

## Analysis of the Profitability and Resource-Use Efficiency of Small-Scale Businesses in Ondo-State: A Panacea for Youth Unemployment

M.M. Fasoranti

Department of Economics, University of Adekunle Ajasin  
Akungba-Akoko, Ondo-State, Nigeria

**Abstract:** The study examined the profitability and resource-use efficiency of small-scale business in Ondo-State. Multi-stage sampling technique was used to select 120 small-scale business operators in bakery, tailoring and block making services from Akoko North East, Akoko South West and Akoko North West of Ondo State. The data collected were analysed with the aid of descriptive statistics, gross margin and production function analyses. Results showed that the sampled businesses were profitable in the study area with estimated gross margin of N46,068.8, N3,588.8 and N39,900.5 with estimated net returns of N33,172.00, N2,889.8 and N30,368.0 for bakery, tailoring and block making services, respectively. The result of the production function analysis showed that the inputs involved were efficiently allocated under bakery services while they were inefficiently allocated under tailoring and block making services. Bakery service was in stage 2 while tailoring and block making were in stages 1 and 3 of the production cycle, with estimated RTS of 0.613, 1.384 and -0.235, respectively.

**Key words:** Profitability, resource-use, efficiency, small-scale business

### INTRODUCTION

During the early post independence era, most governments in Nigeria adopted industrialization strategies in large-scale industries mostly of the assembly type. This coincided with the period when development was equated with rapid industrialization. However, this strategy has failed to achieve the stated objectives, as most of the industries set up tended to be capital intensive and hence inappropriate given our resource-endowment.

The inability of the large-scale businesses to propel meaningful sustainable economic development has brought into limelight the small-scale businesses. Hence, the promotion of small and medium scale enterprises has become an integral part of the process of reform and restructuring. The small-scale enterprises play vital roles in the process of industrialization and economic growth. It raises per capital income and output, creates employment opportunities, enhances rapid industrial development, promotes effective resource utilization and serves as stepping stones for large-scale enterprises. According to Innang and Ukpong (1992), small businesses stand a better chance of boosting employment and ensuring a more even distribution of industrial development in the country. This position was later reinstated by Olaniyan *et al.* (1998) emphasized the contribution of small scale businesses to the creation of

employment opportunities, free competitive environment, input for large scale industries, industrial innovations and promotion of indigenous technology.

There has been no generally acceptable definition, both by the academics and the practitioners on what small scale business is. What constitutes small-scale business in one economy may be different from what obtains in some other countries. It should be realized that the definition given at a particular time and place would depend on the country's level of development. For this study, the third National Development Plan (1975-1980) where small scale business is defined as a business establishment employing less than 10 employees and whose investment in machinery and equipment do not exceed N60,000, is adopted.

In realization of these important roles of small-scale enterprises, the various governments, federal and state, have embarked on various reforms and provision of incentives to promote the growth of small-scale businesses. Examples included the provision of finance through the small scale industrial credit scheme and Nigerian Industrial Development Bank, funding and setting up of industrial estates and encouraging and setting up of small scale industries through the National Directorate of Employment. Recently, the Federal, State and Local Government have embarked on series empowerment programmes, which have the development of small-scale businesses as one of the areas of focus. All

these programmes are aimed at making the small-scale businesses pivotal of sustainable development. Another major aim was to reduce the spate of unemployment especially among youth. As a matter of fact, the development of small-scale business is now one of the main platforms of government policy in Nigeria. To achieve this laudable objective, it is of utmost importance to examine those factors that determine the profitability and resource-use efficiency of the operators of small-scale businesses. Thus, the objectives of this study are to examine the socio-economic characteristics of small-scale business owners, to determine the level of profitability of small-scale business owners and to examine the resource-use efficiency for the factor inputs involved in small scale businesses.

## MATERIALS AND METHODS

**Data collection:** The areas of study for this research include Akoko North East, North West and South West local government areas of Ondo-State.

Tailoring, Bakery and Block making services were selected for this study. This is because they are the prominent small-scale businesses in the study areas. A total number of 120 respondents i.e., 40 from each business, were randomly selected with the aid of a well-structured questionnaire using a multistage random sampling technique. Data collected included ages of business owners, their level of education, years of experience, sex, acquisition skill method and number of labour employed.

**Analytical methods:** Descriptive and quantitative techniques were used to analyse the data collected. The descriptive techniques used were frequency distribution mean and tables. The quantitative techniques used included profitability and production function analyses.

