The Impact of Demographic and Social Factors on Firm Performance in Kenya

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Received: July 25, 2017; Accepted: August 14, 2017; Published: October 11, 2017

Abstract: An excellent performance in terms of output or profitability is one of the major goals of any firm. In order to achieve this, firms use various inputs such as financial resources (capital), human resources (labor force), technology among others. Demographic factors such as gender, education level and age also play a key role. The current study investigated the impact of these demographic and social factors on performance of business firms in Kenya using data from MSME 2016 survey, which was conducted by Kenya National Bureau of Statistics in 2016. Firm performance was measured by average monthly revenue, which is equivalent to the value of the firm’s maximized output. The factors investigated include education level, gender and age of the firm. In addition to these factors, the study also investigated the effect of labor force, capital and firm’s ownership structure on performance. Ordinary least squares technique and descriptive statistics were used. The study found that education level and age of the firm have a positive effect on performance. Firms operated by males were found to have a better performance than those operated by females. In addition, the study found that partnerships, cooperatives and companies (both private and public limited) perform better than family owned business firms did. (JEL D21, D22, D24, M21).

Keywords: Demographic and Social Factors, Firm Performance, Inputs, Revenue

1. Introduction

Business firms in Kenya are a major source of employment generation, economic growth and social transformation. They also provide a significant share of total value added to the economy. In Kenya, small business firms' output contributed to a tune of KSH 3371.7 billion against a national output of KSH 9971.4 billion representing a 33.8% contribution in 2015 [18]. This magnificent contribution of the sector shows that it is important to investigate the factors that contribute to the performance of these firms.

Every firm strives to achieve an outstanding performance in terms of maximizing either output, profits or rate of stock turnover. This superior performance enables firms to survive. In execution of their activities in order to achieve this goal, business firms use labor (human resources) and capital (finances and machines) as the main inputs. However, in addition to these inputs, controlling variables such as government policies and entrepreneur' attributes matter a great deal.

A firm’s superior performance is dependent upon available resources, both tangible and intangible. According to Resource Based View (RBV), a firm’s unique, rare, imitable and valuable resources lead to the firm’s competitive advantage [13] and [14]. Based on this view, this study asserts that entrepreneurs’ characteristics are valuable, unique and rare resources of the business firm that contribute towards its sustainable competitive advantage that is critical in achieving superior performance. This is because entrepreneurs have innate inabilities, that is, they do not have same essential characteristics and abilities that contribute towards the firm’s competitive advantage. Thus, this study treats entrepreneur’s demographic characteristics- in addition to capital and labor- as critical factors for their success.

Small business firms are widely regarded as the driving force in economic growth and job creation in both developed and developing countries [23]. They provide important avenues for growth and employment in the current world. In the existing literature, a close attention has been paid to business skills, sources of capital, and problems of small business firms among other issues while little attention has been paid to demographic and social factors and their impact on performance of these firms. Some researchers also have
noted that small business firms suffer from poor management of the small business sector, poor marketing skills and inadequate human resource management. These challenges hinder many firms from attaining their full potential and eventually fail to grow. The high rate of failure of these firms makes it necessary to examine whether demographic and social factors such as gender, age, education level and ownership structure have any impact on firm performance. Therefore, this paper will investigate the influence of firm’s age and ownership structure, gender and education level of entrepreneur on performance of business firms. The remaining part of the study is organized as follows; section 2 presents the literature review on the factors in question; section 3 presents the research methodology, section 4 presents the analysis and section 5 gives the conclusion of the study.

2. Literature Review

2.1. Measuring Performance of Business Firms

In the business world, the terms growth and performance (success) are comfortably used in place of each other. In this study, the term performance will be used. Firm performance means effective outcomes [8]. Performance of a business firm can be measured by financial measures such as gross turnover, profitability or increased output. Non-financial measures such as market share, sales growth, customer satisfaction, loyalty and brand equity can also be used to measure firm performance [23]. This study relies on the financial indicators of performance. Majority of studies such as [29] use profitability as a key dimension of firm performance in the context of small firms. According to [4], it makes sense to use profitability and growth rate separately as a measure of firm performance because entrepreneurs engaged in small firms are not obliged to display information about the performance of the firm. However, the current study uses the value of output, which is equivalent to revenue to measure performance.

