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Subsidies, Firm Size and Financial Sustainability of Micro and Small Enterprises in Kenya

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Abstract: *Micro and Small Enterprises (MSEs) are central to Kenya's economic growth, yet many struggle to remain financially sustainable due to limited credit access, high financing costs, and weak internal capacities. Subsidies have increasingly been used to ease these constraints, but evidence on their effectiveness remains limited and context specific. This study examines the effect of subsidies on the financial sustainability of MSEs in Kenya and evaluates whether firm size moderates this relationship. Using secondary panel data from 390 enterprises supported under the National Agricultural and Rural Inclusive Growth Project (NARIGP) from 2018 to 2022, the analysis applies descriptive statistics and panel regression modeling. Financial sustainability was assessed using net profit margin and current ratio, while firm size was measured through the natural logarithm of total assets. The results indicate that subsidies significantly improve financial sustainability, and that this effect is stronger among larger enterprises. The study concludes that although subsidies are an effective support mechanism, their impact is not uniform across firms. It recommends targeted subsidy programs complemented by capacity-building initiatives and policies that promote enterprise growth to ensure that smaller MSEs can fully benefit from financial support instruments.*

Keywords: Financial Sustainability; Kenya; Micro and Small Enterprises; National Agricultural and Rural Inclusive Growth Project; Subsidies

1 Background to the Study

Micro and Small Enterprises (MSEs) are widely recognized as key drivers of economic growth across developing countries, contributing significantly to employment creation, income generation, and social mobility. However, despite their economic importance, MSEs continue to experience persistent challenges that undermine their financial sustainability. Many of these enterprises operate with limited access to capital, face high operational costs, and are more vulnerable to market shocks compared to large firms, largely due to their small size and informal structures (OECD, 2019; Bartolacci et al., 2020).

Financial sustainability is a critical dimension of overall business sustainability and reflects an enterprise's ability to generate value for owners and continue operating over the long term. Scholars define financial sustainability as the capacity to generate revenues, produce adequate returns, and maintain operations through an optimal combination of financing sources (Zabolotnyy & Wasilewski, 2019; Menne et al., 2022). It encompasses a firm's ability to manage resources efficiently, invest for growth, and align the interests of stakeholders while safeguarding long-term performance (Ye & Kulathunga, 2019; Masdupi et al., 2024). For MSEs, achieving financial sustainability remains difficult due to limited access to affordable financing and the high-risk perception among lenders (Boccaletti et al., 2024; Masdupi et al., 2024).

Because of these constraints, the search for innovative financing mechanisms has intensified. Blended finance has emerged as one such approach, designed to mobilize additional resources for small enterprises by combining concessional funds with commercial financing (Pereira, 2017; Habbel et al., 2021). Subsidies - one of the blended finance instruments - play a particularly important role in reducing cost burdens, de-risking investment, and enabling small firms to access financial resources they would otherwise find unavailable or unaffordable (Badjie, 2019; Mutambatsere & Schellekens, 2020). Through grants, discounted financing, or technical support, subsidies are intended to strengthen the financial resilience and long-term viability of MSEs.

However, despite the increasing use of subsidies and other blended finance tools, evidence suggests that many MSEs still struggle to access sufficient financing to sustain operations. Studies in Kenya show that a large proportion of MSEs remain credit-constrained, with high interest rates, collateral requirements, and restrictive repayment terms limiting their ability to maintain financial stability (Shakir, 2022; Mwende et al., 2019; Dickson & Wachira, 2019). While blended finance initiatives exist, their impact remains limited due to narrow scope and low absorption among local enterprises (Mutambatsere & Schellekens, 2020; Shwedeh et al., 2022).

Firm size may further influence the effectiveness of subsidies. Larger MSEs may have more established systems, better managerial capacity, and stronger financial controls, enabling them to utilize subsidies more effectively. Smaller MSEs, by contrast, often face operational and structural challenges that weaken their ability to absorb subsidized support and translate it into sustainable financial outcomes. This suggests a potential moderating effect of firm size on the relationship between subsidies and financial sustainability.

Given the persistent financing challenges facing MSEs and the increasing reliance on subsidies as part of blended finance strategies, it is crucial to understand how subsidies influence financial sustainability and whether firm size modifies this relationship. This study

therefore examines the effect of subsidies on the financial sustainability of MSEs in Kenya and assesses the moderating role of firm size in this relationship.

2 Statement of the Problem

Micro and Small Enterprises (MSEs) are essential drivers of Kenya's economic growth, yet their financial sustainability remains fragile and increasingly uncertain. Although financial sustainability is critical for long-term survival, many MSEs continue to experience persistent constraints that weaken their ability to generate stable revenues, maintain liquidity, and invest for future growth. Recent studies show that MSEs struggle to achieve sustainable financial outcomes due to high operating costs, weak capital structures, limited managerial capacity, and recurring liquidity pressures (Menne et al., 2022; Masdupi et al., 2024). Financial markets in developing countries have also remained inefficient in providing affordable and adequate credit to small firms, leaving many MSEs financially vulnerable and unable to withstand market disruptions (Boccaletti et al., 2024; OECD, 2021).

