The resilience of African SMEs during the COVID-19 pandemic: Does location matter?

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➢Outline

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➢Motivation

- About **87** percent of business owners from **17** African countries were uncertain about their business survival during the COVID-19 pandemic period.

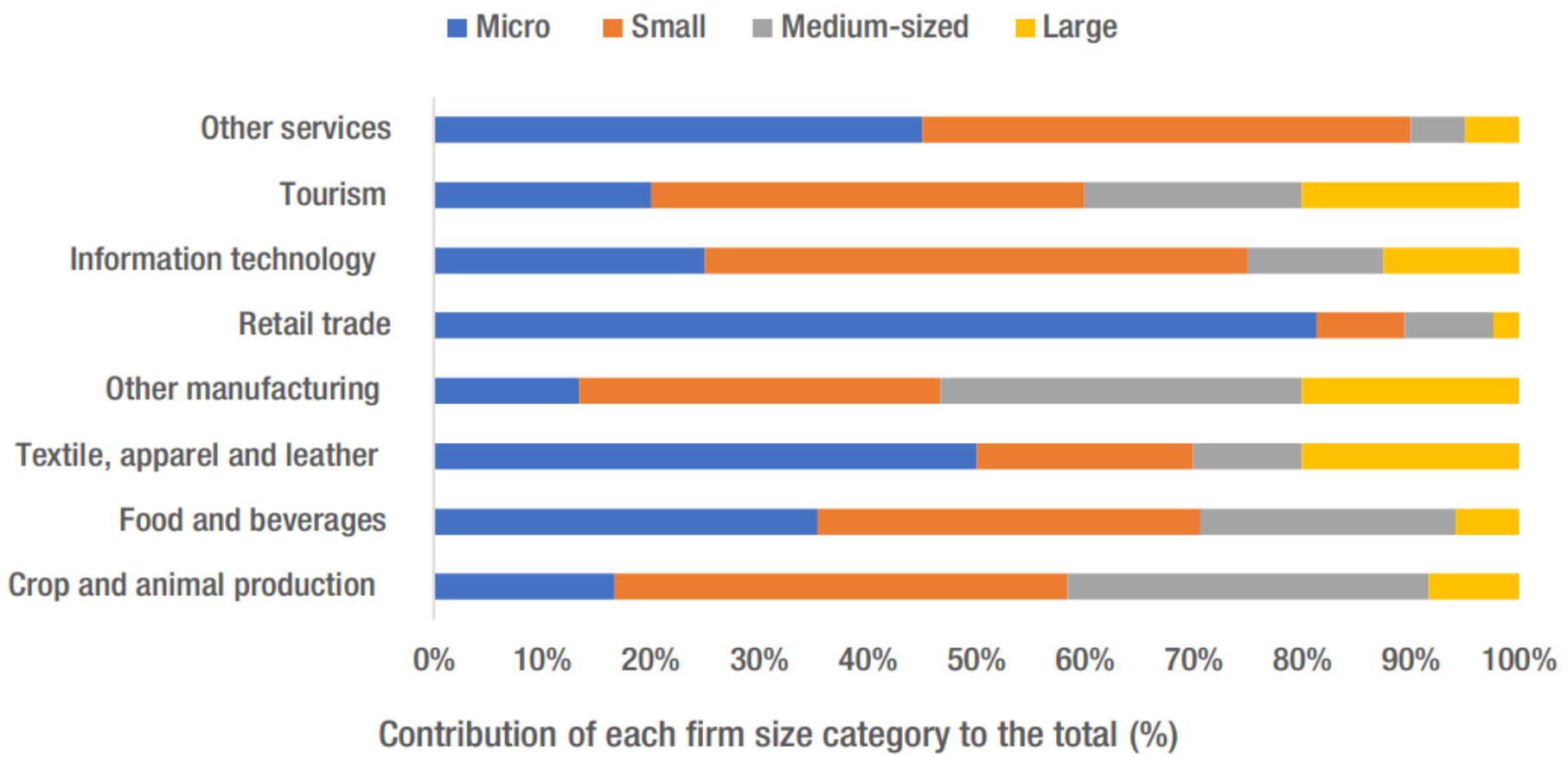
- **2 out of 3** African businesses experienced a **75** percent reduction in sales.

