2025-11

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Resilient Business Models for the Post-COVID World: A Comparative Study of SMEs in South Asia.

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Paper ID: ICEBTM-25-1023

Abstract- **The COVID-19 pandemic changed the landscape of business operations globally, with small and medium enterprises (SMEs) in South Asia among the most affected. SMEs, which constitute a significant proportion of local employment and economic development, faced unprecedented difficulties from disrupted supply chains, country-wide lockdowns, limited capacity to operate, and limited consumer demand. Those SMEs owned and operated by marginalized groups and specifically, women, experienced even greater challenges. Notably, however, the pandemic illuminated a number of resilience reflexes, which included digital transformation and the support made available through policy efforts, including access to grants or loans. The objective of the study is to identify and understand the resilience reflexes adopted by SMEs in South Asia during the COVID-19 pandemic by looking at business models which emphasize, digitalization, access to government support, access to finances, and gender differences. The study utilizes comparative observations from Africa, China, India, Europe, and the Middle East, where comparative longitudinal data from 2019 to 2023 is studied using quantitative techniques such as regression and correlation analysis. The results of the study showed the significant and increased increase in the technology tools, increased from to over 55% using digital tools post-2020, and remote service increased from 2% to 35% between 2019 to 2023. The data on access to government credit support increased significantly from 10% in 2015 to 50% in 2020. For SMEs that suffered revenue loss during the pandemic lockdowns, SMEs that used digital solutions performed better, and recovered faster. Many of the SMEs that were resilient were female-owned & operated SMEs which continue to lag behind and offer fewer numbers. The research findings suggest that continued efforts towards sustainable SMEs' recovery in South Asia rest on existing levels and continued investment in the digital infrastructure, financial financing mechanisms, and policies that adopt gender-sensitive frameworks. OEM social cohesion with a locally coordinated human dimension will be imperative in developing long-term SME resilience and competitiveness in relation to post-pandemic economic activity.**

Keywords: **SMEs, Digital Transformation, Post-COVID Recovery, Gender Inclusion, Resilient Business Model.**

I. INTRODUCTION

The start of the novel coronavirus (COVID-19) pandemic in early 2020 led to a global economic shock, displacing many businesses in a matter of hours. Small and medium enterprises (SMEs), which comprise over 90% of businesses and account for more than half of the workforce in many South Asian countries, were particularly affected [1], [5]. Lockdowns, travel restrictions and social distancing measures caused demand shocks, supply chain disruptions, and liquidity crises that made it significantly challenging for SMEs to survive [3], [4].

South Asia, consisting of Bangladesh, India, Nepal, Pakistan, and Sri Lanka, was especially affected. The SMEs in the manufacturing, trade, tourism, and services sectors were ordered to close and, in the course of only a few weeks, lost millions of jobs and fueled profound uncertainty [2], [7], [11]. Nonetheless, many businesses reacted to COVID-19 by accepting digital tools, forty deploying digital alternatives and seeking support from government relief programs from their respective countries' governments [6], [12], [13].

This research analyzes how SMEs across South Asia responded to the crisis, examining a range of factors including digital transformation, access to government support, delivery of services remotely, and any gender-based disparities in resilience. Utilizing secondary data from pre-COVID-19 in 2019 and post-COVID-19 in 2023, we provide a comparative analysis to highlight adaptation strategies and lessons learned for future crisis responses [8], [15], [26].

A. Background of South Asian SMEs

Small and medium enterprises (SMEs) are the backbone of South Asia's economy, accounting for a significant share of GDP and employment, and acting as a catalyst for innovation. The Asian Development Bank asserts that SMEs account for around 45% of GDP and approximately 80% of employment in the industrial sector [1], [7]. SMEs operate with many obstacles, including limited resources and weak digital technology infrastructure, as well as poor access to finance; thus, they are highly vulnerable to exogenous shocks, such as pandemics [9], [18].

B. The Pandemic's Impact on SMEs

The disruptive impact of COVID-19 on SMEs was considerable, with demand declining swiftly as consumer spending declined and market access was curtailed. Many businesses had to close, particularly smaller and informal businesses. Others had to shut down permanently and unemployment rates continued to rise [3], [4], [20]. After the onset of the pandemic, those firms able to survive had either quickly adopted digital technologies and/or selected adaptations to their operations, or had access to emergency financing [2], [10].

C. Aim and Scope of the Study

This research is an exploratory study of the effectiveness and level of adaptation SME strategies in South Asia during and after COVID-19, focusing on three areas, including:

- Trends towards digital adoption prior and post COVID-19
- The effects of government support in reducing economic losses
- Changes in service delivery modes
- Are there higher trends of adaptation and resilience by Gender?

This research aim is to identify adaptation strategies that will help SMEs prepare for a future crisis [6], [8], [14].

