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Understanding the Economic Consequences of COVID-19 on Small and Medium Enterprises in Rajshahi City, Bangladesh

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Abstract: ***The COVID-19 pandemic has brought unprecedented challenges to small and medium-sized enterprises (SMEs) worldwide, including those in Rajshahi City, Bangladesh. This study investigates the impact of the pandemic on SMEs in Rajshahi, focusing on various sectors such as restaurants, coffee shops, beauty parlours, and retail stores. Through a quantitative research methodology involving primary data collection from 100 SMEs, the study examines the challenges faced by these businesses during the pandemic, changes in input and output values, strategies adopted for survival, and the effectiveness of government policies in mitigating the impact. Results indicate significant disruptions in SME operations, with a notable percentage of employees unable to work and financial struggles arising from rent payments, loan repayments, and reduced revenues. The majority of SMEs have contemplated or implemented layoffs to cope with the economic downturn. To address financial challenges, SMEs are considering various measures, including seeking loans, negotiating with lenders, and reducing operating costs. Moreover, SMEs are exploring strategies such as increasing marketing efforts, developing online sales platforms, and making capital expenditures to adapt to the new normal. Government support, particularly in reducing rent and financing costs, is seen as crucial by SMEs for their survival and recovery. Overall, the study highlights the urgent need for comprehensive crisis strategies, accurate financial assessments, and support for online sales channels to ensure the resilience of SMEs in Rajshahi City. Government initiatives should be expanded to include all affected industries, thereby providing a more inclusive and effective response to the challenges posed by the pandemic.***

Keywords: Covid-19, Pandemic, Lockdown, Sme, Rajshahi City.

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1. INTRODUCTION

Coronavirus, or COVID-19, is caused by SARS-CoV-2. COVID-19 was first found in Wuhan, China, in December 2019. COVID-19 spread worldwide, causing a pandemic. Governments and officials worldwide implemented lockdowns to reduce disease transmission. Lockdown restricts movement and confines people to prevent disease spread. Lockdown, especially during the COVID-19 pandemic, limits human life and behavior (Mahadi et al., 2023). This caused global economic turmoil. The COVID-19 pandemic caused inflation, unemployment, and business cycle volatility. Multiple industries were also threatened. The lockdown restricted mobility, disrupting work for many businesses (Guo et al., 2020). Due to downsizing, many industries reduced output, affecting global prices. Bangladesh faced similar issues (Shawon, 2023).

Small and medium-sized enterprises (SMEs) have sales, assets, or employees below a certain threshold. SMEs employ more people than large firms and are known for their entrepreneurial spirit, which encourages innovation (Failie, 2020). Bangladesh, a small South Asian nation, is a growing middle-income economy. SMEs drive Bangladesh's industrial sector, which accounts for 31% of GDP. Bangladesh has 7.9 million SMEs, 93.6 percent of which are small and 6.4 percent medium-sized. According to Business Standard, SMEs have created many Bangladeshi jobs. They boost the economy and support larger companies (Islam et al., 2020). SMEs supply ready-made garment (RMG) industries with buttons, zippers, and other accessories. As RMG and remittances decline in GDP, the SME sector is expected to grow in the export market if supported and developed. SME cash flow shortages and supply chain disruptions have been severe due to COVID-19 (Hossain et al., 2022). Despite the crisis, digital platforms have helped businesses succeed (Hossain et al., 2022). The pandemic has highlighted the need for digital twins and supply network transformations to improve supply chain viability and resilience (Nasir et al., 2022). SME challenges in Bangladesh include capital constraints, rising operating costs, employee layoffs, and operational disruptions (Bhuiyan, 2023; Rahman et al., 2024).

The COVID-19 pandemic has hit coffee shops, restaurants, food courts, barber shops, beauty parlors, cloth stores, and bike stores in Rajshahi City, a major Bangladeshi city with many SMEs. This study examines variables affecting these firms and their survival strategies. Previous research shows that digital finance and e-commerce have helped SMEs recover and maintain production and sales during the pandemic (Hossain and Chowdhury, 2022; Gao et al., 2022). But the pandemic has also exacerbated problems like access to formal credit, high operational costs, and a lack of qualified labor (Bhuiyan, 2023). This research will help understand how COVID-19 affects Rajshahi City SMEs and develop resilient strategies for future crises.