- African SMEs account for more than **90 percent of businesses**, **80 percent of employment**, and **50 percent of the continent's**

- BFA Global Survey of 1,561 businesses in different countries (2020) - SMEs had cash reserves for only 4 to 6 months

➢Motivation

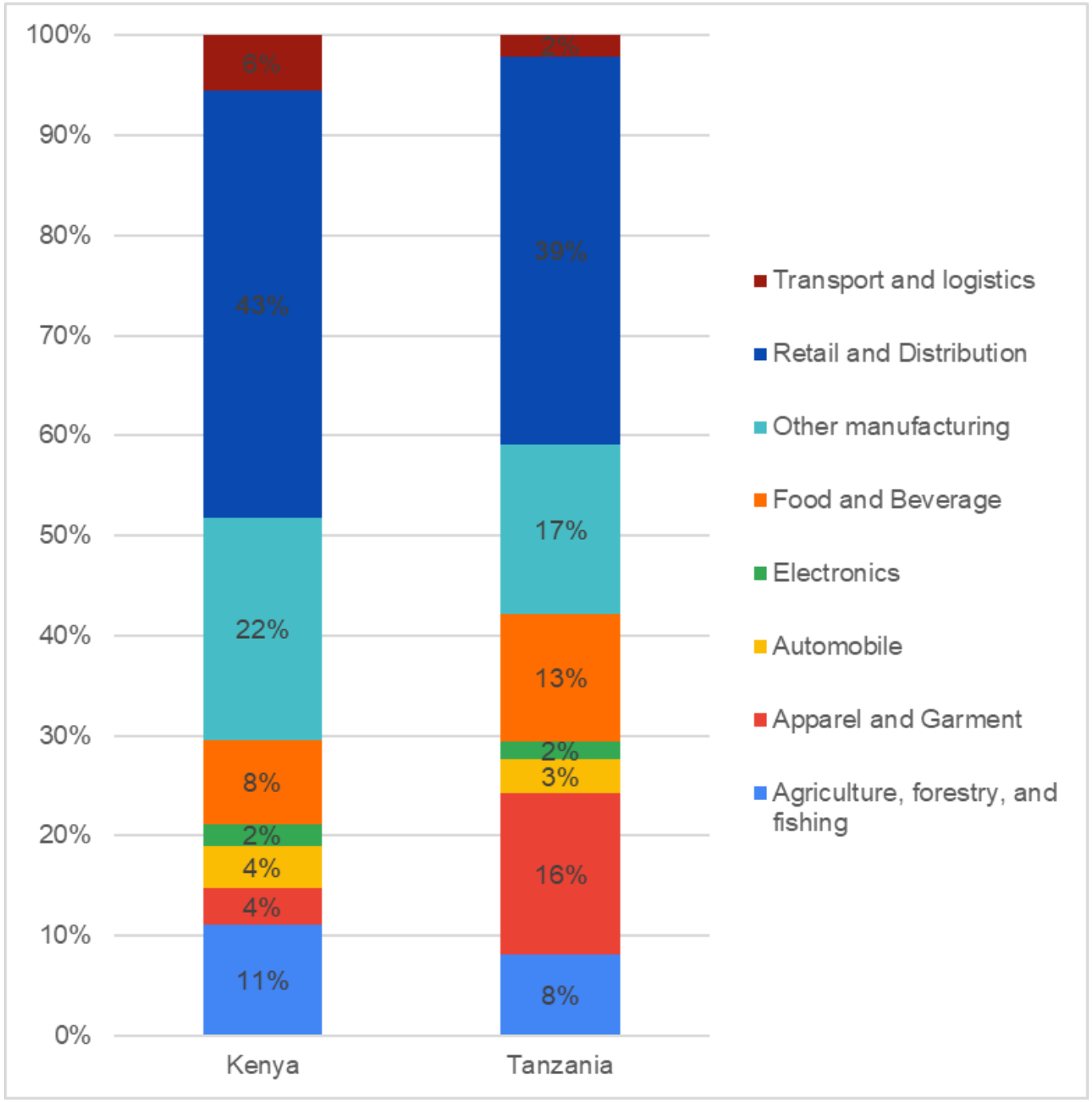
- Figure 1: Key Business Activities of Surveyed Firms in 20 African Countries (2016-2018)



SOURCE ITC's SME competitiveness report. Note: The surveyed countries were: Benin, Burkina Faso, Cameroon, the Central African Republic, the Republic of Congo, Cote d'Ivoire, the Democratic Republic of Congo, Gabon, Ghana, the Gambia, Kenya, Madagascar, Mauritania, Morocco, Niger, Nigeria, Senegal, Togo, Tunisia, and Uganda.