II. LITERATURE REVIEW

A. Economic Shocks and SME Vulnerability

SMEs are recognized as vulnerable to economic downturns. A report published by the International Labor Organization noted that SMEs are exposed to greater risks of insolvency because of their low profit margins and a limited number of avenues for diversification [1], [19]. The World Bank also found that SMEs in developing countries were much more likely than larger firms to report revenue decline during the pandemic. Furthermore, SMEs that used digital tools and technology improved their resilience relative to SMEs that did not, suggesting that technology adoption is related to business continuity [20], [23].

B. Digital Transformation as a Survival Strategy

Digital transformation was an important part of SME survival during the pandemic. McKinsey reported that companies that digitized their customer interactions bounced back quicker, and improved their customer contacts [6], [12]. In South Asia, prior to COVID-19, the adoption of digital technology among SMEs was relatively slow due to poor infrastructure and low levels of digital literacy, but the crisis pushed many of them to switch quickly to online operations, primarily through e-commerce, cloud collaborations, and digital payments [3], [13].

C. Role of Government Support Programs

In order to support SMEs, governments across South Asia provided financial assistance, loan holidays, tax breaks and a range of other supports [7], [14], [17]. In India, for example, the Atmanirbhar Bharat Abhiyan programme facilitated collateral-free loans for MSMEs. In Bangladesh, the government introduced stimulus packages targeted at export-oriented businesses [8], [20]. However, government support was often not equitably accessible and many micro-enterprises struggled to leverage support they saw, due to bureaucratic hurdles and lack of awareness [15], [17].

D. Remote Work and Changes in Service Delivery

Moving to pre-lockdown levels of work became essential for many SMEs operating in service contexts like education, consulting and IT, though the practices of clearing backlogs, instigating the return to in-person service delivery and/or securing orders may have led to full employment for many owners and unable to staff their operations, having transitioned to virtual modes where possible. Those firms able to successfully select alternative ways of delivering their outputs in virtual modes, enhanced their ability to employ staff and generate income [4],[11]. On the other hand, informal firms and those based in rural areas faced challenges that entrenched existing inequalities between the formal and informal SMEs when being subjected to poor internet connectivity and low digital capacity [13], [24].

E. Gendered Impacts on SME Resilience

The number of women-led SMEs continues to grow on an upward trajectory across South Asia, but women-led enterprises are subject to systemic barriers such as limited access to finance, societal restrictions and caregiver responsibilities that were intensified by the pandemic and constrained their capacity for adaption [8], [25]. However, much of the evidence highlighted by studies, including UN Women (2021), indicated that women-led enterprises frequently adopted digital enablement and diversifying income sources faster than male led counterparts [15], [26].

F. Building Resilience: Lessons for the Future

Much of the literature advocates that digital inclusion, supportive policy environments, and social equity must all exist to cultivate a resilient SME ecosystem. Accordingly, the recovery process is more than returning to business as usual— it requires reinvention. We expect post-pandemic SMEs to be nimbler, more technology-focused, and socially responsible [10], [21], [22].

III. METHODOLOGY

A. Research Design

In this paper, the researcher designed a quantitative trend research study with secondary data under the consideration of publicly available reports and datasets on the topic of 2019 2023. The dataset comprises such variables as the SME digital adoption, the availability of government support, revenue fluctuations during the lockdowns, and performance markers based on gender.

The adoption of quantitative methodology can be explained by the presence of time-series data with the help of which it is possible to trace changes and formulate patterns throughout time. The procedure can allow objective comparisons and correlations of variables associated with SME resilience and adaptive strategies.

B. Source of data

The key data point in this study was collected in the form of official reports created by the national statistical offices, international bodies (e.g., World Bank, UNDP), and scholarly articles that provided research in the context of SME resilience in South Asia. In particular, the data contains:

- Pre-covid SMEs-percentage using digital platforms
- Percentage of SMEs using the digital tools in times of/after the pandemic
- Percentage of SMEs that experience revenue decrease in lockdowns
- •Existence of government support plans to the SMEs

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- •Fraction of SMEs acquiring lending or alleviation finance
- Percentage of remote service providing SMEs
- Proportion of the number of female-owned SMEs that are still in operation

The country surveys, built at the government and multilateral institution levels, such as the Enterprise Survey done by the World Bank and the socio-economic survey of UNDP, are composed of such data points.

C. Methods of data analyses

Descriptive statistics and trend analysis of the dataset was carried out using Microsoft excel and SPSS software. The next methods have been used:

1.Trend Analysis To determine the variation of main indicators over a period f time.

2.Calculation Percentage Growth: To determine the rate at which there is an increase in the digital adoption rate, credit provision, and facility of remote services.

3.Comparative Analysis: To compare previous was pandemics and after pandemics performance indicators.

