PlataCard task

[Link to the web version](#)

Summary

Hypothesis	The new phone system has an impact on the collection rate metric
Type	Causal Inference
Stream/Team	Collection
Conclusions	The new phone system shows a negative statistically significant result. However, to draw a complete conclusion, it is worth comparing the observed effect with potential benefits of implementing the system (e.g., savings on call costs or operator workload).
Status	Done
Action Items & Recommendations	
AB platform	Feature Toggle Link │ Experiment Link │ Dashboard Link
Analyst	@Sergei Pashkov
Validated	@Sergei Pashkov
Stakeholders	PlataCard managers team
Tags	#collection #experiment #causal_impact

Problem and context

In the collection process of one Mexican bank was implemented a new phone system, which was supposed to improve efficiency of the process. Implementation happened in November 2023.

1. Does the phone system have an influence on the efficiency of the collection process?
2. If yes - it's needed to estimate quantitatively the value of influence.

Solution

Group A (Actual)	Group B (Predicted)	Uplift absolute	Uplift, %	p_value
3,570k	3,971k	-401k	-10.1%	0.000

Dynamics fact and predicted metric "Collection Rate".

Observation vs prediction / Difference / Cumulative Impact

Metrics

Metric group	Hypothesis	Calculation of Metrics and Sources	Criteria for Comparison	Result
Target Metric	1	Collection Rate	Causal Impact	0.000

The new phone system shows a negative impact on collection performance. However, to draw a complete conclusion, it is worth comparing the observed effect with potential benefits of implementing the system (e.g., savings on call costs or operator workload).

Relative Effect

- **Metric**: Relative change in the target variable

- **Value (Average and Cumulative)**: -10.1%

- **95% Confidence Interval**: [+2.4%, -22.6%]

The metric dropped by approximately **10.1%** compared to the expected value.

While the upper bound of the interval is positive, **the majority of the probability mass lies in the negative range**, indicating a likely decrease.

P-value & Probability of Causal Effect

- **P-value**: 0.0%

- **Probability of Causal Effect**: 100.0%

This means the chance of observing such an effect **by random fluctuation is nearly zero**.

We can confidently say that the effect is **statistically and causally significant**.

Experiment Setup

1. Causal Impact for all users with overdue.

2. Regions:

3. Platforms:

4. Time Period: preperiod - 01.01.2020-31.10.2023, postperiod - 01.12.2023-30.12.2024

5. Statistical parameters (alpha = 0.05)

Detailed conclusions

The test showed a positive statistically significant result, however we need to do it again with better preparation

It is necessary to have data about the test design, verify the control of Type I and Type II errors, as well as potential cannibalization. Since the provided example lacks information about the experiment design, the general recommendation is to conduct the experiment again, following all necessary procedures.

With a larger dataset, it would be possible to capture smaller-scale effects by applying sensitivity enhancement methods.

We observe a significant and statistically meaningful decline in the target metric.

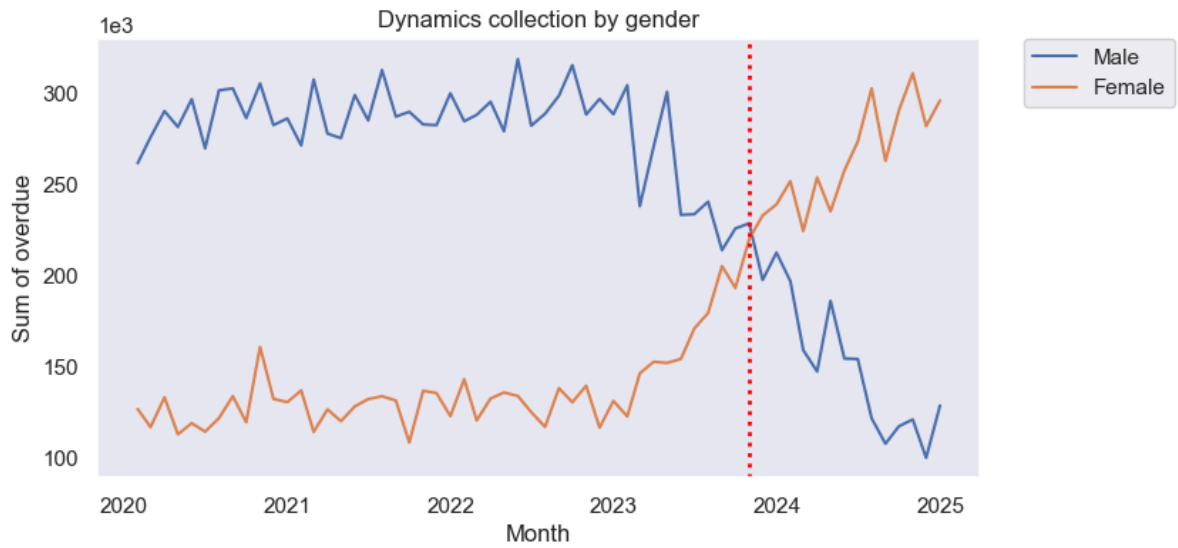However, several additional insights emerged during the experiment:

1. **The microcredit indicator has the strongest influence on repayment performance.**

▼ Impact of Regressors on Collection Rate (Linear)
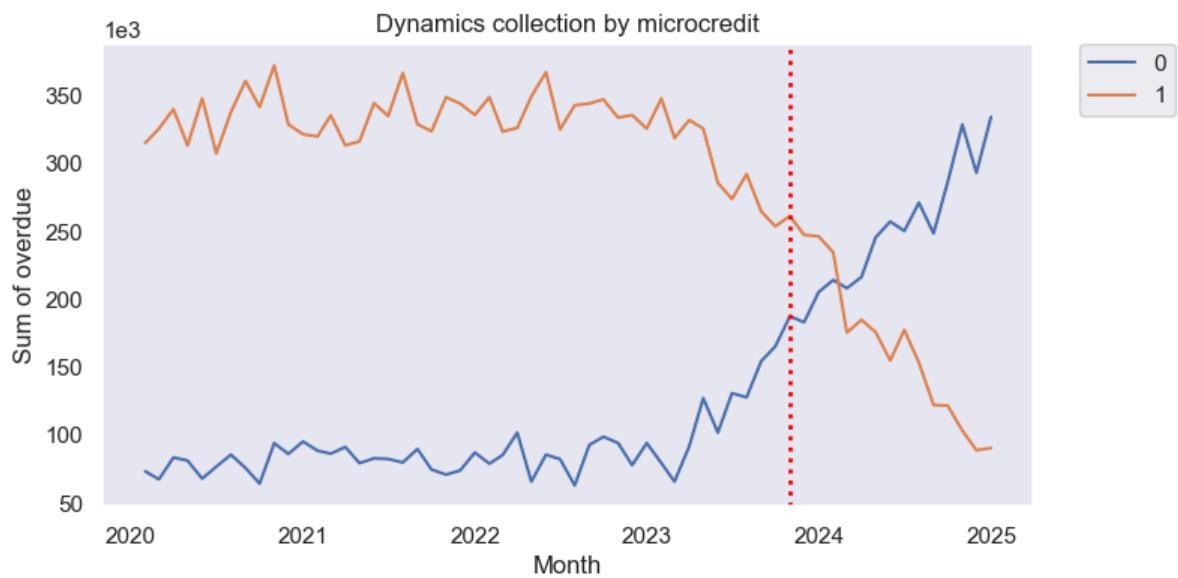