Despite the emergence of innovative financing mechanisms, a substantial financing gap persists. Strict collateral requirements, high interest rates, and information asymmetry continue to limit access to credit for MSEs, particularly those operating in informal and high-risk sectors (Shakir, 2022; Habbel et al., 2021). This financial exclusion undermines enterprises' capacity to remain profitable, liquid, and resilient - key dimensions of financial sustainability (Zabolotnyy & Wasilewski, 2019; Herman & Zsido, 2023). As a result, many MSEs are unable to sustain operations, expand production, or withstand external shocks, contributing to high business mortality rates across the country.

Subsidies, as part of blended finance instruments, have increasingly been promoted as a way of easing the financial pressures faced by MSEs. Properly targeted subsidies can lower operational costs, reduce risks, and enhance access to markets and credit, thereby supporting the financial sustainability of small firms (Pereira, 2017; Badjie, 2019). However, the extent to which subsidies effectively strengthen financial sustainability remains unclear, especially within Kenya's diverse MSE landscape. Moreover, MSEs differ significantly in capacity, structure, and resource base. Firm size may therefore moderate how subsidies influence financial outcomes; larger enterprises may have better systems to absorb subsidized support, while smaller firms may lack the managerial and financial structures needed to translate subsidies into sustainable gains (Mutambatsere & Schellekens, 2020; Shwedeh et al., 2022).

Although international organizations emphasize blended finance as a critical strategy for supporting small enterprises, significant gaps exist in the empirical literature. First, most prior studies have focused on general financing constraints rather than examining subsidies specifically as a determinant of financial sustainability. Second, existing research tends to treat blended finance instruments individually while offering limited insight into the role of subsidies within integrated financing arrangements. Third, the potential moderating effect of firm size on the subsidies–financial sustainability relationship remains largely unexplored. Finally, few studies have examined these issues within structured programmatic environments such as Kenya's emerging blended finance initiatives, leaving a contextual gap in understanding how subsidies function in real-world enterprise development settings.

These conceptual, empirical, and contextual gaps limit evidence-based policy decisions and weaken the design of targeted financial support tools for MSEs. This study therefore seeks to examine the effect of subsidies on the financial sustainability of Micro and Small Enterprises in Kenya and assess whether firm size moderates this relationship.

3 Objectives of the Study

1. To establish the effect of subsidies on the financial sustainability of Micro and Small Enterprises in Kenya.
2. To examine the moderating effect of Firm size on the relationship between subsidies and the financial sustainability of Micro and Small Enterprises in Kenya.

4 Hypothesis of the Study

H_{01}: Subsidies have no significant effect on the financial sustainability of Micro and Small Enterprises in Kenya.

H_{02}: Firm size does not significantly moderate the relationship between subsidies and the financial sustainability of Micro and Small Enterprises in Kenya.

5 Theoretical Framework

Financial Innovation Theory, originally advanced by Joseph Schumpeter and later expanded by scholars such as Tufano, explains how the development of new financial instruments and institutional arrangements reduces transaction costs, mitigates risk, and expands access to capital. Under this perspective, subsidies - considered a form of financial innovation within blended finance - help de-risk investments and improve liquidity for financially constrained enterprises (Pereira, 2017; Habbel et al., 2021). By lowering operational costs and enhancing access to inputs and credit, subsidies can strengthen the profitability and liquidity of MSEs, thereby

improving their financial sustainability. This theory therefore anchors Objective 1, which examines the effect of subsidies on the financial sustainability of Micro and Small Enterprises in Kenya.

The Pecking Order Theory, proposed by Myers and Majluf (1984), posits that firms prefer internal financing, followed by debt, and resort to equity only as a last option. Larger firms generally possess stronger internal resources, more established credit histories, and reduced information asymmetry, enabling them to access and absorb external financing more effectively than smaller firms. Applied to this study, the theory suggests that firm size may influence how subsidies translate into financial outcomes, as larger MSEs are better positioned to utilize financial support efficiently. This perspective therefore anchors Objective 2, which examines the moderating effect of firm size on the relationship between subsidies and financial sustainability.

6 Conceptual Framework

The study conceptualizes the relationship between subsidies and the financial sustainability of Micro and Small Enterprises in Kenya, and the moderating effect of firm size.