2.2. Firm’s Age and Performance

Age is used in social science research to classify people and point out the differences among them [1]. It is a time of life and one’s qualification and power increases with age. [32] Asserts that the skills of a person improve with age. According to [3], a person’s age is not related to firm performance, but rather the firm’s age is the one that matters in this regard. Most of the existing literature reveals contradicting results on the relationship between firm age and performance. [7], [15], [12] and [9] support a positive relationship arguing that experience through age helps firms to perform better. [2] Points out a negative relationship and argued that there can be ‘decay’ because of age leading to poor performance. It has been found that as the firm ages, its performance drops [19].

Firm performance patterns are connected to demographic characteristics of firms such as firm age [11]. [22], [28] and [10] agree with each other that young firms that display high performance levels have twice the probability of survival as their less performing counterpart. They conclude that small firms’ performance is often closely linked with firm overall success and survival. [21] Using both financial and nonfinancial performance indicators in Kampala found a positive relationship between firm age and performance. [19] Assert that as firms grow older their profitability tends to decline. This is attributed to two reasons: First, corporate aging which reflect a concentration of organizational rigidities over time which raises costs, growth slows, assets become obsolete and ultimately investment declines. Secondly, older age could advance diffusion of rent-seeking behavior inside the firm due to poorer governance and higher CEO pay observed in older firms. Thus, researchers hold contradicting or diverse views concerning the effect of firm’s age on performance. The current study is motivated by the contradicting views on the impact of firm’s age on performance.

2.3. Gender and Firm Performance

Gender has an impact on entrepreneurial success and hence on firm performance [23]. A more gender balance in entrepreneurship could imply a better work-life balance for a society [17]. As such, economies could benefit by convincing talented females to start businesses and take up the challenges, which might prove difficult for some. Some studies have described gender as a vital determinant of entrepreneurial behavior, intention and thus performance and revealed that males have more intentions towards entrepreneurship than females [33]. [24] Notes that many women want economic and personal independence, but are less capable and confident to run a business. Females have 50% less possibility of starting a venture compared to males [25]. In addition, [31] hold a very interesting view that females of developing countries struggle more to involve in entrepreneurship because they want to improve their family’s life standards that is difficult with low-level jobs.

2.4. Education and Firm Performance

A good quality education has a positive impact on firm performance since it enhances entrepreneur’s self-confidence and self-efficacy [17]. Education builds confidence, psychology, knowledge and skills, which are critical in achieving the firm’s objectives. Furthermore, it has been pointed out that educated people are creative and innovative and can therefore look for unique ways of satisfying a want [6]. Education level of the owner of the business firm can assist the business to survive and manage a complex environment and maintain the firm’s objectives. [20] Analyzed the effect of education level on performance of small tourism sector enterprises and found that education and training help overcome management issues that confront businesses. Further, they observe that by integrating education and training into businesses helps them experience many advantages in operational, tactical and strategic
management. These combined lead to improved performance.

2.5. Ownership Structure

Ownership structure is believed to affect firm performance. In the framework of structure-conduct-performance, a set of conditions determine the ownership structure of a firm, which then determines the corporate behavior and performance. It is hypothesized that there exists a relationship between ownership structure and firm performance because ownership concentration and owner identity influence the incentives of each party within the firm, and thus influence the firm’s ability to solve agency problem.

[5] Investigated the effect of ownership structure on firm performance in Scandinavian and found that ownership concentration has a positive effect on firm profitability and growth. [30] Investigated the effect of ownership by different groups of investors on performance of listed companies in Malaysia and found that firm performance is positive and significantly related to government-linked investment companies and foreign ownership while negatively and significantly related to state ownership. [27] Pointed out that the joint-stock companies are less efficient than private copartner companies are because the directors would not watch over ‘other people’s money’ with ‘the same anxious vigilance’ as their own. [16] Investigated the hypothesis that variations across firms in observed ownership structures result in systematic variations in observed firm performance and the findings suggested that a more concentrated ownership structure positively relates to a higher firm profitability.

3. Methodology

3.1. Conceptual Framework

A firm needs inputs (resources) to produce an output. From production theory, the main inputs or factors are categorized into land, labor, capital and entrepreneurship. For business firms, the main inputs are capital, labor and entrepreneurship. The firm’s production function is thus given as

\[ Q = F(K, L, A) \]  

(1)

Where

- K is capital input,
- L is labor input
- A is entrepreneurship.

