlation, and ordinary least-squares regression were calculated. Statistical significance was evaluated using a two-tailed $\alpha = .05$ criterion.

Sample Profile

Table 4.2 summarizes the participant characteristics available in the public dataset. The sample was predominantly male and full-time employed. More than half of participants reported college or university education. The average participant age was 38.05 years, and average organizational tenure was 11.53 years.

Characteristic	Category / statistic	<i>n</i>	Percentage
Gender	Male	278	90.6%
	Female	29	9.4%
Employment status	Full-time	247	80.5%
	Part-time	60	19.5%
Education	Secondary school	107	34.9%
	Professional training	15	4.9%
	College / university	167	54.4%
	PhD	18	5.9%
Marital status	Married	260	84.7%
	Single	46	15.0%
	Divorced / separated	1	0.3%

Continuous characteristic	<i>N</i>	Mean	SD	Observed range
Age (years)	307	38.05	6.88	25–65
Organizational tenure (years)	307	11.53	7.90	1–43

The demographic concentration should be considered when interpreting the results. In particular, the high proportion of male and full-time employees means the results may not represent the experiences of more gender-balanced workforces or employees in less stable employment arrangements. The sample nevertheless includes variation in age, education, and tenure, which provides a useful employee-level dataset for the present analysis.

Validity and Reliability Tests

Construct Adequacy

The KMO measure and Bartlett's test were used to assess whether the inter-item correlation matrices contained sufficient shared structure for construct analysis. The motivation scale produced a KMO value of .750, indicating adequate common variance. Bartlett's test was statistically significant, $\chi^2(15) = 833.28$, $p < .001$, showing that the motivation correlation matrix was not an identity matrix.

The performance scale produced a KMO value of .552. This exceeds the minimum value of .50 but is only marginal, suggesting that the five performance items do not form a particularly strong common

structure. Bartlett's test remained significant, $\chi^2(10) = 198.84, p < .001$. Thus, the performance items are related, but their construct adequacy is weaker than that of the motivation items.

Scale	KMO	Bartlett χ^2	df	<i>p</i>
Employee motivation	.750	833.28	15	< .001
Employee performance	.552	198.84	10	< .001

Corrected item–total correlations provided an additional item-level check. Motivation-item correlations ranged from .507 to .723, which indicates that every motivation item contributed meaningfully to the shared composite. Performance-item correlations ranged from .155 to .363. Two performance items were below .20, indicating weak alignment with the remaining performance indicators.

Internal Consistency Reliability

Cronbach's alpha for the six-item motivation scale was .824, exceeding the conventional .70 guideline and indicating good internal consistency. The motivation composite can therefore be interpreted with reasonable confidence in this sample.

Cronbach's alpha for the five-item employee-performance scale was .489, which is below the conventional acceptable level. The performance composite is retained because it reproduces the publicly documented instrument and allows transparent comparison with the source data, but the low alpha increases measurement error and weakens confidence in the exact magnitude of relationships involving performance.

Scale	Items	Cronbach's α	Corrected item–total range	Interpretation
Employee motivation	6	.824	.507–.723	Good internal consistency
Employee performance	5	.489	.155–.363	Weak internal consistency; interpret cautiously

The weak performance reliability is not concealed or corrected through selective deletion after observing the results. Removing items solely to increase alpha could change the meaning of the source instrument and create an overly favorable result. A future primary study should pilot a broader performance instrument, revise ambiguous items, and confirm its factor structure before hypothesis testing.

Descriptive Statistics for the Research Variables

Research Question 1 asks: **What is the level of employee motivation among the surveyed employees?** The mean motivation score was 4.395 on the 1–7 scale ($SD = 1.342$). This value is above the scale midpoint of 4.00 and indicates a moderately positive level of motivation in the sample, although substantial variation existed between employees.

Research Question 2 asks: **What is the level of employee performance among the surveyed employees?** The mean performance score was 2.909 on the 1–4 scale ($SD = 0.562$). This mean is

above the midpoint of 2.50, indicating generally favorable self-reported performance. Because the performance scale reliability was low, this descriptive conclusion should be considered broad rather than highly precise.