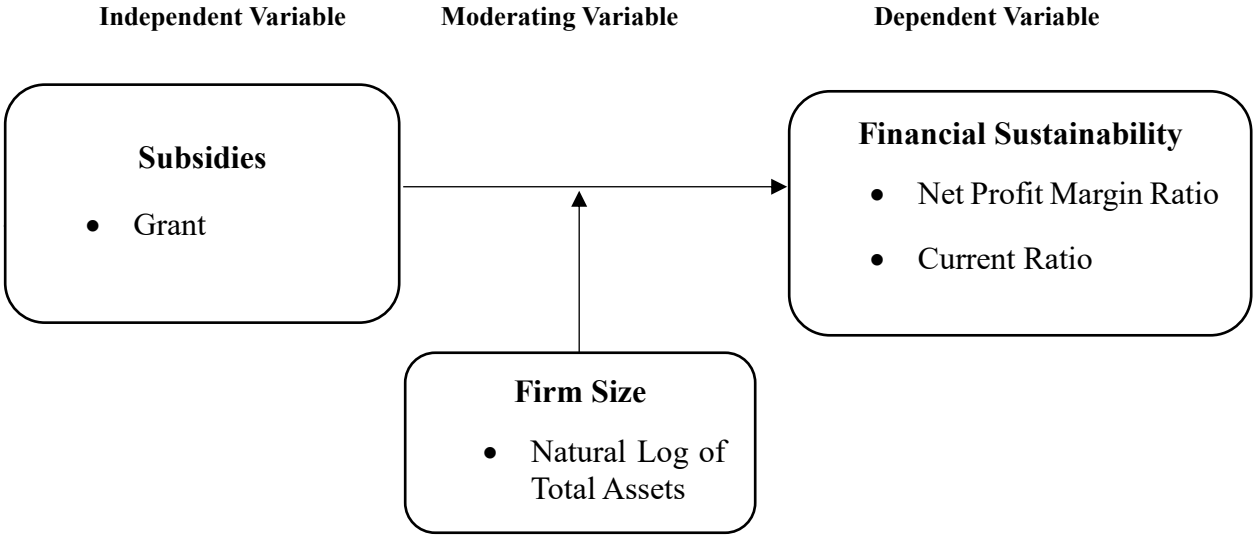

Figure 1: Conceptual Framework (Author, 2025)

7 Empirical Review

Empirical studies show that subsidies and public financial support can influence the financial outcomes of small enterprises, but the evidence remains mixed and context-specific. Ullah et al. (2023) found that government incentives affect MSE performance differently depending on the type of support, with certification subsidies showing the strongest effect on innovation and financial outcomes. Aslam et al. (2023) further demonstrated that green subsidies enhance firm performance indirectly through product innovation, while Boccaletti et al. (2024) established that SMEs using public grants and guarantee schemes experience improved access to finance and stronger growth. Although these findings suggest that subsidies can strengthen financial sustainability, they are drawn from non-Kenyan contexts, leaving limited empirical insights on how subsidies affect Kenyan MSEs. Evidence on firm size also points to its potential moderating role: larger enterprises often possess stronger resource bases and managerial capacity, enabling them to utilize external support more effectively (Abdi et al., 2022; Alodat et al., 2023). Prior studies across other sectors, including aviation and hospitality, similarly show that firm size significantly influences profitability and financial efficiency (Abdi et al., 2022; Sritharan, 2015). However, the combined effect of subsidies and firm size on the financial sustainability of MSEs has not been examined within the Kenyan context, presenting a clear empirical and contextual gap that this study addresses.

8 Research Gap

Empirical evidence on subsidies and financial outcomes shows mixed and context-specific results, with studies reporting varied effects depending on the type of government support and the economic environment. Ullah et al. (2023) found that only certain forms of government incentives significantly improve MSE financial performance, while other instruments produce inconsistent results. Aslam et al. (2023) showed that subsidies can enhance firm performance through innovation pathways, but their effectiveness depends heavily on internal capacity and external market conditions. Boccaletti et al. (2024) further demonstrated that public grants and guarantee schemes improve access to finance and stimulate growth among European SMEs, yet these findings emerge from

advanced markets and cannot be directly generalized to Kenya's MSE context. On the other hand, evidence on firm size indicates that larger enterprises often possess stronger resource bases and managerial capabilities that enhance financial outcomes, suggesting a potential moderating role of size (Abdi et al., 2022; Alodat et al., 2023). Studies in related sectors also show that firm size significantly influences profitability and financial efficiency (Sritharan, 2015). However, no study has jointly examined the effect of subsidies on the financial sustainability of MSEs in Kenya while assessing whether firm size alters this relationship. This leaves a clear empirical and contextual gap that the current study seeks to fill.

