# THE ROLE AND IMPORTANCE OF STATISTICAL ANALYSIS IN THE DEVELOPMENT OF SMALL AND MEDIUM BUSINESS

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**Annotation:** *This article explores the role of the Small and Medium Business (SMB) sector in economic development , the application of statistical analysis methods in evaluating entrepreneurial activity , and issues related to improving business statistics in the context of digital technologies. The study examines the system of SMB statistical indicators , methods for efficiency analysis , and mechanisms for data-driven decision-making.*

**Keywords:** *Small and Medium Business, business statistics, entrepreneurial indicators, efficiency analysis, forecasting, data-driven management*

## INTRODUCTION

Small and Medium Business (SMB) is the main driving force of the modern market economy , playing a significant role in the formation of the national Gross Domestic Product, job creation, and ensuring economic growth.

The processes of globalization and the intensification of competition are continuously increasing the demand for statistical analysis methods in entrepreneurial activity.

Business Statistics is a science that studies the quantitative aspects of the activities of business entities, their financial and economic indicators, and market processes. It is aimed at providing a scientific basis for business decision-making, increasing competitiveness, and strategic planning processes.

Research Methodology

The following methods were used in the research process : statistical observation method , grouping method , comparison method , time series analysis , correlation-regression analysis , ABC-XYZ analysis , generalization, and forecasting methods.

Results and Analysis

We will examine the results of the conducted research and the practical conclusions obtained using business statistics methods.

Theoretical Foundations of SMB Statistics

SMB Classification and Statistical Criteria

In Uzbekistan, the criteria for classifying Small and Medium Business (SMB) entities have been determined primarily by the annual turnover (income) amount since April 1, 2023. Previously, this criterion was mainly the number of employed staff in the enterprise. According to the legislation of Uzbekistan, SMB entities are classified as follows:

Micro-enterprises: Number of employees 1-20 people, annual revenue up to 1 billion UZS.

Small enterprises: Number of employees 21-50 people, annual revenue 1-3 billion UZS.

Medium enterprises: Number of employees 51-250 people, annual revenue 3-50 billion UZS.

Stages of Statistical Research

First stage - data collection. This is carried out through accounting report data, sales operation databases, CRM system data, and market research.

Example: Forecasting sales in the restaurant business.

Goal: To study the impact of factors on daily sales turnover and forecast for the coming month.

Data to be collected: daily sales turnover, number of visitors, average check, day of the week, weather, promotions.

Second stage- statistical data processing.

Table 1: Restaurant Daily Sales Statistics

| Day | Sales(mln) | Visitors | Avarage Check | Weather | Promotion |
|---|---|---|---|---|---|
| Saturday | 8.5 | 120 | 70,833 | Good | Yes |
| Sunday | 9.2 | 135 | 68,148 | Good | Yes |
| Monday | 4.1 | 58 | 70,690 | Rain | No |

Statistical indicators

Avarage daily sales:5.8mln UZS

Weekend sales:8.9mlnUZS(+53%)

Growth on promotion days:+42%

Correlation(visitors-sales): r=42%

Third stage – analysis and forecasting.

Multiple Regression: Sales=2.1+0.062*Visitors+1.8+Weekend+0.9*Promotion-1.2*Rain

Next month's forecast: 186mln UZS(monthly)

Business Statistical Indicators System

1. Sales Statistics

Sales Volume Dynamics: $I_s=(Q_1/Q_0)*100\%$

Average Check: $Ch_{ort}$= Total Sales/Number of Checks

Conversion: $K_k$=(Buyers/Visitors)*100%

2. Profitability Indicators

Sales Profitability: $R_s$=(Profit/Sales Volume)*100%

ROI: ROI=((Revenue – Investment)/Investment)*100%

3. Efficiency Indicators

Labor Productivity: W= Sales Volume/Number of Employees

Sales per square meter: $S_m$=Sales Volume/Sales Area($m^2$)

Practical Analysis Methods

ABC-XYZ Analysis — this is a complex analysis method that allows for the categorization of numerous objects (goods, customers, suppliers, etc.) in the company's activities based on their importance and demand stability. It combines two independent analyses: ABC analysis and XYZ analysis.

ABC Analysis — grouping products by their contribution to revenue:

Group A (80% of sales): Most important products, continuous monitoring.

Group B (15% of sales): Moderately important.

Group C (5% of sales): Least important, removal from assortment.

XYZ Analysis — demand stability

X — stable demand (V ‹ 10%)

Y — variable demand (10% ≤ V ‹ 25\%)

Z — irregular demand (V≥ 25%)

| Product | Sales(mln) | Share(%) | ABC | Variation | XYZ |
|---|---|---|---|---|---|
| Product 1 | 85 | 28.3 | A | 8 | X |
| Product 2 | 72 | 24.0 | A | 15 | Y |
| Product 3 | 48 | 16.0 | A | 6 | X |

Table 2: ABC-XYZ Analysis

RFM Analysis – customer segmentation

R—Recency(last purchase)

F - Frequency

M – Monetary(amount)

| Segment | RFM | Share (%) | Strategy |
|---|---|---|---|
| VIP customers | 555 | 5 | Special discounts |
| Loyal | 454 | 15 | Loyalty programs |
| Lost | 153 | 30 | Re-engagement campaigns |

Table 3: Customer Segmentation

Forecasting Methods

Simple Moving Avarages: SMA(n) = (Pt + Pt-1 + ... + Pt-n+1) / n

Trend Analysis:Yt = a + bt

Example: Y = 42.5 + 2.1×t (2.1mln UZS growth per month)

Correlation and Regression

Marketing and Sales Relationship:

Sales= 32.5 + 2.8 × Marketing_expenditure

Correlation: r = 0.89 (strong relationship)

Interpretation: Every 1 million UZS increase in marketing expenditure increases sales by 2.8 million UZS103. ROI = 180%104.

