

Research Proposal

- **Title:**

How Much Incentive Is Too Much? Nonlinear Effects of Incentive Intensity on Employee Productivity, Retention and Stress.

- **Core Idea:**

The paper shows that incentives improve productivity only up to a point, and only for certain jobs. Using employee reviews, I find that sales employees become more productive when incentives increase—but only up to a moderate level. Beyond this level, stronger incentives stop helping and can even reduce productivity, indicating diminishing returns. In contrast, non-sales employees do not respond meaningfully to incentive intensity, suggesting that incentives are less effective when performance is harder to measure.

The study also shows that incentives do not reliably reduce stress or improve employee retention once firm differences are taken into account. This means incentives mainly act as a performance lever, not as a tool for employee well-being or loyalty.



Figure 8.2: b) Incentive - Productivity Curve

- **Econometric Framework**

The analysis uses panel data to examine how incentive intensity affects employee outcomes. Incentives are modelled as a continuous variable with a quadratic term to allow for nonlinear effects:

$$Y = \beta_1 \text{Incentive} + \beta_2 \text{Incentive}^2 + \alpha f + \delta t + \varepsilon_{ift}.$$

To capture role-based heterogeneity, incentive terms are interacted with a sales-role indicator. Firm and year fixed effects control for unobserved heterogeneity and common shocks. When $\beta_2 < 0$, the productivity-maximizing incentive level is given by:

$$TP = -\beta_1 / 2\beta_2$$

Models are estimated using OLS with firm-clustered standard errors, and results are interpreted as within-firm associations.

- **Research Question :**

How does incentive intensity affect employee productivity, and do these effects exhibit nonlinearities and role-based heterogeneity, with implications for employee stress and retention?

- **Hypothesis :**

H1: Incentive intensity has a nonlinear relationship with employee productivity.

H2: The nonlinear incentive–productivity relationship is stronger for sales employees than for non-sales employees.

H3: Productivity peaks at a finite and economically meaningful level of incentive intensity for sales employees.

H4: Incentive intensity does not have a robust or systematic association with employee stress.

H5: Incentive intensity is positively associated with employee retention across firms, but does not have a causal within-firm effect on retention.

H6: Incentive intensity affects productivity-related outcomes more strongly than non-effort related outcomes.

- **Objectives :**

1. To estimate the nonlinear effect of incentive intensity on employee productivity using worker-level panel data and fixed-effects models.
2. To examine whether diminishing returns to incentives differ between sales and non-sales job roles.
3. To identify and quantify the incentive intensity level at which productivity peaks.
4. To analyze the relationship between incentive intensity and employee stress outcomes.
5. To assess whether incentive intensity has meaningful marginal effects on employee retention
6. To validate findings through robustness checks and placebo tests

- **Method :**

The study uses employee review data from **Glassdoor**, containing free-text narratives and firm-level metadata. Incentive intensity and outcome measures (productivity, stress, retention) are extracted from text using keyword filtering and **VADER-based sentiment analysis**, and standardized for analysis. **Exploratory data analysis (EDA)** examines distributions, correlations, role differences, and within-firm variation. The empirical strategy estimates **OLS models**, including pooled and firm–year fixed-effects specifications, modeling incentive intensity as a continuous and nonlinear variable. Role-based heterogeneity is captured through interaction terms. Robustness checks and diagnostic tests assess sensitivity, functional form, and model assumptions.

- **Literature Gap :**

- Lack of evidence on marginal and nonlinear incentive effects**

Most studies treat incentives as a binary feature rather than a continuous variable, limiting understanding of diminishing returns and the existence of productivity-maximizing incentive levels.

□ **Limited role-based heterogeneity in incentive research**

Despite strong theoretical reasons to expect differential responses across job roles, especially between sales and non-sales positions, empirical evidence on role-specific incentive effects remains scarce.

□ **Inadequate integration of productivity with stress and retention outcomes**

Existing research typically examines productivity in isolation, providing limited insight into whether incentive-driven performance gains are accompanied by pressure, burnout, or changes in employee attachment.

▪ **Contributions:**

○ **Models incentive intensity as a continuous and nonlinear construct**

This study moves beyond binary treatments of performance pay by modeling incentive intensity as a continuous variable, allowing identification of diminishing returns and productivity-maximizing incentive levels.

○ **Provides role-specific evidence on incentive effectiveness**

By explicitly distinguishing between sales and non-sales roles, the analysis demonstrates that incentives generate nonlinear productivity gains only in roles with clearly measurable output, while having negligible effects elsewhere.

○ **Integrates productivity with stress and retention outcomes**

The study jointly examines productivity, stress, and retention within a unified framework, showing that incentive intensity primarily affects performance rather than employee well-being or attachment.

○ **Introduces employee-generated text as a tool for incentive analysis**

Using sentiment-based measures derived from employee reviews, the paper captures perceived incentive salience and effort-related outcomes that are typically unobserved in administrative datasets.

○ **Employs within-firm identification to isolate incentive effects**

By exploiting within-firm variation over time and controlling for firm and year fixed effects, the study separates incentive effects from persistent firm quality, strengthening internal validity.

▪ **Contribution summary :**

The paper provides the first within-firm evidence that incentive intensity exhibits role-specific nonlinear productivity effects while having limited influence on stress and retention.