From the literature we have reviewed, entrepreneurial ability is affected by gender and education level of the entrepreneur and ownership structure. Thus,

\[ Q = F(K, L, \text{firm's age} (A(\text{Gender, education, ownership structure})) \]  

(2)

The Cobb-Douglas form of the production function will thus be given as

\[ Q = K^\alpha L^\beta G^\delta e^{A(\text{Gender, education, ownership structure})} \]  

(3)

For simplicity, let \( X_1 = \text{gender of entrepreneur}, X_2 = \text{education level of entrepreneur} \) and \( X_3 = \text{firm ownership structure} \). Substituting in equation 3 we have

\[ Q = K^\alpha L^\beta G^\delta e^{A(X_1, X_2, X_3)} \]  

(4)

Log linearizing equation 4 gives the following

\[ \ln Q = a \ln K + \beta \ln L + \delta \ln G + A(X_1, X_2, X_3) \]  

(5)

The aim of the firm is to maximize output subject to the cost of hiring labor, capital and entrepreneurial services. Thus, the firm’s cost function is given as

\[ C = \gamma K + \delta L + \mu A \]  

(6)

However, for small business firms, due to their nature of operation, the value of output is the same as revenue. Therefore, maximizing output for a small business firm is the same as maximizing its revenue, that is, once output is maximized it is multiplied by the existing product price to get revenue of the firm.

Solving the above optimization problem gives the optimal quantities of \( K, L, G \) and \( A \) that maximize the firm’s revenue (value of output). However, since this study seeks to establish the effect of entrepreneurial attributes on the performance of the firm, the study will not estimate the optimal demands of \( K, L, G \) and \( A \), instead it will estimate a model to show the effect of these attributes on the firm’s performance. Therefore, the empirical model estimated was given as:

\[ \ln R = \ln (P.Q) = a_0 + a \ln K + \beta \ln L + \delta \ln G + \mu_1 X_1 + \mu_2 X_2 + \mu_3 X_3 + \varepsilon \]  

(7)

Where

- \( R \) is the firm’s value of output (revenue)
- \( K \) is the capital input
- \( L \) is the labor input
- \( G \) is firm’s age in months
- \( X_1 \) is gender of entrepreneur
- \( X_2 \) is education level of entrepreneur
- \( X_3 \) is ownership structure of the firm
- \( a_0, a, \beta, \delta, \mu_1, \mu_2 \) and \( \mu_3 \) are parameters.
- \( \varepsilon \) is the error term.

\( R, L, K \) and \( G \) are quantitative while \( X_1, X_2 \) and \( X_3 \) are qualitative variables. \( X_1 \), \( X_2 \) and \( X_3 \) are defined as follows:

\[ X_1 = \begin{cases} 1 & \text{for male entrepreneur only} \\ 2 & \text{for female entrepreneur only} \\ 3 & \text{for male \_ \_ female partners} \\ 4 & \text{for male \_ \_ male partners} \\ 5 & \text{for female \_ \_ male partners} \end{cases} \]
3.2. Source and Type of Data

This study used secondary data for MSME survey conducted in 2016 by the Kenya National Bureau of Statistics.

3.3. Analysis Procedure

Since the dependent variable in question was quantitative in nature, descriptive statistics and OLS procedures were adopted to determine the effect of demographic and social factors on performance of the firms. Breusch-Pagan test and variance inflation factor were used to test for heteroscedasticity and multi-collinearity respectively.

4. Result and Discussion

4.1. Summary Statistics

The following table presents the summary statistics of the variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observation</th>
<th>Mean</th>
<th>St. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>22362</td>
<td>163458.8</td>
<td>4226221</td>
</tr>
<tr>
<td>Capital</td>
<td>19158</td>
<td>1340890</td>
<td>2.22e+07</td>
</tr>
<tr>
<td>Labor</td>
<td>23160</td>
<td>5.883247</td>
<td>55.61728</td>
</tr>
<tr>
<td>Firm age</td>
<td>23160</td>
<td>96.69187</td>
<td>96.83339</td>
</tr>
</tbody>
</table>

Table 1 above shows the descriptive statistics of revenue (value of output), capital and labor employed by the business firms employed captured in the survey. It also contains information on firm age in months. The mean of monthly average revenue was Ksh. 163458.8; capital employed on average is Ksh. 1340890 while on average the firms employed six laborers (persons). The age of firm is given in months from the date it was started. On average, the business firms covered in the survey were about 97 months old from the date they were started.

Table 2 above shows the distribution of business firms by sex (gender) of owners or entrepreneurs. As shown in the table, 45.98% of the firms were owned by male entrepreneurs while female entrepreneurs owned 26.08% of the firms. In addition, firms owned by male-female partners accounted for 3.25%, firms owned by male-male partners accounted for 1.29% while firms owned by female-female partners accounted for 23.41%. This table also reveals that of the firms captured in the survey, males have a higher tendency of starting and owning businesses than females.

Table 3. Distribution of firms by highest education level of entrepreneur (owner).

