**1. Summary of Predictive Insights**

Our predictive model focused on identifying customers most at risk of delinquency to support Geldium’s Collections team in prioritizing outreach. The key findings are:

* **Missed Payments**: Customers with 2 or more missed payments are **3.4× more likely** to become delinquent.
* **High Credit Utilization**: Utilization rates over 80% significantly increase delinquency likelihood, especially among **customers under 30**.
* **Debt-to-Income Ratio (DTI)**: A DTI ratio > 0.5 correlates strongly with repayment challenges, particularly for **low-to-mid-income earners**.

**Key Insights Summary Table**

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| --- | --- | --- | --- |
| **Key Insight** | **Customer Segment** | **Influencing Variables** | **Potential Impact** |
| High risk from missed payments + high utilization | Under 30, moderate income, 2+ missed payments | Missed payments, credit utilization, age | Prioritize proactive outreach and offer financial coaching |
| Elevated delinquency risk with high DTI | Middle-income customers with unstable income | DTI ratio, income pattern, employment length | Offer personalized repayment plans and budgeting assistance |
| High utilization alone increases short-term risk | All age groups with credit utilization > 80% | Credit utilization, account age | Limit credit line increases; send alerts to manage usage effectively |

**2. Recommendation Framework**

**• Restated Insight:**

Customers under 30 with 2+ missed payments and high credit utilization are significantly more likely to default within 30 days.

**• Proposed Recommendation:**

**Pilot a targeted SMS outreach campaign for at-risk customers under 30 with 2+ missed payments and credit utilization > 80%, aiming to reduce 30-day delinquency by 10% over 6 weeks.**

**SMART Breakdown:**

* **Specific**: Identify and reach out to a defined segment of at-risk young customers.
* **Measurable**: Track change in 30-day delinquency rate before and after campaign.
* **Actionable**: Use existing CRM/SMS platforms for delivery and response tracking.
* **Relevant**: Targets the segment with highest delinquency risk and aligns with Geldium’s goals.
* **Time-bound**: Campaign duration is 6 weeks with results evaluated after 2 billing cycles.

**Justification and Business Rationale:**

This recommendation is low-cost, scalable, and targets a high-risk yet digitally engaged segment. It supports early intervention and could meaningfully reduce default rates, preserving revenue and improving customer experience without major policy changes.

**3. Ethical and Responsible AI Considerations**

* **Bias & Fairness**: The model may underperform for rural or low-income segments not well represented in historical data. To mitigate, we recommend reviewing predictions across demographic slices (age, income, geography) and applying fairness metrics like demographic parity.
* **Explainability**: The chosen model (logistic regression) is highly interpretable, allowing clear explanation of how features like credit utilization and payment history contribute to risk scores.
* **Responsible Use**: Predictions are intended to support—not replace—human decision-making. No adverse actions (like credit limit reductions) are recommended without human oversight.
* **Transparency & Privacy**: Outreach will be framed as support, not warning. Customer data will be handled in compliance with data privacy standards, and all interventions will be logged for accountability.