9 Methodology

This study adopted a pragmatist research philosophy, which emphasizes methodological flexibility and the use of approaches most suitable for answering the research questions, making it appropriate for examining how subsidies influence the financial sustainability of Micro and Small Enterprises (MSEs) and how firm size moderates this relationship (Scholtz et al., 2020; Antwi & Hamza, 2015). A descriptive research design was employed, relying entirely on secondary data derived from financial statements, project reports, and administrative records of MSEs supported under the National Agricultural and Rural Inclusive Growth Project (NARIGP). The target population comprised 15,000 beneficiary MSEs drawn from 21 counties, from which a sample of 390 enterprises was selected using Yamane's formula through proportionate cluster sampling followed by simple random sampling. Data on subsidies were obtained from NARIGP grant records, while indicators of financial sustainability - net profit margin and current ratio - were computed from enterprise financial statements in line with established measures (Herman & Zsido, 2023; Schwab et al., 2019). Firm size, the moderating variable, was measured as the natural logarithm of total assets, consistent with standard practice for normalizing scale differences (Gleißner et al., 2022).

Before estimation, diagnostic tests were conducted to ensure the validity of the regression models, including tests for multicollinearity, heteroskedasticity, normality, stationarity using the Levin–Lin–Chu test, serial correlation using the Durbin–Watson statistic, and model specification using the Hausman test (Saunders et al., 2009; Bhangu et al., 2023). Data analysis involved descriptive statistics, correlation analysis, and panel regression techniques to establish both the direct effect of subsidies and the moderating effect of firm size on financial sustainability (Scholtz et al., 2020).

Two regression models were estimated. The baseline model examined the direct effect of subsidies on financial sustainability and was specified as:

$\mathbf{Y_{it} = \beta_0 + \beta_1 X_{1it} + \varepsilon_{it}}$; Where Y_{it} is financial sustainability, X_{1it} is the subsidy variable, and ε_{it} is the error term.

The moderated model assessed whether firm size alters the strength or direction of the subsidy–sustainability relationship and was specified as:

$\mathbf{Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 Z_{it} + \beta_3 (X_{1it} * Z_{it}) + \varepsilon_{it}}$; Where Z_{it} represents firm size and $(X_{1it} \cdot Z_{it})$ is the interaction term capturing moderation. The coefficient β_3 indicates whether firm size strengthens or weakens the effect of subsidies on the financial sustainability of MSEs.

10 Findings and Discussion

Descriptive Statistics

The descriptive results showed that subsidies varied widely across the sampled MSEs, indicating uneven access to financial support. Subsidy amounts ranged from very small grants for start-up inputs to substantially larger allocations for mature enterprises, reflecting the differentiated nature of support under NARIGP. Financial sustainability indicators which are measured using the net profit margin and current ratio displayed moderate variability. Most MSEs operated with modest profitability and liquidity levels, consistent with the structural constraints highlighted in previous studies on Kenyan MSEs. Firm size, measured by total assets, showed substantial differences across enterprises, suggesting that MSEs remain highly heterogeneous in their financial capacity and asset base.

Table 1: Summary of Descriptive Statistics

	Y	GRANT	BANK LOAN	COUNTER...	COLLATE...	LN TOTA...
Mean	0.844739	159742.3	64882.82	29046.15	27001.08	13.25649
Median	0.836253	156200.0	58500.00	25700.00	25300.00	13.27817
Maximum	2.531919	427100.0	309300.0	433800.0	103400.0	14.94465
Minimum	0.443987	56100.00	20800.00	10000.00	9200.000	12.24337
Std. Dev.	0.183118	55857.50	35284.08	19141.10	13247.68	0.497109
Skewness	1.033271	0.409057	1.842375	7.844566	1.712210	0.143556
Kurtosis	6.868790	2.702597	8.463189	134.4327	7.429138	2.751594
Jarque-Bera	1563.098	61.56800	3528.185	1423557.	2546.693	11.71126
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.002864
Sum	1647.240	3.11E+08	1.27E+08	56640000	52652100	25850.16
Sum Sq. Dev.	65.35400	6.08E+12	2.43E+12	7.14E+11	3.42E+11	481.6315
Observations	1950	1950	1950	1950	1950	1950

Source: Research Findings (2025)

Diagnostic Tests

At a 5% significance level, all diagnostic tests affirmed the suitability of the regression model. **Table 2: Variance Inflation Factors**

Variance Inflation Factors
Date: 02/19/25 Time: 18:13
Sample: 1 1950
Included observations: 1950

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.007313	5579.818	NA
GRANT	6.24E-16	13.62338	1.483583
BANK LOAN	1.74E-14	72.53592	16.54871
COUNTERPART F...	8.01E-15	7.392969	2.237640
COLLATERAL FUND	5.21E-14	35.92410	6.967055
LN TOTAL ASSE...	4.82E-05	6476.666	9.090016

Source: Research Findings (2025)

Table 2 shows the result of the panel data multicollinearity test as run in the EVIEWS software. From table 2, grant has a centered VIF of 1.48 indicating absence of multicollinearity.

