

# Credit Card Portfolio Performance and Customer Insights Report

*An Insight-Driven Data Analytics Project  
Using PostgreSQL and Power BI*

**Project Type:**

Personal Business Analytics Project

**Prepared By:**

Harshit Sharma

**Tools & Technologies:**

PostgreSQL, Power BI, SQL, DAX

**Project Focus:** Financial Performance Analysis, Customer Segmentation, Business Insight

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# 1. Introduction

Credit cards play a critical role in modern consumer finance, acting as both a payment instrument and a short-term credit facility. Financial institutions rely heavily on transactional and customer data to understand spending behaviour, manage credit risk, and optimise product offerings. As competition increases and customer expectations evolve, organisations must move beyond static reporting toward continuous, insight-driven monitoring.

This report presents a comprehensive analysis of a credit card portfolio using transactional and customer demographic data. The analysis is operationalised through dashboards built in Power BI, with PostgreSQL used as the backend database. Rather than focusing solely on metrics, this report emphasises business insights, behavioural patterns, structural risks, and strategic opportunities derived from the data.

The findings are intended to support decision-making across product strategy, customer segmentation, revenue optimisation, and risk management.

## 2. Executive Insight Overview

At an aggregate level, the credit card portfolio demonstrates strong revenue performance with total revenue of approximately 56.5M. However, deeper analysis reveals that this performance is driven by a narrow set of structural factors, including card type concentration, geographic clustering, and reliance on traditional transaction channels.

### Key Insights Summary

- Revenue growth is transaction-led, not fee-led, indicating dependence on customer spending behaviour.
- Interest income forms a significant portion of revenue, reflecting revolving credit usage.
- Blue cards dominate both transaction volume and revenue, creating product concentration risk.
- Swipe-based transactions significantly outweigh online transactions, highlighting slow digital adoption.
- High-value customers tend to be mid-aged, high-income, and professionally employed.
- Revenue is heavily concentrated in a small number of states, increasing regional exposure.

- Customer satisfaction remains moderate, signalling potential long-term retention risks.

These insights suggest that while the portfolio is currently profitable, its sustainability depends on diversification and strategic repositioning.

## 3. Portfolio Revenue Analysis

### 3.1 Overall Revenue Performance

**Finding (from dashboard):**

The dashboard indicates that the total portfolio revenue is approximately **56.5 million**, with interest earned contributing around **8.0 million**, transaction amount around **45.5 million**, and annual fees forming a smaller proportion of total revenue.

**Insight:**

This revenue composition shows that the portfolio is primarily **usage-driven**, relying heavily on customer spending behaviour rather than fixed fee income. While this reflects strong customer engagement, it also makes revenue more sensitive to changes in economic conditions or consumer confidence.

**Implication:**

To reduce dependency on transaction-driven revenue, the organisation could explore enhancing premium offerings or value-added services that generate more stable income streams.

### 3.2 Interest Earned and Credit Utilisation

**Finding (from dashboard):**

Interest earned represents a significant portion of total revenue, indicating that a substantial number of customers carry revolving balances rather than paying their full statement amount each cycle.

**Insight:**

High interest income suggests effective utilisation of credit facilities; however, it also signals increased exposure to **credit risk**, particularly when combined with high average utilisation ratios and delinquency indicators.

**Implication:**

Balancing profitability with risk management is essential. Monitoring utilisation and delinquency trends alongside interest income can help prevent future portfolio stress.

## 4. Temporal Performance Analysis

### 4.1 Quarterly Revenue Trends

**Finding (from dashboard):**

The quarterly revenue chart shows a clear upward trend, with **Q4 generating the highest revenue and transaction count**, followed by Q3, Q2, and Q1.

**Insight:**

This pattern highlights strong **seasonal spending behaviour**, likely driven by holidays, travel, and year-end consumption. The portfolio benefits disproportionately from Q4 performance.

**Implication:**

Seasonality presents both an opportunity and a risk. While Q4 boosts overall performance, targeted initiatives during Q1–Q3 could help stabilise revenue throughout the year.

### 4.2 Weekly Transaction Stability

**Finding (from dashboard):**

Weekly transaction volumes remain relatively consistent across the year, with minor fluctuations around seasonal peaks.

**Insight:**

Stable weekly activity indicates that customers regularly use credit cards for routine expenses, reinforcing the card's role as a primary payment method rather than an occasional credit tool.

**Implication:**

This stability provides a strong base for introducing recurring rewards, subscription-linked benefits, and predictive spending analytics.

## 5. Card Product Performance Insights

### 5.1 Revenue by Card Category

**Finding (from dashboard):**

The revenue-by-card-category visual shows that **Blue cards contribute the majority of revenue**, followed by Silver cards, while Gold and Platinum cards contribute significantly less.

**Insight:**

The portfolio is highly dependent on **mass-market card products**, indicating strong volume but limited monetisation through premium offerings.