Impact of Regressors on Collection Rate (Linear)
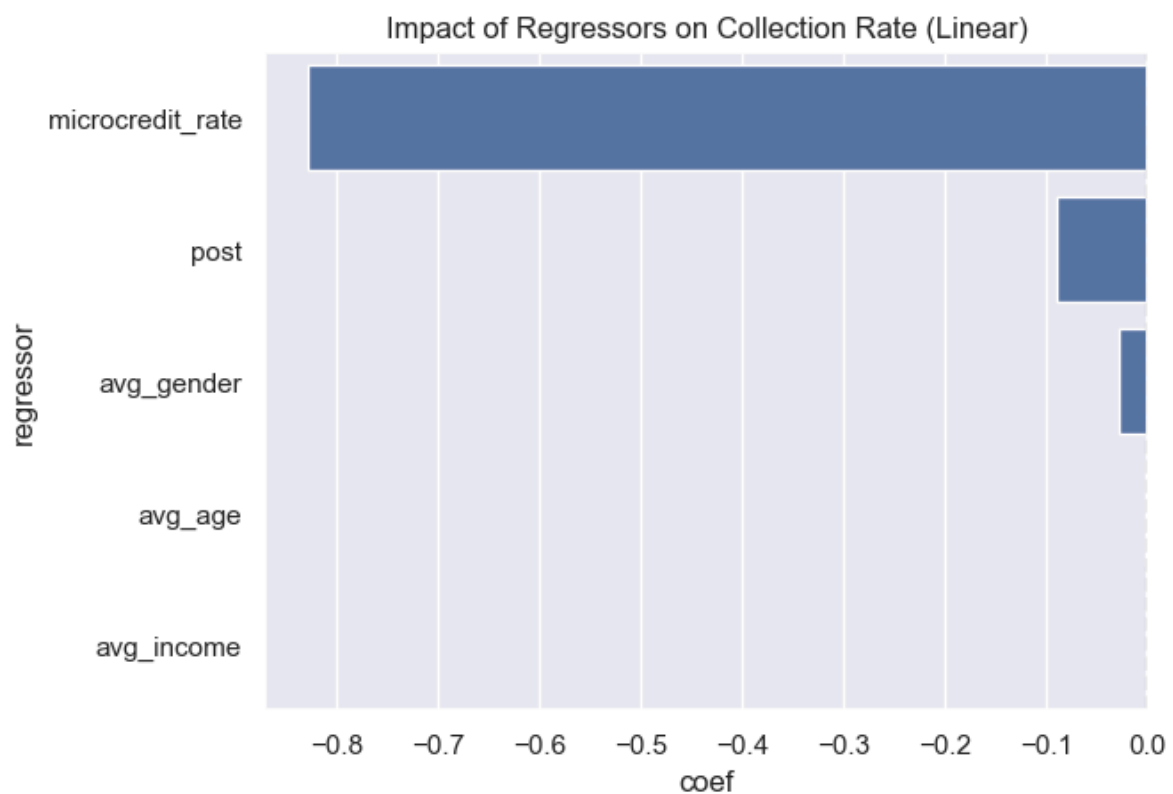
2. **Starting from January 2023, the demographic composition of delinquent clients has changed** — the proportion of women has increased significantly, as has the share of clients with a history of microcredit usage. In addition, the income cohorts of borrowers have shifted. These changes are likely linked to adjustments in the company's credit policy.
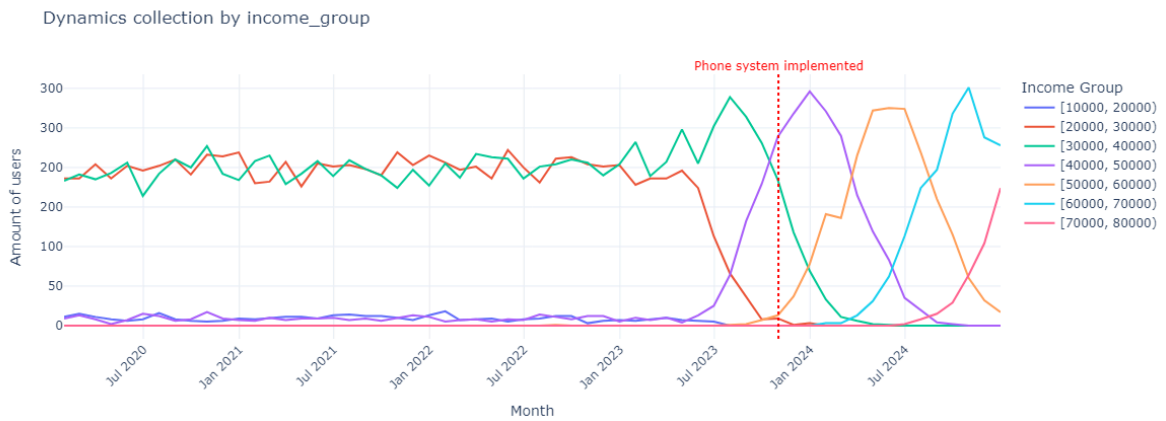
▼ The proportion of women