Table 3: Breusch-Pagan-Godfrey Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	136.7088	Prob. F(5,1944)	0.9285
Obs*R-squared	507.2839	Prob. Chi-Square(5)	0.0025
Scaled explained SS	12413.49	Prob. Chi-Square(5)	0.0084

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/09/25 Time: 17:42
Sample: 1 1950
Included observations: 1950

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.037642	0.026055	-1.444745	0.1487
GRANT	6.82E-09	7.61E-09	0.896356	0.3702
BANK LOAN	-5.48E-07	4.02E-08	-13.63157	0.0000
COLLATERAL FUND	8.86E-07	6.95E-08	12.75243	0.0000
COUNTERPART FUND	6.93E-07	2.73E-08	25.41477	0.0000
LN TOTAL ASSETS	0.002309	0.002116	1.091390	0.2752

R-squared	0.260146	Mean dependent var	0.002548
Adjusted R-squared	0.258243	S.D. dependent var	0.017884
S.E. of regression	0.015402	Akaike info criterion	-5.505505
Sum squared resid	0.461187	Schwarz criterion	-5.488349
Log likelihood	5373.867	Hannan-Quinn criter.	-5.499197
F-statistic	136.7088	Durbin-Watson stat	1.866472
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

From the results of table 3 above, the p-value 0.9285 is much greater than 0.05 which means that we fail to reject the null hypothesis that the error terms have constant variance. Therefore, there is no evidence of heteroskedasticity in the model indicating the model is fit for use without further transformation.

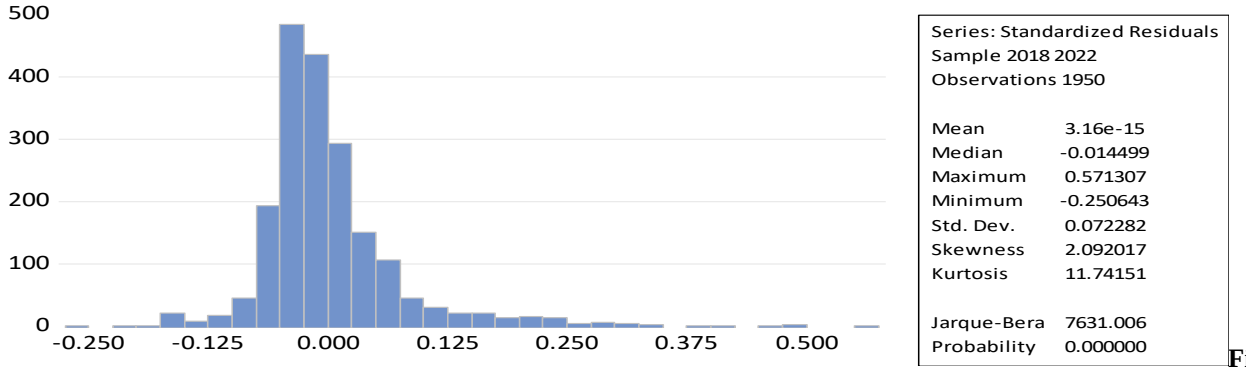

Figure 2 Panel Data Normality Test: Jarque-Bera test (Research Findings, 2025)

According to figure 2 above, a high Jarque-Bera of 7631 suggests a significant deviation from normality. A p-value of 0.0000 means that we reject the null hypothesis that the data is normally distributed.

Table 4: Results of Panel Data Model Specification Test- Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	523.540350	5	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
GRANT	0.000001	0.000000	0.000000	0.0000
BANK LOAN	0.000003	0.000003	0.000000	0.2404
COUNTERPART FUND	0.000004	0.000004	0.000000	0.4377
COLLATERAL FUND	-0.000015	-0.000018	0.000000	0.0000
LN TOTAL ASSETS	0.207649	0.278179	0.000059	0.0000

Cross-section random effects test equation:
Dependent Variable: Y
Method: Panel Least Squares
Date: 03/02/25 Time: 17:23
Sample: 2018 2022
Periods included: 5
Cross-sections included: 390
Total panel (balanced) observations: 1950

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.011709	0.138013	-14.57625	0.0000
GRANT	1.19E-06	1.09E-07	10.97119	0.0000
BANK LOAN	3.31E-06	1.99E-07	16.64986	0.0000
COUNTERPART FUND	3.96E-06	1.84E-07	21.56019	0.0000
COLLATERAL FUND	-1.54E-05	3.96E-07	-38.99782	0.0000
LN TOTAL ASSETS	0.207649	0.011691	17.76142	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.903378	Mean dependent var	0.844739
Adjusted R-squared	0.878896	S.D. dependent var	0.183118
S.E. of regression	0.063725	Akaike info criterion	-2.489711
Sum squared resid	6.314624	Schwarz criterion	-1.360298
Log likelihood	2822.468	Hannan-Quinn criter.	-2.074483
F-statistic	36.90017	Durbin-Watson stat	2.163613
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