**Implication:**

This concentration increases exposure to churn among price-sensitive customers and suggests untapped potential in premium card upselling.

### 5.2 Premium Card Underutilisation

**Finding (from dashboard):**

Despite higher annual fees and credit limits, Gold and Platinum cards account for a relatively small share of total revenue.

**Insight:**

This suggests either a lack of effective targeting for premium customers or an insufficient value proposition that fails to motivate upgrades.

**Implication:**

High-income and high utilisation blue card customers represent a strategic segment for premium conversion campaigns.

## 6. Transaction Behaviour Insights

### 6.1 Transaction Type Distribution

**Finding (from dashboard):**

Swipe transactions generate the highest revenue, followed by chip transactions, while online transactions contribute the least.

**Insight:**

Customer behaviour remains heavily oriented toward **physical card usage**, indicating slower adoption of digital transaction channels compared to broader industry trends.

**Implication:**

Encouraging online transactions could improve operational efficiency, enhance data richness, and increase customer stickiness through digital ecosystems.

## 6.2 Expenditure Category Patterns

**Finding (from dashboard):**

The highest revenue-generating expenditure categories include **Bills, Fuel, Grocery, and Entertainment**.

**Insight:**

Customers frequently use credit cards for **essential and recurring expenses**, not just discretionary purchases, creating predictable spending patterns.

**Implication:**

This predictability can be leveraged through category-specific rewards, utility partnerships, and subscription-based loyalty programs.

## 7. Customer Demographic Insights

### 7.1 Gender-Based Revenue Contribution

**Finding (from dashboard):**

Male customers contribute a higher share of total revenue compared to female customers.

**Insight:**

This difference may reflect variations in income levels, credit limits, or spending behaviour rather than engagement levels alone.

**Implication:**

There is an opportunity to design targeted offerings aimed at increasing engagement and spend among female customers.

## 7.2 Age Group Contribution

### Finding (from dashboard):

Customers aged **40–60** generate the highest revenue, while younger age groups contribute comparatively less.

### Insight:

Mid-aged customers are likely in peak earning years, with greater financial stability and higher credit utilisation, making them the most valuable segment.

### Implication:

Retention strategies and premium offerings should prioritise this age group while developing entry-level engagement strategies for younger customers.

## 7.3 Income Group Analysis

### Finding (from dashboard):

High-income customers account for a disproportionate share of revenue compared to medium- and low-income groups.

### Insight:

Revenue distribution is highly skewed, indicating that a relatively small segment drives a large portion of portfolio value.

### Implication:

Shifting toward a **customer lifetime value–based strategy** could significantly enhance profitability.

## 7.4 Education and Occupation Effects

### Finding (from dashboard):

Customers with graduate-level education and professional occupations (business, white-collar, self-employed) show higher revenue contributions.

### Insight:

Education and occupation act as strong indicators of financial capability and stable spending behaviour.



**Implication:**

These attributes can enhance segmentation, credit scoring, and targeted marketing initiatives.

## 8. Geographic Performance Insights

### 8.1 Revenue by State

**Finding (from dashboard):**

A small number of states contribute the majority of total revenue.

**Insight:**

While geographic concentration improves marketing efficiency, it also increases exposure to regional economic or regulatory risks.

**Implication:**

Diversifying growth into mid-performing states could reduce risk while expanding the revenue base.

## 9. Customer Satisfaction and Retention

### 9.1 Satisfaction Score Interpretation

**Finding (from dashboard):**

The average customer satisfaction score is approximately **3.19**, indicating neutral to moderately positive sentiment.

**Insight:**

Customers are not dissatisfied, but they are not strongly loyal either, which increases vulnerability to competitive offerings.

**Implication:**

Improving perceived value through transparent pricing, relevant rewards, and service quality could strengthen retention.

## 10. Integrated Insight Summary

### **Finding (cross-dashboard):**

Revenue is strong but concentrated across products, channels, customers, and regions.

### **Insight:**

The portfolio is financially healthy but structurally fragile, with growth driven more by existing behaviour than strategic differentiation.

### **Implication:**

Long-term sustainability will depend on diversification, digital adoption, and value-based customer strategies.

## 11. Strategic Recommendations

The following strategic recommendations are derived directly from the dashboard findings and insights discussed in earlier sections. They focus on improving revenue sustainability, reducing concentration risk, and strengthening customer engagement.

### 11.1 Transition from Volume-Based to Value-Based Growth

#### **Finding:**

Revenue is heavily driven by Blue card customers, indicating reliance on high transaction volumes rather than high-value products.

#### **Recommendation:**

Shift toward a **value-based growth strategy** by increasing revenue per customer. This can be achieved by identifying high-income, high utilisation blue card users and offering targeted upgrades to Gold or Platinum cards with clearly differentiated benefits.

#### **Benefit:**

This reduces dependency on price-sensitive mass-market customers and improves customer lifetime value.