### Profitability analysis

$$GM = TR - TVC \quad (1)$$

$$NR = TR - TC \quad (2)$$

Where:

GM = Gross Margin  
TR = Total Revenue  
TVC = Total Variable Cost  
TC = Total Cost  
NR = Net Returns

If  $GM > 0$ , the business is profitable only in the short run.  
If  $NR > 0$ , the business is profitable in the long run only.

The production functions for the three identified small-scale businesses in the study area were

specified by the linearised Cobb Douglas production function as follows:

### Baking

$$\log Q_B = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + \beta_8 \log X_8 + u \quad (3)$$

Where:

$Q^B$  = Quantity of bread produced  
 $X^1$  = Quantity of flour in kg  
 $X^2$  = Age of the business owner in years  
 $X^3$  = Years of baking experience in years  
 $X^4$  = Amount of capital employed in N  
 $X^5$  = Labour employed  
 $X^6$  = Level of Education  
 $X^7$  = Season dummy (Dry = 1, Net = 0)  
 $X^8$  = Numbers of hours worked  
 $U^1$  = Stochastic variable; normally distributed with zero mean and constant variance.

$\beta_0, \beta_1, \dots, \beta_8$  = Parameters to be estimated.

### Tailoring

$$\log Y = \partial_0 + \partial_1 \log C_1 + \partial_2 \log C_2 + \partial_3 \log C_3 + \partial_4 \log C_4 + \partial_5 \log C_5 + \partial_6 \log C_6 + \partial_7 \log C_7 + u_i \quad (4)$$

Where:

Y = Output measured in N  
 $C_1$  = Sewing materials  
 $C_2$  = Years of sewing experience  
 $C_3$  = Number of Apprentices  
 $C_4$  = Amount of capital employed  
 $C_5$  = Level of education  
 $C_6$  = Season dummy: festive = 1, Non-festive = 0  
 $C_7$  = Age of business owners  
 $V_i$  = Error term  
 $\partial_0, \partial_1, \dots, \partial_7$  = Parameters to be estimated.

### Block industry

$$\log TBP = P_0 + P_1 \log Z_1 + P_2 \log Z_2 + P_3 \log Z_3 + P_4 \log Z_4 + P_5 \log Z_5 + P_6 \log Z_6 + P_7 \log Z_7 + P_8 \log Z_8 + P_9 \log Z_9 + P_{10} \log Z_{10} + u_i \quad (5)$$

Where TBP = Total Blocks Produced

$Z_1, \dots, Z_{10}$  are total cement (kg), labour, capital (N), years of experience, season dummy (Dry = 1, wet = 0), price of block, level of education, number of moulding machines, access to credit dummy (yes = 1, No = 0) and number of delivering van, respectively.

The production models were estimated using the Ordinary Least Squares (OLS) estimation technique under

Table 1: Educational status of small-scale business operators in ondo-state

| Level of education | Frequency | Relative frequency % |
|--------------------|-----------|----------------------|
| Primary            | 19        | 15.83                |
| Secondary          | 88        | 73.33                |
| Tertiary           | 13        | 10.84                |
| Total              | 120       | 100.0                |

Table 2: Age distribution of respondents

| Age bracket  | Frequency | Relative frequency % |
|--------------|-----------|----------------------|
| 16-30        | 35        | 29.10                |
| 31-45        | 38        | 31.67                |
| 46-60        | 40        | 33.33                |
| 61 and above | 7         | 6.00                 |
| Total        | 120       | 100.0                |

Table 3: Working experience of small-scale business operators in ondo-state

| Years of experience | Frequency | Relative frequency % |
|---------------------|-----------|----------------------|
| < 10                | 66        | 55                   |
| 10-20               | 37        | 30.8                 |
| 21-30               | 10        | 8.3                  |
| 30 and above        | 7         | 5.8                  |
| Total               | 120       | 100.0                |

Table 4: Profitability analysis of small-scale business in ondo-state

| Variable | Enterprises                 |                           |                             |
|----------|-----------------------------|---------------------------|-----------------------------|
|          | Bakery (Ton of 50 kg flour) | Tailoring (Monthly basis) | Block (Ton of 50 kg cement) |
| TR       | 155,445.00                  | 8,635.00                  | 120,515.00                  |
| TVC      | 100,318.4                   | 5,126.25                  | 83,614.53                   |
| FC       | 22,965.3                    | 614.00                    | 9,349.00                    |
| TC       | 122,681.11                  | 5,745.25                  | 92,961.05                   |
| GM       | 46,068.8                    | 3,588.75                  | 39,900.47                   |
| NR       | 33,172.00                   | 2,889.75                  | 30,368.03                   |

the assumption that data fulfilled the assumptions of the multiple regression model (Koutsouyiannis, 1977). The estimated functions were evaluated in terms of statistical significance and magnitude of the coefficient of determination ( $R^2$ ), size and signs of estimated coefficients, F-value and the magnitude of the standard error.

