

Engagement as a Predictor of Retention - Creating Future Opportunities (CFO)

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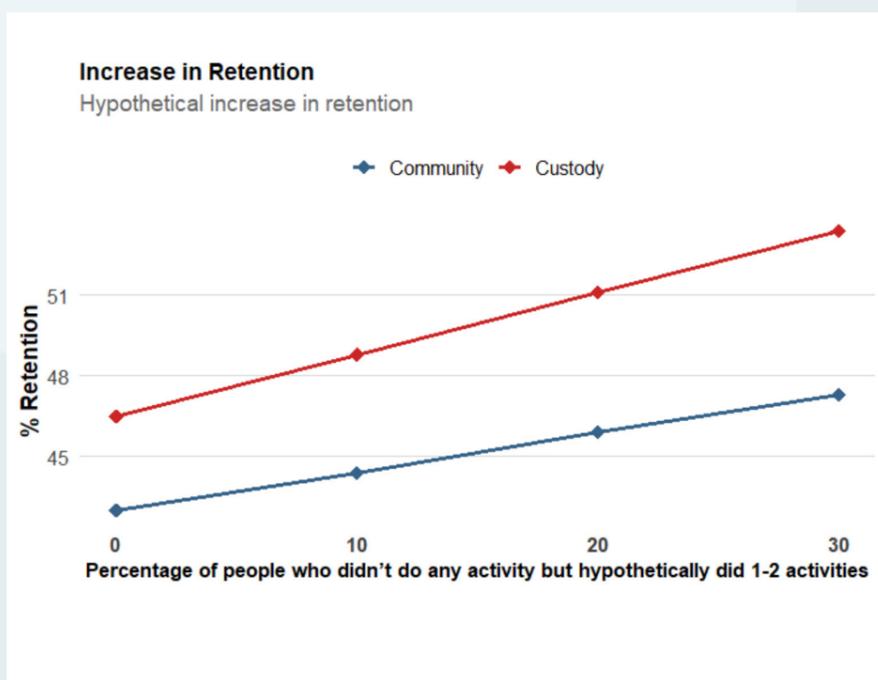
Overview of the Data Fellowship

The HMPPS Creating Future Opportunities (CFO) programme is a voluntary initiative for offenders with complex needs. It aims to break the cycle of reoffending by supporting participants in custody and the community, developing their skills, and promoting personal growth. Activities available include practical support, such as obtaining ID, and group-based sessions like sport.

During my fellowship, I explored the relationship between participant engagement and retention. With guidance from the CFO Research and Statistics team, I completed a data-driven analysis and presented my findings and recommendations to the team.

Data Analysis

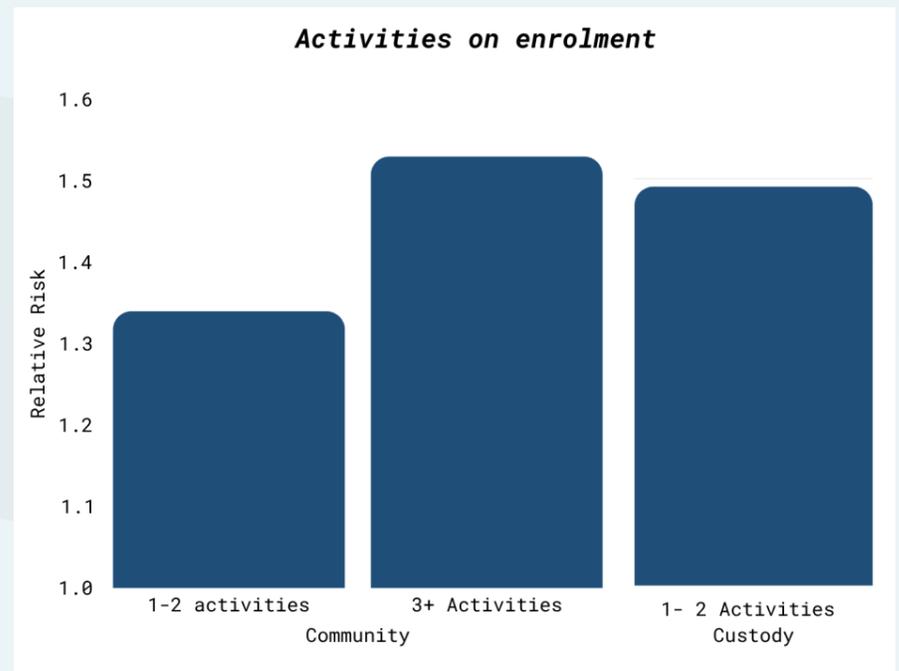
I used data collected by CFO support workers, which included information on the timing and type of activities completed by participants. After initial exploration in Excel, I conducted a full analysis in R, developing my coding and statistical modelling skills. The data were first organised into different 'scenarios,' and potential predictors of retention were identified. These were then incorporated into a logistic regression model, trained on one dataset and validated on another to prevent overfitting. Model performance was assessed using metrics such as the Area Under the Curve (AUC) from ROC analysis.



Increase in retention if a greater proportion of people did an activity

Each variable's contribution was interpreted using odds ratios, relative risks, confidence intervals, and p-values. The final report translated these statistical findings into clear, accessible language

suitable for non-specialist audiences.



Impact on retention when participants do an activity on enrolment.

Findings

- 47% of enrolled participants completed an activity within 30 days.
- Of those, 61% completed another activity within the following 30 days
- In the community, participants engaging in 1–2 activities or 3+ activities at enrolment were 34% and 53% more likely, respectively, to return for further engagement.
- If 20% of participants in the 'Through the Gate' (TTG) scenario completed an activity within seven days before release, overall retention would have increased from 5.5% to 6.8%.
- Participants who completed Personal Journal as their first activity in custody were 56% more likely to be retained.

Key Skills Learnt

- Data Analysis: Strengthened my ability to clean, analyse, and interpret data using R and Excel.
- Statistical Modelling: Applied logistic regression and cross-validation to real-world policy data.
- Communication: Produced a clear, evidence-based report and delivered an oral presentation to the CFO managers.
- Professional Experience: Gained insight into the application of data analysis to criminal justice policy and programme evaluation.
- Team Collaboration: I attended the office gaining experience in professional communication and workplace dynamics.