Dynamics collection by gender

▼ Clients with a history of microcredit usage

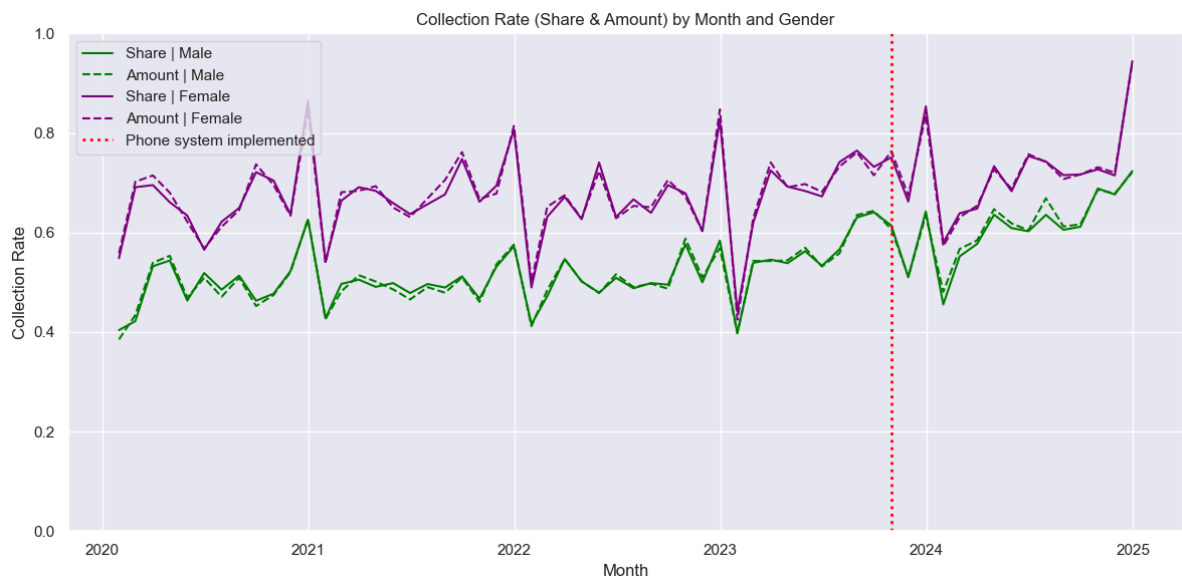Dynamics collection by microcredit

▼ The income cohorts of borrowers

Dynamics collection by income_group

3. **Debt recovery is more effective among female clients**, although the performance gap is showing signs of narrowing.

▼ Dynamics CR accross gender

Collection Rate (Share & Amount) by Month and Gender
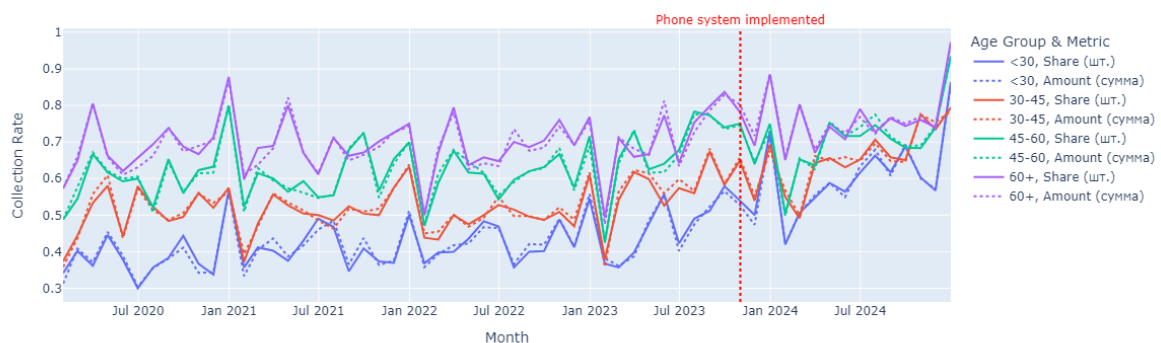
4. **Older clients tend to repay more effectively**, which is another important factor to consider.

▼ Dynamics CR accross gender

Collection Rate by Month and Age Group (Interactive)

Next steps

- It is worth comparing the observed effect with potential benefits of implementing the system (e.g., savings on call costs or operator workload)

Links and sources (jupyter, sql, google docs, etc)

Sources

Task description

task.ipynb