<table>
<thead>
<tr>
<th>Highest education</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No education</td>
<td>1267</td>
<td>5.81</td>
</tr>
<tr>
<td>Primary</td>
<td>5506</td>
<td>25.25</td>
</tr>
<tr>
<td>Vocational (Y. Polytechnic)</td>
<td>303</td>
<td>1.39</td>
</tr>
<tr>
<td>Secondary</td>
<td>8072</td>
<td>37.02</td>
</tr>
<tr>
<td>Mid-level college</td>
<td>4071</td>
<td>18.67</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>2010</td>
<td>9.22</td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>576</td>
<td>2.64</td>
</tr>
</tbody>
</table>

The highest education attainment of entrepreneurs (owners of firms) is presented in table 3 above. Of the firms covered, 5.81% were owned by entrepreneurs who had no education, 25.25% were owned by entrepreneurs who had primary education as their highest level of education while about 1.4% of the firms were owned by entrepreneurs who had vocational training/ youth polytechnic as their highest level of education. Firms owned by entrepreneurs who had secondary and mid-level college as highest level of education accounted for 37.02% and 18.67% respectively while firms owned by entrepreneurs with undergraduate and postgraduate degrees as highest education level accounted for 9.22% and 2.64% respectively. It is clear that many firms were owned and operated by people with secondary education as their highest qualification.
Of the firms covered in the survey, sole proprietors owned most of the firms. As shown in the table, sole proprietors owned 62.75% of firms followed by family owned business firms. Cooperatives and private companies accounted for the least number of firms, that is, 0.68% and 0.66% respectively.

### 4.2. Multicollinearity Test

A variance inflation factor (VIF) which provides an index that measures how much the variance of an estimated regression coefficient is increased because of collinearity was employed to test for multicollinearity. Since none of the VIFs, as shown in table 5, was greater than 10, then multicollinearity was not a serious issue (was very low). Therefore, the model was estimated.

### 4.3. Regression Analysis

The following section presents the results obtained when the log of firm revenue was regressed on the independent variables in question. As shown in table 6, the coefficient of determination; R-squared is 30.7% implying that the independent variables in question explain up to 30.7% of the variations in log revenue. The F-statistic of 388.75 and P-value of 0.000 indicate that the estimated model is a good fit.

The coefficient on log capital is positive and statistically different from zero at 1% level of significance. This implies that a 1% increase in capital increases firm’s revenue by 0.3022863%. The coefficient on log labor is positive and statistically different from zero at 1% level of significance implying that its effect on firm’s revenue is statistically significant. In particular, it means that when labor in a firm increases by 1%, firm’s revenue increases by 0.4159845%. The effect of log firm age is also significant at 1% level of significance and implies that when the age of a firm increases by 1%, the firm’s revenue increases by 0.1552789%. Thus, as a firm ages its performance becomes better.

The revenue of firms run by a female entrepreneur is 13.48% lower relative to the revenue of a firm run by a male entrepreneur. Also, the revenue of firms run by male-female partners is 20.6% lower relative to the revenue of firms run by male entrepreneurs. Their coefficients are statistically different from zero at 1% level of significance implying that firms owned and operated by a male perform better than firms run by female entrepreneurs or/and male-female partners. The revenue of firms run by male-male partners and female-female partners is 15.26% and 2.41% respectively lower relative to that run by male entrepreneur. However, the difference is not statistically significant.

### Table 4. Distribution of firms by ownership structure.

<table>
<thead>
<tr>
<th>Ownership structure</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family owned business firms</td>
<td>5625</td>
<td>24.29</td>
</tr>
<tr>
<td>Sole proprietor</td>
<td>14533</td>
<td>62.75</td>
</tr>
<tr>
<td>Partnership</td>
<td>1885</td>
<td>8.14</td>
</tr>
<tr>
<td>Cooperative</td>
<td>158</td>
<td>0.68</td>
</tr>
<tr>
<td>Group owned business</td>
<td>225</td>
<td>0.97</td>
</tr>
<tr>
<td>Private company</td>
<td>581</td>
<td>2.51</td>
</tr>
<tr>
<td>Public limited company</td>
<td>153</td>
<td>0.66</td>
</tr>
</tbody>
</table>