Variable	N	Mean	SD	Minimum	Maximum
Employee motivation	307	4.395	1.342	1.00	7.00
Employee performance	307	2.909	.562	1.00	4.00

The two means should not be compared directly because the constructs use different native response scales. Their practical interpretation is therefore made relative to each scale's midpoint and range.

Relationship Between Motivation and Performance

Research Question 3 asks: **What relationship exists between employee motivation and employee performance?** Pearson's correlation showed a positive and statistically significant relationship, $r = .207$, $p < .001$, $N = 307$. Employees reporting higher motivation tended to report better performance. According to common effect-size conventions, the relationship is small rather than strong.



Figure 1: Employee motivation and employee performance, with fitted regression line

The scatterplot shows wide variation around the fitted line. This visual pattern is consistent with the small correlation and indicates that motivation alone does not account for most differences in performance. Factors such as ability, job resources, leadership, role clarity, working conditions, health, and measurement error may also influence employee performance.

Hypothesis Testing

The main hypothesis is:

H1

Employee motivation has a positive and statistically significant effect on employee performance.

A simple ordinary least-squares regression was estimated with employee performance as the dependent variable and employee motivation as the independent variable. The model was statistically significant, $F(1, 305) = 13.61, p < .001$. Motivation had a positive unstandardized coefficient of $B = 0.0866$ ($SE = 0.0235$), $t = 3.689, p < .001$, with a 95% confidence interval from .0404 to .1327. The standardized coefficient was $\beta = .207$.

The estimated regression equation is:

$$P_i = 2.528 + 0.0866M_i$$

A one-point increase in the motivation score was associated with an estimated .0866-point increase in the performance score. The model explained 4.27% of the variance in performance ($R^2 = .0427$; adjusted $R^2 = .0396$). Therefore, H1 is statistically supported because the coefficient is positive and its p value is below .05. However, the small R^2 and weak reliability of the performance scale mean that the finding should be described as modest exploratory support, not evidence that motivation is the only or dominant cause of performance.

Predictor	<i>B</i>	SE	β	<i>t</i>	95% CI for <i>B</i>	<i>p</i>
Constant	2.528	—	—	—	—	—
Motivation	.0866	.0235	.207	3.689	[.0404, .1327]	< .001

Model	<i>R</i>	R^2	Adjusted R^2	$F(1,305)$	<i>p</i>
Motivation → performance	.207	.0427	.0396	13.610	< .001

Hypothesis	Statistical evidence	Decision	Qualification
H1	$B = .0866, \beta = .207, p < .001$	Supported	Small effect; exploratory due to weak outcome reliability

Discussion and Connection with Previous Literature

The positive result is consistent with the central argument of the literature review: motivated employees are more likely to direct effort, persist, and use task-relevant strategies. Locke and Latham's goal-setting theory explains that clear and challenging goals can focus attention, mobilize effort, and increase persistence [5]. The present positive coefficient is compatible with this mechanism, although the dataset does not isolate goal clarity as a separate predictor.

The finding also aligns with self-determination theory, which distinguishes autonomous from controlled forms of motivation. Van den Broeck et al.'s meta-analysis found that identified regulation is particularly relevant to performance and organizational citizenship behavior, while intrinsic motivation is especially beneficial for well-being and favorable work attitudes [3]. The six-item

composite in the public dataset is broader and does not reproduce all multidimensional distinctions, so the present analysis cannot identify which motivational type produced the association.

Cerasoli, Nicklin, and Ford's forty-year meta-analysis showed that intrinsic motivation and extrinsic incentives jointly predict performance, with intrinsic motivation contributing especially to performance quality and incentives contributing more to quantity [4]. The current small positive relationship is compatible with their conclusion that motivation matters but operates alongside other determinants.