## RESULTS AND DISCUSSION

**Socio-economic characteristics of small business owners:** Table 1 shows that 73.33% of total respondents had secondary education, while 15.83 and 10.84% had primary and tertiary education, respectively. Majority of the respondents were school certificate holders perhaps because of their inability to go for higher education which could be to lack of finance and failure in the school certificate examination.

The ages of operation ranged between 16 and 60 years. Approximately 60.7% of total respondents lie between ages 16 and 45 years while 39.3% were between

46 and 60 years and above. Hence one could safely say that majority of the business owners were within the active age brackets (Table 2).

Majority of the business sampled was still young as 55% of total number sampled were less than 10 years (Table 3). This shows the growing proliferation of small-scale businesses in Nigeria, which is specifically dominated by younger labour force. Table 3 also shows that 30.8, 8.3 and 5.8% of total sample were between 10-20, 20-30 and above 30 years, respectively.

**Profitability analysis:** The results of the profitability analysis are presented in Table 4. Findings show that the three businesses are profitable both in the short run and long run given the positive values of the gross margin and net returns. Table 4 shows that on the average, bakery will fetch the operator a gross margin of N46, 068.8 and a net return of N33, 172 per ton of flour (i.e., for 50 kg bag) all things being equal. On the other hand, block making recorded N39, 900.5 and N30, 368 as gross margin and net returns, respectively per ton of cement (i.e., 50 kg bag) all things being equal. For tailoring, the gross margin and net returns were N3, 588.8 and N2, 889.8, respectively per month, all things being equal. Nevertheless, bakery recorded the highest level of profitability in the study area. This could be due to the essential nature of bakery products in the diet of the respondents.

**Estimated production function and resource-use efficiency:** The estimated production functions of the three sampled small-scale businesses are presented in Table 5-7. The estimated  $R^2$  showed that the postulated regressors explained 64.6, 49.1 and 87.0% in the variations in the dependent variable, for bakery, tailoring and block making businesses, respectively.

Under bakery, the estimated value of quantity of flour used, size of labour, level of education significantly influenced the quantity of bread produced. The coefficient of flour used was positive while the other two were negative. For tailoring, number of apprentices and level of education significantly influenced the output while number of bags of cement used and number of workers employed had significant influence on the number of blocks produced. Note that the positive sign of the coefficients implied that an increase in the use of such variables will increase the level of output, all things being equal while the negative values indicate a decrease in output as more of such variables are used. In other words, the inputs with positive values implied that such inputs are efficiently allocated i.e. inputs such as quantity of flour used (bread making); number of apprentices and

Table 5: Estimates of the production function for the baking business

| Variable                   | Parameters | Coefficients | Std Errors | T-ratio |
|----------------------------|------------|--------------|------------|---------|
| Constant                   | $\beta_0$  | 218528.79    | 119563.35  | 1.828   |
| Quantity of flour consumed | $\beta_1$  | 4897.95      | 827.47     | 5.92    |
| Age of respondents         | $\beta_2$  | -1445.63     | 1649.41    | -0.876  |
| Years of experience        | $\beta_3$  | 149.92       | 1641.33    | .091    |
| Amount of capital employed | $\beta_4$  | 0.0322       | .034       | .955    |
| Labour                     | $\beta_5$  | -4643.23     | 4079.34    | -1.138  |
| Hours used in work         | $\beta_6$  | -8.32        | 1002.31    | -.008   |
| Level of education         | $\beta_7$  | -4783.42     | 3819.89    | -1.252  |
| Season                     | $\beta_8$  | -73191.84    | 54572.46   | -1.341  |

Table 6: Estimates of the production function for tailoring business

| Variable                        | Parameters   | Coefficients | Std Errors | T-Value |
|---------------------------------|--------------|--------------|------------|---------|
| Constant                        | $\partial_0$ | 5.137        | 13.358     | 0.385   |
| Amount of sewing materials used | $\partial_1$ | -0.137       | 0.27       | -0.500  |
| Years of Experience             | $\partial_2$ | 0.5142       | 0.692      | 0.740   |
| Number of (Apprentices)         | $\partial_3$ | 0.00003      | 0.000      | 1.812   |
| Amount of Capital Employed      | $\partial_4$ | -0.0724      | 0.780      | -0.093  |
| Level of Education              | $\partial_5$ | 0.0022       | 0.001      | 2.543   |
| Season                          | $\partial_6$ | 9.154        | 10.471     | 0.874   |
| Age of the Tailoring            | $\partial_7$ | -0.122       | 0.298      | -0.411  |