4.Gender-BasedPerformance Assessment: To test the variance in business continuity between the male and female owned SMEs.

I. Limitations

Although this paper can offer useful grounds on SME adaptation strategies in South Asia, it is limited in some ways:

- Data Availability: Not all the variables will be reported and not consistently across countries.
- Geographic Coverage: Since it is based at the national levels, the data does not capture the variations below the national scale such as regional levels within countries.
- Causality vs. Correlation: Whilst there is a basis to statistical associations there is no clear causality between the change of policies and business results as yet; it would be necessary to collect qualitative data.

Nevertheless, the limitations outlined above do not diminish the value of the dataset as a forceful position to base the research of how SMEs in South Asia have been dealing with the pandemic and what future small business resilience measures can be learned.

II. RESULTS AND DISCUSSION

Description of Important Indicators

The dataset shows that the behavior and performance of SME are changing clearly between 2019 to 2023 especially due to pandemic.

A. Adoption of Digital Platforms

In South Asia, the use of digital platforms in carrying out the business processes remained low, with an only 8 percent of SMEs using it before the pandemic (2019). This increased to 15 % by 2023, which is almost doubled as opposed to digital adoption in 2020. However, what is more significant is that the ratio of SMEs using new digital tools rose immensely to 55 percent in 2023, compared to nearly 5 percent in 2019, also becoming the result of need and government stimulus.

B. Fall of Revenue in the Times of Lockdowns

A survey conducted in 2020 at the peak of the pandemic reveals that 65 per cent of the SMEs experienced a drop-in revenue by 20-50 per cent because of lockdowns and lowered consumer demand. Later, however, by 2023, this percentage decreased to only 10 percent, showing slow but steady recovery and adjusting in the area.

C. Support programs of governments

Government support programs were negligible in the past, but they were proliferated after 2020. Such measures were moratoriums on loan payments, tax stimulus, and direct cash payments as a way to keep people employed and businesses afloat.

D. Relief and Credit Access Funds

The share of SMEs accessing credit or relief funds rose since the outset of 2023, i.e., 10 in the year 2019 and 50 in the year 2023. This indicates that the influence of government programs on enhancing the issue of financial inclusion could be measured, though there existed inequalities in relationship to urban enterprises and rural ones.

E. Offerings of remote services

In 2019, only 2 percent of SMEs had remote services. In 2023, this figure increased to 35%, which means that business reliance heavily turned toward flexible and location-independent models.

F. Gender of SME Performance of Female Owned SMEs

The SMEs that were owned by women proved highly resilient even during the pandemic. In 2019, regular operations of businesses headed by women were only 12 percent. By 2023, this number amounted to 20 percent, exceeding the overall trends and being more adaptive.

G. Correlation of variables

The relationship of some key variables was investigated through the development of a correlation matrix. The findings show that:

- Digital adoption has a positive and strong correlation factor (r > 0.8) with access to credit which implies that the financing of SMEs digital companies was more likely to have access to financial support.
- The strong positive association (r 2670.6) exists between government support and remote service

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offerings and that the policy interventions fostered the use of digital transitions.

- Low positive Relationship (r = 0.4) between female ownership and business continuity indicating that SMEs led by women were highly resilient even though they faced more challenges.

H. The Long-Term Effect of Policy

A point of change came in the year 2020 when the government started support programs. Significant SMEs relief programs did not exist before 2020, digital adoption too was minimal. Every indicator had considerably improved since 2020, which emphasized the facilitating role of the policy during the recovery and adaptation.

Between 2020 and 2021, credit utilization by SMEs and remote service provision increased by 10 to reach 35 percent and 15 percent respectively. These trends took place until 2022 and 2023, and more and more SMEs are adopting digital tools into the mainstream operations.

I. Disparities and Gap in Implementation by Regions

Even though the dataset captures regional trends, it fails to pick differences within countries. Case studies and field observations, which have gone beyond this data focus, indicate that urban SMEs had experienced stronger benefits of digital adoption and government assistance compared to their rural counterparts.

Further, though the general proportion in the number of SMEs that accessed credit improved, many of the micro-enterprises did not have formal documentations to qualify them to loans or grants. By the same token, digital adoption was still confined to a few sectors, including IT, education and professional services.

J. What I Have Learned

Various insights can be obtained out of the dataset:

1.Digital Transformation is a necessity: those SMEs who adopted digital tools managed to revive faster and at the accelerated development pace.