The results from the table 4 above show that the p-value of this test is less than 0.05. Therefore, we reject the null hypothesis and conclude that Fixed Effect model is appropriate for analysis and interpretation as there is significant correlation between the individual-specific effects and the independent variables

Table 5: Levin-Lin-Chu Test for Grant – Individual Intercept

Null Hypothesis: Unit root (common unit root process)
Series: GRANT
Date: 03/03/25 Time: 13:56
Sample: 2018 2022
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 1560
Cross-sections included: 390

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.44019	0.0003

** Probabilities are computed assuming asympotic normality

Source: Research Findings (2025)

Table 6: Levin-Lin-Chu Test for Grant – Individual Intercept and Trend

Null Hypothesis: Unit root (common unit root process)
Series: GRANT
Date: 03/03/25 Time: 13:38
Sample: 2018 2022
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 1560
Cross-sections included: 390

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-258.371	0.0000

** Probabilities are computed assuming asympotic normality

Source: Research Findings (2025)

From the results on table 5 and table 6 above, LLC Statistic: -3.44019 and -258.371 are negative values generally indicating stationarity of the series Grant. The p-value: 0.0003 and 0.0000 are very small and less than 0.05 which implies that we reject the null hypothesis and conclude that Grant variable is stationary at the two levels. This means that variable Grant does not have a unit root and does not exhibit a systematic trend over time. It is therefore suitable for regression analysis without differencing. The above results were supported by the figure 3 below:

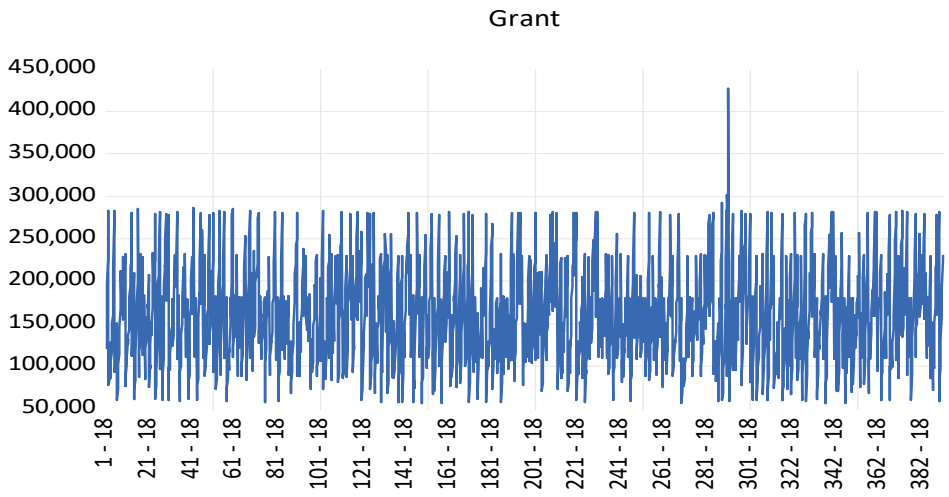

Figure 3: Time Series Plot for Grant (Research Findings, 2025)

The Time Series Plot in figure 3 above shows constant fluctuations of the dataset around the mean. The variance also appears to be stable over time and there is no noticeable trend such as consistent upward or downward movement. This is a clear indication that the dataset on grant is stationary and does not have a unit root.

Table 7: Results of simple regression showing Durbin-Watson results

Dependent Variable: Y
Method: Panel Least Squares
Date: 03/03/25 Time: 15:49
Sample: 2018 2022
Periods included: 5
Cross-sections included: 390
Total panel (balanced) observations: 1950

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GRANT	1.63E-07	3.57E-08	4.559379	0.0000
BANK LOAN	3.45E-06	1.89E-07	18.23165	0.0000
COUNTERPART FUND	4.08E-06	1.28E-07	31.82875	0.0000
COLLATERAL FUND	-1.79E-05	3.27E-07	-54.87410	0.0000
LN TOTAL ASSETS	0.277501	0.009943	27.90964	0.0000
C	-2.718055	0.122427	-22.20136	0.0000

R-squared	0.844190	Mean dependent var	0.844739
Adjusted R-squared	0.843789	S.D. dependent var	0.183118
S.E. of regression	0.072375	Akaike info criterion	-2.410851
Sum squared resid	10.18282	Schwarz criterion	-2.393696
Log likelihood	2356.580	Hannan-Quinn criter.	-2.404544
F-statistic	2106.543	Durbin-Watson stat	1.480812
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