The present result is also directionally consistent with Wang, Luan, and Ma's meta-analytic review of longitudinal evidence. Their cross-lagged analysis found that earlier work motivation positively predicted later job performance, whereas earlier performance did not significantly predict later motivation [1]. Their longitudinal evidence is methodologically stronger for temporal direction than the current cross-sectional analysis. The current study should therefore be viewed as contextual supporting evidence rather than an independent causal test.

The small R^2 is theoretically reasonable. Motivation is one input into performance, not a complete explanation. Employees may be highly motivated but constrained by inadequate resources, unclear procedures, insufficient skills, poor health, or external disruption. The source data were collected during the COVID-19 period, when employees in Saudi Arabia and Yemen faced unusual work and family pressures [8]. These conditions may have altered both motivation and performance and may help explain the dispersed pattern.

Managerial Implications

Managers should not interpret the significant result as justification for a single reward program. The literature suggests that a balanced motivation system is more appropriate. Meaningful work, autonomy, competence development, fair recognition, useful feedback, and clear goals can support sustained motivation. External rewards should be fair and aligned with performance, but they should not replace supportive management or opportunities for employees to experience purpose and growth.

The modest effect indicates that managers should combine motivation practices with performance-enabling conditions. Training, role clarity, adequate staffing, technology, process design, psychological safety, and supervisor support may determine whether employee motivation can be translated into results. Management dashboards should therefore include both motivational indicators and operational constraints rather than assuming that low output always reflects low effort.

Measurement quality is also a practical lesson. The low performance alpha shows that short self-report instruments may not capture a coherent performance construct. Organizations evaluating interventions should combine validated employee surveys with objective indicators appropriate to the job, such as quality, timeliness, customer satisfaction, attendance, or goal completion.

Limitations and Recommendations for Future Research

First, the cross-sectional design does not establish temporal order. Future research should collect motivation at one time and performance at a later time or use an experimental or quasi-experimental intervention. Second, both constructs were self-reported, creating possible common-method and social-desirability bias. Supervisor ratings or objective performance records would strengthen measurement.

Third, the performance scale's Cronbach alpha of .489 indicates substantial measurement weakness. Future studies should use a validated multi-item performance scale, conduct cognitive interviews and pilot testing, and examine factor structure before testing hypotheses. Fourth, purposive and

snowball sampling and the heavily male sample restrict generalization. A probability-based or stratified design with better gender and sector balance is recommended.

Fifth, the data were collected during the COVID-19 period in Saudi Arabia and Yemen. Pandemic-related disruption and national context may limit applicability to other periods and locations. Finally, the simple model omits important predictors. Future studies could examine leadership, job resources, employee engagement, ability, role clarity, and organizational support as mediators, moderators, or control variables.

Conclusion

This chapter analyzed real public survey data from 307 employees to examine the relationship between motivation and employee performance. The motivation scale showed good reliability ($\alpha = .824$), while the performance scale showed weak reliability ($\alpha = .489$). Employee motivation was moderately positive and employee performance was generally favorable relative to their respective scale midpoints.

Motivation was positively associated with performance ($r = .207, p < .001$) and positively predicted performance in a simple regression ($B = .0866, \beta = .207, p < .001$). The model explained 4.27% of performance variance. H1 was therefore supported, but the effect was small and must be interpreted cautiously because of the cross-sectional design, self-report measurement, pandemic context, non-probability sample, and weak performance reliability. Overall, the findings reinforce the management principle that employee motivation matters, while also showing that performance depends on a broader system of individual and organizational conditions.

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Appendix A: Reproducibility Record

Component	Record
Dataset	Public supplementary workbook linked to Mgamal and Al-Matari (2021)
Questionnaire	Public supplementary questionnaire from the same article
Analytical sample	$N = 307$ complete employee responses
Scoring	Reverse scoring documented in the Data Source, Preparation, and Scoring section
Analysis	Python script: <code>analyze_data.py</code>
Outputs	JSON and CSV summaries plus the motivation–performance scatterplot
Decision criterion	Two-tailed $\alpha = .05$