Table 7: Summary of the multiple regression results for block business

| Model                         | Parameters    | Coefficients | Std Errors | T-Value |
|-------------------------------|---------------|--------------|------------|---------|
| Constant                      | $\delta_0$    | 768.015      | 1334.252   | 0.576   |
| Bags of cement consumed (kgs) | $\delta_1$    | 33.569       | 6.905      | 4.861   |
| Labour                        | $\delta_2$    | 92.201       | 101.433    | 0.909   |
| Amount of capital employed    | $\delta_3$    | 0.00032      | 0.000      | 1.242   |
| Years of experience           | $\delta_4$    | -10.28       | 21.076     | -0.485  |
| Season                        | $\delta_5$    | -222.58      | 389.031    | -0.572  |
| Price of the block            | $\delta_6$    | -9.608       | 71.629     | -0.134  |
| Educational level             | $\delta_7$    | -8.521       | 10.275     | -0.829  |
| Number of molding machines    | $\delta_8$    | 105.790      | 237.283    | 0.446   |
| Number of delivery vans       | $\delta_9$    | -188.741     | 222.148    | -0.850  |
| Access to credit              | $\delta_{10}$ | -113.947     | 257.153    | -0.443  |

Table 8: Elasticity of production and returns to scale

| -----A. Baking business-----     |              |
|----------------------------------|--------------|
| Variables                        | Elasticities |
| Quantity of flour consumed       | 0.190        |
| Age of respondents               | 0.0475       |
| Years of experience              | 0.111        |
| Amount of capital employed       | -0.169       |
| Workforce                        | 0.706        |
| Hours used in work               | 0.158        |
| Level of education               | -0.0068      |
| Season                           | -0.424       |
| RTS                              | 0.6127       |
| -----B. Tailoring business-----  |              |
| Variables                        | Elasticities |
| Amount of sewing materials used  | 0.093        |
| Years of experience              | -0.130       |
| Workforce (Apprentices)          | 0.064        |
| Amount of capital employed       | 0.065        |
| Level of education               | 0.865        |
| Season                           | -0.075       |
| Age of the tailoring             | 0.502        |
| RTS                              | 1.384        |
| -----C. The block industry-----  |              |
| Variables                        | Elasticities |
| Bags of cement consumed (50 kgs) | 0.467        |
| Workforce (workers)              | 0.672        |
| Amount of capital employed       | 0.0018       |
| Years of experience              | -0.132       |

Table 8: Continued

|                            |        |
|----------------------------|--------|
| Season                     | 0.266  |
| Price of the block         | -0.235 |
| Education Level            | -0.077 |
| Number of molding machines | 0.000  |
| Number of delivery vans    | 0.000  |
| Access to credit           | -0.655 |
| RTS                        | 0.3078 |

level of education (tailoring business) and number of workers (block making). On the other hand, inputs with negative coefficients were inefficiently allocated as shown in Table 8.

The computed Return To Scale (RTS) for the three sampled businesses are shown in the lower part of Table 8 a-c. The estimated RTS of 0.613, 1.384 and -0.235 shows that bread making, tailoring business and block industry operated under stages of increasing, decreasing but positive and decreasing but negative returns to scale i.e., stages II, I and III of the production cycle. Hence resources were efficiently allocated under bread making while they were inefficiently allocated under tailoring and block industries. Note that the variables with negative elasticities are experiencing diminishing returns to factors.

## **CONCLUSION**

The study examined the profitability and resources use efficiency of small-scale businesses in Ondo-State. A multi-stage sampling method was employed to select 120 small-scale business operators in Akoko North East, Akoko South west and Akoko North West. Data were collected with the aid of well-structured questionnaire. Data were analysed using descriptive statistics, gross margin and production function analyses. Results showed that small-scale businesses were profitable in the study area with bread making recording the highest level of profitability. Results also showed that quantity of flour used, size of labour and level of education were significant determinants of the quantity of bread produced. Number of apprentices and level of education significantly influenced tailoring while quantity of cement used and number of workers influenced block making. Among other things, findings showed that resources were efficiently allocated under bread-making while they were inefficiently allocated under tailoring and block industries in the study area.

For greater profitability and efficiency, the educational status of small-scale business operators should be improved through regular seminars on the organization of small-scale businesses and input maximization. Youth should also be encouraged into small-scale business especially bread baking through the provision of micro-credit facilities by the government.

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