Results in Table 7 above show DW results of 1.4808 depicting the presence of a positive serial correlation. The severity of this serial correlation was measured using the Breusch-Godfrey Serial Correlation LM Test which had the null hypothesis stated as "there is no serial correlation" and this assertion is accepted if the p-value greater than 0.05 and the results of the same are shown in Table 8 below:

Table 8: Results for Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	454.1908	Prob. F(2,1942)	0.0000
Obs*R-squared	621.4410	Prob. Chi-Square(2)	0.0000

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 02/20/25 Time: 16:52
Sample: 1 1950
Included observations: 1950
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006528	0.070732	0.092292	0.9265
GRANT	2.90E-09	2.06E-08	0.140412	0.8883
BANK LOAN	-5.77E-07	1.12E-07	-5.169530	0.0000
COUNTERPART FUND	-6.01E-07	8.04E-08	-7.467542	0.0000
COLLATERAL FUND	2.28E-06	2.03E-07	11.18440	0.0000
LN TOTAL ASSETS	-0.001020	0.005741	-0.177703	0.8590
RESID(-1)	0.714138	0.024085	29.65133	0.0000
RESID(-2)	-0.117991	0.024451	-4.825628	0.0000

R-squared	0.318688	Mean dependent var	2.53E-16
Adjusted R-squared	0.316232	S.D. dependent var	0.050489
S.E. of regression	0.041750	Akaike info criterion	-3.510158
Sum squared resid	3.384967	Schwarz criterion	-3.487284
Log likelihood	3430.404	Hannan-Quinn criter.	-3.501749
F-statistic	129.7688	Durbin-Watson stat	1.937011
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

Results from table 8 above show p-value of 0.0000 for both test statistics which is significantly lower than 0.05, meaning we reject the null hypothesis. This indicates that there is statistically significant serial correlation in the residuals up to 2 lags and confirms the earlier assertion that there was a serial correlation in the model. The presence of this serial correlation was corrected by converting the data into first difference which generated new regression results free from serial correlation.

Table 9: Durbin-Watson Test with First Difference Converted Data

Dependent Variable: Y1
Method: Panel Least Squares
Date: 03/16/25 Time: 22:15
Sample (adjusted): 2019 2022
Periods included: 4
Cross-sections included: 390
Total panel (balanced) observations: 1560

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GRANT1	4.90E-07	1.32E-07	3.704767	0.0002
BANK LOAN1	2.49E-06	3.15E-07	7.903834	0.0000
COUNTERPART FUND1	4.19E-06	1.95E-07	21.46016	0.0000
COLLATERAL FUND1	-1.50E-05	3.96E-07	-37.98100	0.0000
LN TOTAL ASSETS 1	0.070819	0.017588	4.026578	0.0001
C	0.069892	0.006139	11.38458	0.0000

R-squared	0.817818	Mean dependent var	0.106294
Adjusted R-squared	0.817231	S.D. dependent var	0.187510
S.E. of regression	0.080163	Akaike info criterion	-2.205663
Sum squared resid	9.986250	Schwarz criterion	-2.185076
Log likelihood	1726.417	Hannan-Quinn criter.	-2.198008
F-statistic	1395.182	Durbin-Watson stat	2.075621
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

Table 9 above shows the results of the new simple regression estimates with a Durbin-Watson statistic of 2.07 indicating that there is no evidence of serious autocorrelation in the residuals of the regression model generated using transformed data. This supports the reliability of the panel regression model's standard errors and test statistics (Hair et al., 2019).

Regression Analysis

A panel regression analysis was conducted to assess the relationship between subsidy and financial sustainability of MSEs in Kenya over the period 2018 to 2022, across 390 cross-sectional units and 1950 observations.

Table 10: Effect of Subsidies on Financial Sustainability of MSEs

Dependent Variable: Y1
Method: Panel Least Squares
Date: 04/26/25 Time: 16:57
Sample: 2018 2022
Periods included: 5
Cross-sections included: 390
Total panel (balanced) observations: 1950

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GRANT	7.58E-07	8.52E-08	8.899996	0.0000
C	-0.022092	0.015151	-1.458132	0.1450

R-squared	0.048381	Mean dependent var	0.106294
Adjusted R-squared	0.047770	S.D. dependent var	0.187510
S.E. of regression	0.182977	Akaike info criterion	-0.557635
Sum squared resid	52.16257	Schwarz criterion	-0.550773
Log likelihood	436.9551	Hannan-Quinn criter.	-0.555083
F-statistic	79.20993	Durbin-Watson stat	2.379524
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

The results from table 10 above reveal that subsidy has a positive and statistically significant effect on financial sustainability of MSEs, with a coefficient of 7.58E-07 ($p < 0.01$). To evaluate the moderating role of MSE size in the relationship between subsidy and the financial sustainability of MSEs in Kenya, a moderated regression analysis was performed.

