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# IMPACT OF HR ANALYTICS ON RETENTION IN SMEs OF DELHI NCR

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## Abstract

This study examines HR analytics adoption and its relationship with employee-retention-related outcomes in small and medium enterprises (SMEs) in Delhi NCR. The supplied SPSS output contains 100 valid cases. Mean HR analytics adoption was 3.84 (SD = 1.061), employee retention practices and outcomes was 2.99 (SD = 0.990), and perceived contribution of HR analytics to retention was 3.96 (SD = 0.875). Multiple regression predicting perceived contribution reports $R = .976$, $R^2 = .952$, adjusted $R^2 = .951$, $F(2, 97) = 955.104$, $p < .001$. Analytics adoption ($B = .215$, $\beta = .260$, $t = 5.672$, $p < .001$) and retention practices/outcomes ($B = .654$, $\beta = .740$, $t = 16.121$, $p < .001$) are both positive and significant predictors. The results support a significant association with perceived contribution, but the dependent variable is not actual employee retention. This distinction limits the strength of conclusions about the stated hypothesis.

Keywords: HR analytics, employee retention, SMEs, Delhi NCR, multiple regression.

## 1. Introduction

Employee retention is important for SMEs because losing experienced employees can interrupt operations, increase recruitment and training costs, reduce productivity and weaken organisational knowledge. SMEs may have fewer specialised HR staff and limited resources for formal workforce planning. Staffing decisions can therefore rely on managers' experience, informal feedback or incomplete records. HR analytics offers a way to organise workforce information and use it to inform decisions.

HR analytics refers to the systematic collection, analysis and interpretation of HR-related data to support organisational decisions. It may involve reviewing recruitment and attendance records, monitoring turnover, analysing employee feedback, identifying roles with retention challenges and evaluating retention initiatives. Its practical value depends on data quality and whether managers act on the findings.

This paper uses the uploaded SPSS output to examine analytics adoption and retention-related perceptions in SMEs in Delhi NCR. The

regression outcome is labelled "perceived contribution of HR analytics to retention"; accordingly, the model should not be described as directly predicting actual employee departures.

## 2. Research Objective, Question and Hypotheses

Objective: To assess the impact of HR Analytics on employee retention in small and medium enterprises based in Delhi NCR.

Research question: Does HR Analytics positively influence employee retention in SMEs based in Delhi NCR?

$H_0$: HR Analytics has no significant impact on employee retention in SMEs based in Delhi NCR.

$H_1$: HR Analytics has a significant impact on employee retention in SMEs based in Delhi NCR.

## 3. Review of Literature

Marler and Boudreau (2017) review HR analytics as an evidence-based approach to human-resource management and emphasise the need to connect analysis with HR practice and organisational decisions. Data availability alone is insufficient: organisations must interpret measures appropriately and use findings to address workforce problems.

Levenson (2018) argues that workforce analytics can contribute to strategy execution when analysis is linked to organisational priorities. In SMEs, this may include identifying avoidable exits, reviewing development opportunities or determining whether particular roles experience retention challenges. Analytics can help managers ask better questions, but its value depends on managerial capability, data quality and implementation.

Allen, Bryant and Vardaman (2010) discuss evidence-based approaches to reducing employee turnover and stress that retention strategies should reflect the reasons employees leave. A generic intervention may not work equally well across roles or organisations. HR analytics can support diagnosis, but a statistical indicator alone does not establish the underlying cause.

Actual turnover, intention to leave, retention practices and perceived contribution of analytics are distinct constructs. Actual turnover means employees departed during a defined period; intention to leave reflects stated plans; retention practices describe organisational actions; and perceived contribution reflects respondents' beliefs about analytics. Research should define the dependent variable precisely so that statistical findings answer the intended question.

## 4. Research Gap

This study focuses on SMEs in Delhi NCR and considers the use of HR analytics for retention-related decisions. The supplied SPSS model,

however, predicts perceived contribution of HR analytics to retention rather than a direct retention rate or verified employee departures. This measurement distinction is a key limitation and must be acknowledged in the discussion.

## 5. Research Methodology

The study uses a quantitative approach and analyses the supplied SPSS descriptive and multiple-regression output. The methodology information states that 25 organisations were approached and 100 respondents were planned: one Director, one HR Head, one Administration Head and one Operational Head from each organisation. Convenience sampling was used.

The dataset contains 100 cases and reports descriptive statistics for age, gender and organisational role, as well as composite scores for HR analytics adoption, employee retention practices and outcomes, and perceived contribution of HR analytics to retention. The principal variables are measured on five-point response scales. The output does not provide detailed sampling implementation, response rate, sector distribution, or scale reliability and validity evidence.

### 5.1 Regression Variables

The SPSS syntax specifies D_AVERAGE as the dependent variable and B_AVERAGE plus VAR00001 as predictors. The output labels these as perceived contribution of HR analytics to retention (dependent variable), analytics adoption average, and employee retention practices and outcomes. This paper follows the labels in the supplied output.

The regression equation is $\hat{Y} = 1.179 + 0.215X_1 + 0.654X_2$, where $X_1$ is the HR analytics adoption average, $X_2$ is the employee retention practices and outcomes score, and $\hat{Y}$ is the predicted perceived-contribution score.

### 5.2 Analytical Procedure

Descriptive statistics summarise the average scores. Multiple linear regression examines whether analytics adoption and retention practices/outcomes jointly predict perceived contribution. $R^2$ describes the proportion of variance explained by the predictors; the ANOVA F-test evaluates overall model significance; and coefficient tests assess each predictor's unique association while controlling for the other predictor.

The supplied output does not include reliability estimates, construct-validity evidence, residual plots or multicollinearity diagnostics. Convenience sampling limits generalisation, and four respondents from each organisation may share organisational conditions. Their responses

may therefore be clustered rather than fully independent.