## 11.2 Accelerate Digital Transaction Adoption

### **Finding:**

Swipe transactions dominate revenue, while online transactions remain relatively low.

### **Recommendation:**

Promote digital and online card usage through incentives such as online-exclusive cashback, partnerships with e-commerce platforms, and rewards for subscription-based spending.

### **Benefit:**

Increased digital adoption improves operational efficiency, enhances data visibility, and strengthens customer engagement within digital ecosystems.

## 11.3 Strengthen Customer Segmentation and Targeting

### **Finding:**

Revenue contribution varies significantly by age, income, education, and occupation, with mid-aged and high-income customers contributing the most.

### **Recommendation:**

Adopt more granular, data-driven segmentation that combines demographic and behavioural attributes to support personalised marketing, credit limit optimisation, and product recommendations.

### **Benefit:**

More precise targeting improves marketing effectiveness and maximises return on investment.

## 11.4 Reduce Geographic Concentration Risk

### **Finding:**

A small number of states contribute a disproportionate share of total revenue.

### **Recommendation:**

Maintain strong engagement in high-performing states while gradually expanding targeted campaigns in mid-performing regions with growth potential.

**Benefit:**

This balances revenue stability with risk diversification and supports sustainable expansion.

## 11.5 Improve Customer Satisfaction and Retention

**Finding:**

The average customer satisfaction score indicates neutral to moderately positive sentiment.

**Recommendation:**

Focus on improving customer experience through clearer reward structures, transparent fee communication, and responsive customer service, particularly for high-value segments.

**Benefit:**

Improved satisfaction reduces churn risk and supports long-term portfolio stability.

## 11.6 Align Revenue Growth with Risk Management

**Finding:**

Interest income forms a significant portion of revenue, reflecting widespread revolving credit usage.

**Recommendation:**

Integrate risk indicators such as utilisation ratios and delinquency trends into revenue monitoring, and proactively engage customers showing early signs of financial stress.

**Benefit:**

This ensures revenue growth is sustainable and does not compromise long-term credit quality.

## 12. Summary and Conclusion

This insight-driven analysis demonstrates that while the credit card portfolio currently performs well, its revenue structure is concentrated across products, channels, and

regions. Sustainable growth will require a shift toward value-driven strategies, digital adoption, enhanced customer segmentation, and improved satisfaction.

By leveraging PostgreSQL and Power BI, the project successfully transforms raw transactional and customer data into actionable insights that support both operational monitoring and strategic planning. The recommendations outlined provide a clear roadmap for improving portfolio resilience and long-term performance.

# 13. Appendices

## 13.1 Appendices A (SQL Schema & Queries)

PostgreSQL 18

Databases (2)

ccdb

public

cc\_detail

Query

Query History

Show queries generated internally by pgAdmin?

Remove

Remove All

1/5/2026 12:22:09 AM

Date

Rows affected

57 msec

Duration

Copy

Copy to Query Editor

CREATE TABLE cc\_detail (  
Client\_Num INT,  
Card\_Category VARCHAR(20),  
Annual\_Fees INT,  
Activation\_30\_Days INT,  
Customer\_Acq\_Cost INT,  
Week\_Start\_Date DATE,  
Week\_Num VARCHAR(20),  
Qtr VARCHAR(10),  
current\_year INT,  
Credit\_Limit DECIMAL(10,2),  
Total\_Revolving\_Bal INT,  
Total\_Trans\_Amt INT,  
Total\_Trans\_Ct INT,  
Avg\_Utilization\_Ratio DECIMAL(10,3),  
Use\_Chip VARCHAR(10),  
Exp\_Type VARCHAR(50),  
Interest\_Earned DECIMAL(10,3),

Data Output

Messages

Notifications

Showing rows: 1 to 1000

Page No: 1

of 11

SQL

client_num	card_category	annual_fees	activation_30_days	customer_acq_cost	week_start_date	week_num	qtr	current_year
708082083	Blue	200	0	87	2023-01-01	Week-1	Q1	2023

File

Object

Tools

Edit

View

Window

Help

PostgreSQL 18

Databases (2)

ccdb

public

cc\_detail

Query

Query History

Show queries generated internally by pgAdmin?

Remove

Remove All

1/11/2026 5:11:09 PM

Date

Rows affected

68 msec

Duration

Copy

Copy to Query Editor

COPY cc\_detail  
FROM 'C:\cc\_add.csv'  
DELIMITER ','  
CSV HEADER;  
  
COPY cust\_detail  
FROM 'C:\cust\_add.csv'  
DELIMITER ','  
CSV HEADER;

Messages  
Query returned successfully in 68 msec.

Data Output

Messages

Notifications

Showing rows: 1 to 1000

Page No: 1

of 11

SQL

client_num	card_category	annual_fees	activation_30_days	customer_acq_cost	week_start_date	week_num	qtr	current_year
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## 13.2 Appendices B (POWERBI Dashboard)