Table 11: Moderating Effect of MSE Size on the Relationship between Subsidies and Financial Sustainability of MSEs

Dependent Variable: Y1
Method: Panel Least Squares
Date: 04/26/25 Time: 16:57
Sample: 2018 2022
Periods included: 5
Cross-sections included: 390
Total panel (balanced) observations: 1950

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GRANT	7.58E-07	8.52E-08	8.899996	0.0000
C	-0.022092	0.015151	-1.458132	0.1450

R-squared	0.048381	Mean dependent var	0.106294
Adjusted R-squared	0.047770	S.D. dependent var	0.187510
S.E. of regression	0.182977	Akaike info criterion	-0.557635
Sum squared resid	52.16257	Schwarz criterion	-0.550773
Log likelihood	436.9551	Hannan-Quinn criter.	-0.555083
F-statistic	79.20993	Durbin-Watson stat	2.379524
Prob(F-statistic)	0.000000		

Source: Research Findings (2025)

Table 11 above presents the results of this analysis, including the main effects of subsidy and MSE size, as well as the interaction term between the two variables. The coefficient for grant is negative and statistically significant at 1% significance level (–8.33E-06, $p < 0.01$), indicating that, in isolation, subsidies are associated with a reduction in financial sustainability of MSEs. This result aligns with prior theoretical arguments suggesting that subsidies, while intended to provide short-term relief or capacity enhancement, may induce dependency or reduce entrepreneurial effort in the absence of complementary firm-level capabilities (Sritharan, 2015). Thus, subsidies alone appear insufficient in fostering long-term financial viability.

In contrast, Ln Total Assets, which proxies for firm size, exhibits a positive and significant relationship with financial sustainability (coefficient = 0.228263, $p < 0.01$). This finding implies that larger firms are more financially sustainable, likely due to superior resource endowments, better access to markets and finance, and stronger managerial capacities(Feng & Wu, 2023). This direct effect of size corroborates theories of scale economies and resource-based perspectives in small business performance.

Crucially, the interaction term is both positive and highly significant (coefficient = 6.53E-07, $p < 0.01$). This interaction effect provides compelling evidence that firm size moderates the relationship between subsidy and financial sustainability. In substantive terms, the adverse effect of grants on financial sustainability is attenuated as firm size increases. Thus, while smaller firms may not derive lasting benefits from subsidies, larger firms are better positioned to utilize such financial support in a manner that enhances their sustainability outcomes. This supports Boccaletti et al. (2024) assertion that larger firms possess absorptive capacity or structural advantages that enable them to convert subsidies into productive, long-term gains.

11 Conclusions and Recommendations

Conclusions

The study set out to examine the effect of subsidies on the financial sustainability of Micro and Small Enterprises in Kenya and to determine whether firm size moderates this relationship. The findings demonstrate that subsidies play a significant and positive role in strengthening the financial sustainability of MSEs, with enterprises receiving higher subsidy support recording better profitability and liquidity outcomes, thereby underscoring the value of targeted financial assistance in addressing the persistent financing challenges that constrain enterprise growth and stability. The analysis further revealed that firm size significantly moderates the subsidy and financial sustainability relationship, with larger MSEs being better positioned to utilize subsidies effectively compared to smaller firms. This indicates that while subsidies are beneficial across the MSE sector, their magnitude of impact varies depending on structural and capacity-related factors inherent to the enterprises. Overall, the study concludes that subsidies are a critical component of enterprise support mechanisms and that their effectiveness is substantially enhanced when firm-level characteristics, particularly size, are incorporated into program design, implementation, and policy formulation.

Recommendations

The study recommends that subsidy programs targeting Micro and Small Enterprises be strengthened and expanded, given the demonstrated positive effect of financial support on profitability and liquidity among beneficiary firms, while also highlighting the need for policy makers to design subsidy interventions that take into account the diverse characteristics of enterprises to ensure maximum impact. In particular, because firm size significantly influences the extent to which subsidies enhance financial sustainability, differentiated support approaches should be adopted, with smaller enterprises receiving additional complementary interventions such as financial literacy training, managerial support, and simplified reporting requirements to improve their ability to absorb and utilize subsidies effectively. It is also recommended that subsidy initiatives be combined with capacity-building programs aimed at improving internal capabilities, operational efficiency, and financial management practices, thereby enabling firms to translate financial support into long-term sustainability. Strengthening monitoring and evaluation systems is essential to

track subsidy utilization, identify emerging challenges, and support continuous program improvement. Furthermore, because firm size enhances subsidy effectiveness, policies that encourage asset accumulation, reinvestment, access to affordable financing, formalization, and expanded market linkages should be prioritized to support enterprise growth and ensure that MSEs can fully leverage subsidy programs for sustained financial stability and expansion.

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