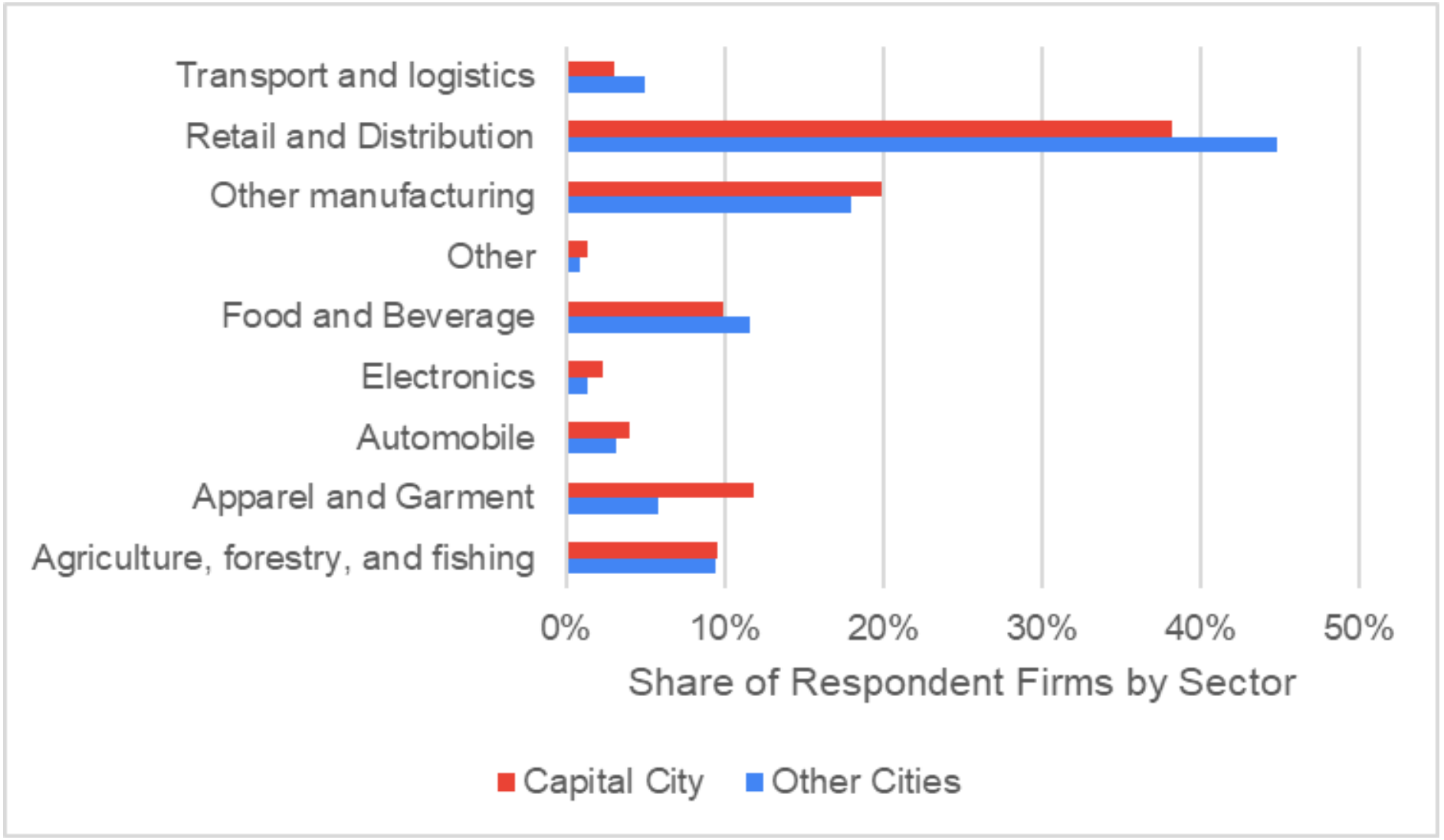
Figure 2: Business Activities of Surveyed Kenyan and Tanzanian Firms (2019-2020)