## 6. Results and Analysis

Table 1. Descriptive statistics of principal variables

| Variable | N | Mean | SD |
|---|---|---|---|
| HR analytics adoption average | 100 | 3.84 | 1.061 |
| Employee retention practices and outcomes | 100 | 2.99 | 0.990 |
| Perceived contribution of HR analytics to retention | 100 | 3.96 | 0.875 |

The mean HR analytics adoption score of 3.84 is above the midpoint of the five-point scale and suggests moderately high reported adoption. The retention practices/outcomes mean of 2.99 is near the midpoint and lower than the adoption score. The perceived contribution mean of 3.96 suggests respondents generally believe analytics contributes positively to retention.

At item level, "management reviews HR data regularly to identify workforce trends and issues" has a mean of 4.28, and use of employee feedback, absence or exit information has a mean of 4.22. Within retention practices, taking action to address concerns has a mean of 2.67, while using feedback to identify reasons for leaving has a mean of 2.76. This may indicate a gap between analysing information and consistently translating it into action; the descriptive results alone cannot prove that explanation.

Table 2. Regression model summary

| Statistic | Value |
|---|---|
| R | .976 |
| R Square | .952 |
| Adjusted R Square | .951 |
| Std. Error of Estimate | .194 |
| F (2, 97) | 955.104 |
| Model significance | $p < .001$ |
| N | 100 |

The model reports R = .976 and $R^2$ = .952, meaning the two predictors statistically explain 95.2% of the variance in perceived contribution within this sample. The adjusted $R^2$ is .951. This is exceptionally high for survey data and warrants

checking for overlap between constructs and common-method effects. The dependent measure asks whether analytics contributes to retention, while the predictors measure analytics adoption and retention practices/outcomes; conceptual overlap may partly account for the high fit.

### 6.1 Regression Coefficients

Table 3. Coefficients predicting perceived contribution

| Predictor | B | SE | Beta | t | p |
|---|---|---|---|---|---|
| Constant | 1.179 | .074 | — | 16.034 | < .001 |
| HR analytics adoption average | .215 | .038 | .260 | 5.672 | < .001 |
| Employee retention practices and outcomes | .654 | .041 | .740 | 16.121 | < .001 |

Analytics adoption is a positive and significant predictor of perceived contribution (B = .215, β = .260, t = 5.672, p < .001), controlling for retention practices/outcomes. Higher adoption scores are associated with higher perceived-contribution scores when the other predictor is held constant.

Retention practices and outcomes are also a positive and significant predictor (B = .654, β = .740, t = 16.121, p < .001). Its standardised coefficient is larger, suggesting a stronger unique statistical association with perceived contribution in this model. Neither coefficient should be interpreted as a causal effect.

### 6.2 Hypothesis Evaluation

The overall model is significant, F(2, 97) = 955.104, p < .001, and the analytics-adoption coefficient is significant at p < .001. The results therefore support a significant positive association between analytics adoption and perceived contribution of analytics to retention. If the hypothesis is interpreted broadly as a relationship with a retention-related perception, $H_1$ is supported and $H_0$ rejected for this model.

However, the regression does not directly test actual employee retention: its dependent variable is perceived contribution of analytics to retention. It would therefore be too strong to conclude that this model proves HR analytics increases actual retention. A direct test would require a retention rate, recorded departures over a defined period, length of service, or a validated retention scale as the outcome.

### 6.3 Discussion

The results indicate relatively high reported analytics adoption and positive perceptions of its contribution, while the average score for retention practices/outcomes is lower. The positive coefficient is consistent with an association between analytics use and the belief that analytics contributes to retention. The high $R^2$ also makes it important to separate the constructs carefully and evaluate possible common-method bias.

## 7. Conclusion and Implications

This study examined HR analytics and employee retention in SMEs in Delhi NCR using the supplied SPSS output for 100 respondents from a convenience sample associated with 25 organisations. Mean analytics adoption was 3.84, retention practices/outcomes was 2.99, and perceived contribution of analytics to retention was 3.96. The regression model was statistically significant and reported $R^2 = .952$. Both analytics adoption and retention practices/outcomes were positive, significant predictors of perceived contribution.

For SME managers, the findings highlight the potential value of using workforce information systematically. Analytics should be linked to specific actions: reviewing exit reasons, gathering employee feedback, monitoring role-specific turnover patterns, examining development opportunities and workload, and evaluating whether actions improve outcomes. Employee data should be handled confidentially and fairly, and analytics should support rather than replace communication with staff.

### 7.1 Limitations

The study uses convenience sampling and 100 respondents from 25 organisations, limiting representativeness. Four respondents within each organisation may share conditions, so their responses may not be independent. The supplied output does not provide reliability or validity results, regression diagnostics or actual retention records. The dependent variable measures perceived contribution rather than actual retention. The exceptionally high $R^2$ warrants checking for overlap between the constructs and common-method bias.

### 7.2 Recommendations and Future Research

Future studies should measure actual retention over a defined period and use it as the dependent variable where feasible. Researchers should pilot-test the questionnaire, report reliability and validity evidence, and test regression assumptions. A broader sample across SME sectors and clear documentation of organisational participation would improve interpretation. Analyses should

account for respondents nested within organisations where appropriate. Longitudinal research can assess whether analytics practices precede changes in retention, while interviews can explain how managers use insights and how employees experience these practices.

### Final Conclusion

The supplied output supports a significant positive association between analytics adoption and the perceived contribution of HR analytics to retention. It does not, by itself, establish a causal impact on actual employee retention. The hypothesis decision should therefore be qualified by the measurement limitation, and future research should distinguish perceived contribution from independently measured retention outcomes.

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