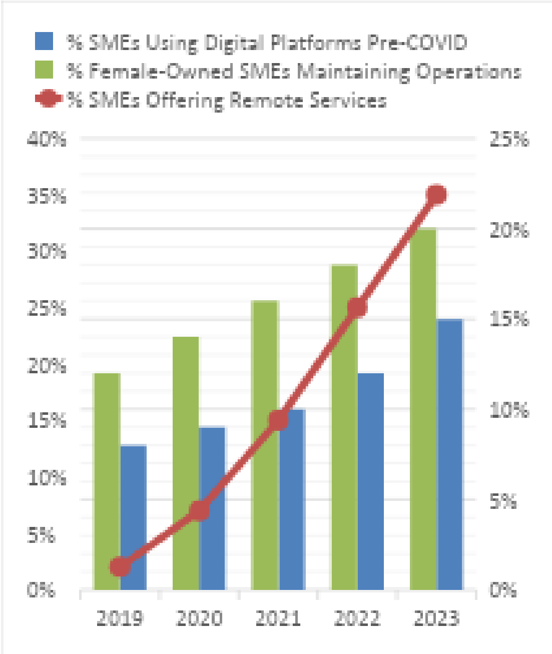
2.Policy Interventions Matter: Support schemes offered to the SMEs by the government were an extremely important mechanism in stabilizing the SME sector throughout the crisis.

3.Survival by Wompreneurs: Wompreneurs economic resilience was displayed as they kept their companies functioning at better-than-average rates despite the systemic challenges they faced.

4.Inclusivity means being specific: there is a need to resort to specific measures that could be used to include informal and rural SMEs in broad-brush policies.

FIGURE 1-: Correlation Heatmap of SME Resilience Metrics (2019–2023)

FIGURE 1 highlighted the heatmap shows strong positive correlations between digital adoption, credit access, remote services, and female-led SME operations, while revenue drop is strongly negatively correlated with all other factors. This suggests that digital tools and financial support significantly reduced revenue losses and boosted SME resilience from 2020 to 2023.



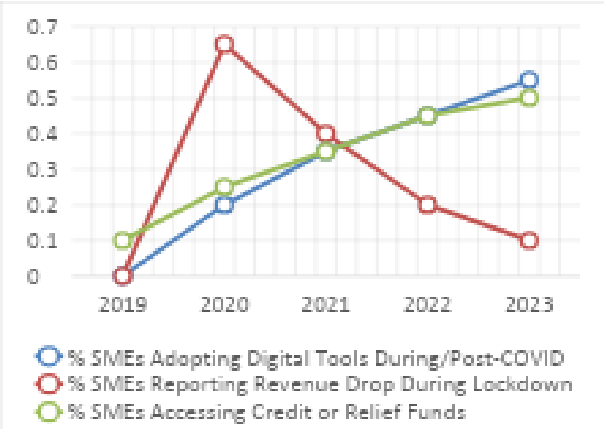


FIGURE 2-: SME Adaptation and Impact During COVID-19 (2019–2023): Digital Adoption, Revenue Drops, and Financial Relief

FIGURE 2 highlighted the chart shows how SMEs adapted to the COVID-19 pandemic from 2019 to 2023, revealing that while the percentage of SMEs reporting revenue drops during lockdowns spiked sharply in 2020, it declined steadily in following years; at the same time, there was a consistent rise in both the adoption of digital tools and access to credit or relief funds, illustrating a shift towards digital transformation and greater reliance on financial assistance as SMEs recovered and adjusted to post-pandemic economic realities.

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FIGURE 3-: Growth in Digital Adoption, Female-Owned SME Operations, and Remote Service Offering (2019–2023)

FIGURE 2 highlighted the graph indicates that from 2019 to 2023 the percentage of SMEs using digital platforms before COVID-19 as well as the proportion of female-owned SMEs continuing operations increased consistently with the growing rate of SMEs providing remote services increased much faster signals a move towards digitalization and remote service provided by SMEs over the years.

IV. CONCLUSION

The pandemic served as a force of change in the South Asian SMEs rapidly speeding up the embrace of digital technologies, changing both service provision and policy reform. The statistics of 2019 to 2023 reflect a definite trend of adaptation, recovery, and resilience building, especially in relation to the digitally enabled and enabled SMEs.

Among the highlights are a twofold growth in the use of digital platforms, a rise in remote services, and higher access to the credit and relief funding. It is important to note that female-owned SMEs were very adaptable with most of them keeping them in operation at higher levels, compared to the male-owned ones.

Nonetheless there are major difficulties. The informal and rural SMEs still do not match on the aspect of digital integration and access to finances. In addition, the government support was not widely spread and the support to many micro-enterprises was not sufficient.

Going forward it will be necessary to maintain long-term investment in digital infrastructure, capacity building, and inclusive financial systems. The focus of the strategy must be on increasing digital literacy, improving access to credit to informal enterprises, and mainstreaming of gender considerations in recovery plans in the region.

Finally, the pandemic experience provides great insights into creating resilient business models capable of operating through the upcoming crisis. The South Asian SMEs, through the use of technology, policy, inclusion can grow stronger, leaner, readier to face an uncertain world.

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