Motivation



➢Motivation

- Figure 3: Comparison of Sectoral Distribution by Capital City vs. Other Cities



➢Motivation

- Enterprise resilience during COVID-19
  - Bartik et al., 2020; Fu et al., 2023; Nguyen et al., 2023
    - Firm-specific and institutional factors such as, **access to finance**, **innovation**, **managerial leadership** and **experience,** as well as **state support packages** and **institutional quality.**

➢Motivation

- Impact of COVID-19 on African SMEs
  - Muriithi, S. M., 2021; Biyela & Utete., 2024; Tripathi et al., 2021;

- On the spatial distribution of economic activity
  - Provenzano, S., 2024; Scuderi et al., 2021; Lee & Luca., 2019; Lee & Cowling., 2014

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➢Research Objective

- This study seeks to reconcile the three overarching themes and:

  - Investigate the relationship between location and the ability of African small and medium-sized firms to respond to and recover from the COVID-19 pandemic.

Method and Data

- Model Specification

$$Y_{ijk} = f(Location, Firm\ Characteristics, Access\ to\ Finance\ Variables, Innovation)$$

where *i*, *j*, and *k* are indices for an enterprise, industry, and country, respectively

- Estimating equation

$$y_{ijk} = \alpha_0 + \alpha_1 Location_{ijk} + \vartheta X_{ijk} + \eta_j + \eta_k + \xi_{ijk}$$

- Measures of Resilience:
  - Changes to main activity and product due to COVID-19
  - Liquidity constraints or limitations that affect ability to export or import key raw materials, intermediate inputs, or final goods and services .

➢Method and Data

- Our study draws upon data collected between 2019 and 2020 as part of a survey conducted by the African Development Bank.
  - The dataset comprises responses from 800 small to medium-sized enterprises in Kenya and Tanzania.
  - The final sample consists of **749** enterprises, with **368** from **Kenya** and **381** from **Tanzania**.
  - Approximately **17% of the respondents** indicated that they had to modify their operations or products due to the COVID-19 pandemic., while 12% to 23% reported facing constraints or limitations in 2019 and 2020 across the four variables considered
- Model estimated using multivariate probit regression.

Results

Table 1 The impact of location on resilience

Dependent variables	ΔOPERATE	LIMIT1	LIMIT2	ΔOPERATE	LIMIT1	LIMIT2
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
Location	-0.7266***	-0.7562***	-0.8194***	-0.7635***	-0.7533***	-0.8345***
	(0.1333)	(0.1412)	(0.1363)	(0.1624)	(0.1738)	(0.1588)
Credit Access				-0.1824***	0.1429**	0.0779
				(0.0633)	(0.0595)	(0.0562)
Experience				0.1241	-0.0232	0.0155
				(0.1276)	(0.1467)	(0.1479)
Size				-0.0190*	-0.0276***	-0.0136
				(0.0104)	(0.0105)	(0.0098)
Sole Trader				0.1151	-0.2679*	-0.1910
				(0.1496)	(0.1585)	(0.1467)
Gender				0.0273	0.0861	0.0396
				(0.1270)	(0.1362)	(0.1308)
Owner Manager				0.0768	0.9017***	0.5569***
				(0.1624)	(0.2393)	(0.1874)
Foreign Owner				-0.1282	0.0978	0.2060
				(0.2109)	(0.2030)	(0.1890)
Age				0.1573	-0.0067	-0.0382
				(0.1251)	(0.1310)	(0.1271)
Website				-0.0735	0.2864*	0.2616*
				(0.1368)	(0.1672)	(0.1521)
Welfare				0.3477**	0.0723	0.0150
				(0.1730)	(0.1758)	(0.1623)
Collateral				0.1634	0.4428***	0.1213
				(0.1300)	(0.1460)	(0.1344)
Innovation				0.6242***	0.6522***	0.4082***
				(0.1498)	(0.1544)	(0.1473)
Relationship				-0.6328***	-0.1097	-0.1470
				(0.1497)	(0.1583)	(0.1373)
Defaulted				0.2643	0.8627***	0.9671***
				(0.2607)	(0.2863)	(0.2756)
Constant	-0.7908***	-0.6812***	-0.3087	-0.0786	-2.1120***	-0.9513**
	(0.2159)	(0.2079)	(0.1912)	(0.4102)	(0.4864)	(0.4320)
Industry FE	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓
N	749	749	749	749	749	749
Pseudo-R^2	0.079	0.071	0.094	0.173	0.240	0.172