Digital Technologies and Business Statistics

Software — the totality of all programs, procedures, and associated documentation designed to ensure the operation of a computer system and perform a specific task.

Microsoft Excel — pivot tables, simple statistical functions, sufficient for micro-business.

Google Analytics — website statistics, conversion analysis, necessary for online business.

Power BI / Tableau — visual analytics, dashboards, optimal for medium business.

1C / amoCRM — CRM, sales and inventory accounting, customer relations.

Python / R — professional analytics, machine learning, forecasting.

Artificial Intelligence (AI) — an area of computer science focused on creating computer systems or software capable of performing tasks that typically require human intelligence (reasoning, learning, problem-solving, decision-making, language understanding, etc.).

AI applications in SMB:

1.Demand forecasting

2.Price optimization

3.Customer churn prediction

4.Chatbots and virtual assistants

SMB Statistics in Uzbekistan

Development in 2020-2024

| Indicator | 2020 | 2024 | Growth (%) |
|---|---|---|---|
| Number of SMB(thousand) | 378 | 528 | +39.7 |
| Employment(million) | 7.8 | 9.2 | +17.9 |
| Share in GDP(%) | 52.1 | 56.8 | +9.0 |
| Export (billion$) | 3.2 | 4.8 | +50.0 |

Table 4: SMB Development in Uzbekistan

Digitalization — the process of automating information gathering, storage, processing, and transmission, as well as the wide introduction of digital technologies into management, economy, social spheres, and daily life. It also includes converting physical data into a digital format that can be processed by computers.

E-ijara.uz, E-auksion.uz platforms

My.soliq.uz — online tax reporting

Payme, Click — digital payments

Popularization of CRM systems

Practical Case Study

Analysis of "Moda Style" clothing store:

Initial situation

Area: 80 m², Employees: 4 people

Annual sales: 850 million UZS

Problem: Growth slowed down, profitability decreased

Statistical analysis results:

| Indicator | Value | Normative | Status |
|---|---|---|---|
| Growth rate(%) | +3.5 | +15-20 | Low |
| Profitability (%) | 12.8 | 20-25 | Low |

| | | | |
|---|---|---|---|
| Conversion(%) | 18.2 | 25-30 | Low |
| Inventory Turnover (days) | 92 | 45-60 | Slow |

Table 5: Key Indicators

Identified problems:

250 products (Group C) are "sitting" in the warehouse

Marketing expenditure is very low (1.4%)

One-time customers account for 40%

High rent and salary costs (35.3%)

Recommendations and Forecast:

Measures:

Assortment optimization (selling 150 products)

Marketing 5 million UZS/month

Introduction of a loyalty program

Reduction of staff to 3 people

Forecast (12 months):

| Indicator | Current | Forecast | Change |
|---|---|---|---|
| Sales (mln) | 850 | 1,180 | +38.8 |
| Profit (mln) | 108 | 190 | +75.9 |
| Profitability (%) | 12.8 | 19.2 | +6.4 |
| Conversion (%) | 18.2 | 25.0 | +6.8 |

Table 6: Forecast Indicators

ROI: Investment 35 million UZS, additional profit 82 million UZS, ROI = 234%$ , Payback = 5.1 months

Conclusion and Recommendations

Based on the research results, we present the following conclusions:

1.Statistical analysis is a vital necessity for SMB. Data-driven decisions are essential for survival in competition.

2.Simple methods yield significant effects. Methods such as ABC analysis and RFM segmentation increase efficiency by 20-40%.

3.Digital technologies are democratizing analytics. Small businesses also have tools at the level of large corporations.

4.Customer data is the most valuable asset. CRM systems increase sales by 30-50%.

**5.** Forecasting is a strategic advantage. Knowing demand in advance reduces costs and increases opportunities

Recommendations for Entrepreneurs:

1.Keep a daily sales journal (Excel)

2.Implement a CRM system

3.Compare with industry average indicators

4.Study business statistics

5.Use analytical programs

Recommendations for Government Agencies:

1.Create a unified SMB analytical platform

2.Organize free online courses

3.Subsidies for digitalization

4.Develop the Open Data platform

5.Simplify online reporting

The final analysis shows that statistical analysis is an integral part of modern entrepreneurial activity and plays a crucial role in the competitiveness and sustainable development of SMB entities.

For the development of the SMB sector in Uzbekistan, increasing statistical literacy, using modern tools, and forming a data-driven management culture are priority tasks.

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