### Table 5. Multicollinearity test.

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary education</td>
<td>4.75</td>
<td>0.210589</td>
</tr>
<tr>
<td>Primary education</td>
<td>4.20</td>
<td>0.237896</td>
</tr>
<tr>
<td>Mid-level college</td>
<td>3.46</td>
<td>0.289208</td>
</tr>
<tr>
<td>Sole proprietor</td>
<td>2.34</td>
<td>0.427505</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>2.33</td>
<td>0.429460</td>
</tr>
<tr>
<td>Female-female partners</td>
<td>2.06</td>
<td>0.484636</td>
</tr>
<tr>
<td>Log labor</td>
<td>1.44</td>
<td>0.692457</td>
</tr>
<tr>
<td>Partnership</td>
<td>1.43</td>
<td>0.700217</td>
</tr>
<tr>
<td>Log capital</td>
<td>1.41</td>
<td>0.711684</td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>1.39</td>
<td>0.721689</td>
</tr>
<tr>
<td>Male-female partners</td>
<td>1.31</td>
<td>0.762124</td>
</tr>
<tr>
<td>Vocational/ youth polytechnic</td>
<td>1.25</td>
<td>0.802478</td>
</tr>
<tr>
<td>Female entrepreneur</td>
<td>1.20</td>
<td>0.831779</td>
</tr>
<tr>
<td>Private company</td>
<td>1.12</td>
<td>0.890160</td>
</tr>
<tr>
<td>Male-male partners</td>
<td>1.12</td>
<td>0.893736</td>
</tr>
<tr>
<td>Group business</td>
<td>1.05</td>
<td>0.955711</td>
</tr>
<tr>
<td>Log firm age</td>
<td>1.04</td>
<td>0.958510</td>
</tr>
<tr>
<td>Public limited company</td>
<td>1.02</td>
<td>0.978602</td>
</tr>
<tr>
<td>Cooperative</td>
<td>1.02</td>
<td>0.983385</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.84</td>
<td></td>
</tr>
</tbody>
</table>

N=16692; F Stat=388.75; P-value=0.000; R²=0.3070; Adj. R²=0.3062

The reference category for education is 'no education'. There is an increase in coefficients from no education to postgraduate degree. These coefficients are statistically significant. This implies that, as the level of education increases, firm’s revenue increases. Therefore, firm performance improves with education of entrepreneur /or firm operator.

The revenue of a partnership firm is 26.78% higher relative to that of family owned firm while the revenue of a cooperative firm is 103% higher relative to that of a family owned firm. The findings also reveal that the revenue of a private company and public limited company is approximately 70% and 115% respectively higher relative to that of a family owned firm. This implies that the type of ownership structure influences the level of revenue generated.
by a firm. The revenue of group business firms is 7.5% lower relative to that of family owned firms, but the difference is not statistically significant.

4.4. Test for Heteroscedasticity

Breusch-Pagan/Cook-Weisberg test for heteroscedasticity was employed and a chi-squared statistic of 805.01 with a probability value of 0.0640 was obtained. As a result, the null hypothesis of constant variance was not rejected (failed to reject H0) implying that the variance of the error term was constant across observations and the estimated model was homoscedastic.

5. Conclusion

This study was designed to determine the impact of demographic and social factors on firm performance in Kenya. Performance was measured by the firm’s monthly average revenue, which is equivalent to the value of a maximized output. The factors investigated include gender of entrepreneur, highest education level of entrepreneur, age of the firm and firm’s ownership structure.

The study revealed that the age of a firm has a positive effect on its performance. As a firm grows old or ages, its performance becomes better (or improves). This can be attributed to the fact that efficiency levels and skills improve with time. On gender, the study has shown that male entrepreneurs or firms operated by males do better than firms operated by females do. The findings of this study can be explained by the fact that men are more willing and ready to take risks than women do and they have less family responsibilities compared to women thus have enough time to carry out operations in their firms.

Education level of entrepreneur was found to have a positive effect on firm performance. The findings show that revenue (performance) increases with education level of the entrepreneur. Firms operated by entrepreneurs with at least primary education qualification were found to have a higher chance of performing better (make more revenue) than the ones operated by entrepreneurs with no any education qualification. This is because education enhances entrepreneur’s self-confidence and self-efficacy. In addition, educated people (entrepreneurs) are creative and innovative and can look for unique techniques to solve a problem or satisfy a want in their firms. Furthermore, education improves management, which creates conducive environment for a good performance of the firm. These findings, in a broad sense, confirm the assertions that experience through primary education qualification were found to have a higher positive effect on firm performance. The findings show that performance becomes better (or improves). This can be a hindrance to getting these funds like the Youth Enterprise Fund.

The result of the study showed that firms operated by men tend to perform better than firms operated by women do. However, the study was mainly based on small firms and the results may not apply to big firms. Further study can be undertaken in other sectors other than the micro, small and medium enterprise (or retail) firms.

References