***, **, * indicate significance at the one, five, and ten percent levels, respectively, based on robust standard errors.

Results

Table 2 Additional tests

Sample	Alternative variables		PSM Matched samples			Entropy balanced samples			Placebo tests		
Dependent variables	LIMIT3	LIMIT4	ΔOPERATE	LIMIT1	LIMIT2	ΔOPERATE	LIMIT1	LIMIT2	ΔOPERATE	LIMIT1	LIMIT2
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Location	-0.7758*** (0.1529)	-0.4608*** (0.1720)	-0.7309*** (0.2022)	-0.7633*** (0.2322)	-1.0091*** (0.2239)	-0.7764*** (0.2040)	-0.6480*** (0.2340)	-0.9211*** (0.2062)	0.0344 (0.1179)	0.0832 (0.1295)	0.0374 (0.1190)
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	749	749	230	228	228	749	749	749	749	749	749
Pseudo-R^2	0.197	0.163	0.144	0.291	0.246	0.247	0.218	0.212	0.138	0.208	0.128

***, **, * indicate significance at the one, five, and ten percent levels, respectively, based on robust standard errors.

Table 3 The average treatment effects on the treated (ATTs) of location on resilience

Variables	ΔOPERATE					LIMIT1					LIMIT2				
Method	NTreat	NControl	ATT	ATTse	t-value	NTreat	NControl	ATT	ATTse	t-value	NTreat	NControl	ATT	ATTse	t-value
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
One-to-one	482	202	-0.2116***	(0.0799)	-2.6495	482	202	-0.1846**	(0.0894)	-2.0651	482	202	-0.1846**	(0.0894)	-2.0651
k-NNM	482	202	-0.1842***	(0.0663)	-2.7808	482	202	-0.1465**	(0.0632)	-2.3168	482	202	-0.1465**	(0.0632)	-2.3168
Radius	482	202	-0.1869***	(0.0433)	-4.3168	482	202	-0.1080***	(0.0336)	-3.2122	482	202	-0.1080***	(0.0336)	-3.2122
Kernel	482	202	-0.2116**	(0.0866)	-2.4426	482	202	-0.1846**	(0.0845)	-2.1848	482	202	-0.1846**	(0.0845)	-2.1848
Spline	482	202	-0.1423**	(0.0596)	-2.3874	482	202	-0.1202**	(0.0566)	-2.1231	482	202	-0.1202**	(0.0566)	-2.1231
Local linear	482	202	-0.1664***	(0.0582)	-2.8588	482	202	-0.1251**	(0.0608)	-2.0561	482	202	-0.1251**	(0.0608)	-2.0561

NTreat is the number of enterprises assigned to the treatment group. *NControl* is the number of enterprises assigned to the control group. ***, **, * indicate significance at the one, five, and ten percent levels, respectively, based on standard errors calculated from 100 bootstrap replications.

➢ Conclusion

- The empirical investigation suggests that enterprises located in capital cities exhibit greater resilience in coping with the pandemic.

- Notably, these enterprises reported fewer operational and product disruptions, and a lower likelihood of liquidity and export-related constraints.

- Results highlight uneven development patterns within developing countries
  - Ecosystems in capital cities have more robust adaptive capacities during crises, such as the COVID-19 pandemic.

- Along with location, firm innovation and access to finance variables are strong predictors of resilience in Kenyan and Tanzanian SMEs.

➢ Policy Recommendations

- Policymakers should consider development models that encourage innovation and promote financial access.

- The creation of satellite hubs and commercial platforms that strengthens the economic ability of cities outside the capital may also positively influence the resilience of small and medium-sized African enterprises.

Merci beaucoup!