Statement of the Problem

Coronavirus was first reported on 8 March 2020. Three instances were confirmed that day. Instances increased gradually. Bangladesh declared a lockdown on March 18, 2020. This is part of the government's COVID-19 mitigation plan. This legislation also banned meetings in

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restaurants, cafes, barber shops, stationery stores, and other businesses. Small firms like these have to close till further notice (Kabir & Sajib, 2021). This restriction cost interdependent enterprises owing to numerous considerations. Their financial flow is lacking. The pandemic also interrupted the supply chain. They suffer from raw material shortages and lower productivity. Outstanding loans are another factor. Many small and medium-sized businesses received loans from commercial banks and NGOs. They must repay the money with interest. Lockdowns were prolonged throughout the year. It is important to examine how this virus has damaged Rajshahi City, Bangladesh's SMEs' economies.

Objective of the Study

The main objective of this study is to find out the effects of COVID-19 on the small and medium enterprises in Rajshahi City, Bangladesh. In order to achieve this main objective, it was broken down into three specific objectives stated below:

1. To identify the challenges that small businesses faced in operating their business during pandemic and lockdown.
2. To determine the differences between total input and output situation of the small and medium enterprises before and after pandemic
3. To find out the strategies and resolution to bounce back in business.

2. RELATED WORKS

The COVID-19 pandemic has inflicted unprecedented challenges upon small and medium-sized enterprises (SMEs) globally, prompting diverse research endeavors to understand its multifaceted impacts and devise strategies for resilience.

A recurring objective across studies is to assess the pandemic's ramifications on SMEs and identify strategies for resilience. Hossain et al. (2022) and Nasir et al. (2022) delve into the impact on SMEs' viability, with Hossain et al. emphasizing digital transformation's role and Nasir et al. exploring supply chain dynamics. Similarly, Bhuiyan (2023) and Rahman et al. (2024) focus on post-COVID challenges and opportunities, emphasizing government support and technological adaptability. Rapti et al. (2022) and Hossain and Chowdhury (2022) zoom into short-term impacts and fintech interventions, respectively, while also addressing recovery strategies.

Methodologically, studies employ diverse approaches. While some, like Nasir et al. (2022) and Bhuiyan (2023), utilize quantitative methods such as structural modeling and statistical analysis, others like Hossain et al. (2022) and Rapti et al. (2022) incorporate qualitative techniques like case studies and interviews. The integration of mixed methods, as seen in Hossain and Chowdhury (2022) and Islam et al. (2021), offers a comprehensive understanding of SMEs' challenges and responses.

Findings underscore both challenges and opportunities for SMEs. Common challenges include supply chain disruptions (Hossain et al., 2022), revenue reduction (Shawon, 2023), and workforce issues (Islam et al., 2021). However, opportunities such as digital

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transformation (Nasir et al., 2022) and government support (Bhuiyan, 2023) also emerge. Additionally, studies like Karim et al. (2021) and Guo et al. (2020) advocate for policy interventions and technological advancements to enhance SME resilience.

While objectives vary from assessing impacts to proposing resilience strategies, methodologies range from quantitative modeling to qualitative inquiry. Nonetheless, findings converge on the importance of digitalization, government support, and innovative strategies in bolstering SMEs against the pandemic's onslaught.

Research Gap
In contrast to the extensive research conducted in Bangladesh, the Rajshahi region has yet to witness the completion of a study of this nature. Moreover, global research on this subject has been unable to fully comprehend the impact of COVID-19 on small and medium-sized enterprises (SMEs) in Rajshahi City, Bangladesh. This research endeavors to resolve this gap in understanding by examining the impact of the COVID-19 pandemic on small and medium-sized enterprises (SMEs) in Rajshahi City, Bangladesh.

3. METHODOLOGY

Research methodology outlines the procedures employed in a given research endeavor, defining the techniques used to identify and analyze information pertinent to a specific research topic.

Research Approach and Strategy
This study uses deductive research to examine how COVID-19 and the pandemic affect Rajshahi's small and medium enterprises. A quantitative research method using primary data and descriptive statistics was used to achieve this goal. Quantitative research collects and analyzes numbers. Percentages were used to show how COVID-19 has affected SMEs in graphs and tables.

Sample Design
Sampling involves the selection of specific units for consideration. Purposive sampling was employed to ensure characteristics were represented across all units within the collection. Sample size is crucial in research, with the ideal size recommended to be larger than 30 and less than 500. In this study, a total of 100 participants from around Rajshahi city were selected. Participants, aged between 30 to 60 years, included both male and female owners or affiliates of small and medium enterprises, such as restaurants, coffee shops, beauty parlors, cycle stores, medicine stores, food courts, cosmetic stores, hardware stores, distribution houses, and bookshops. All participants owned businesses directly affected by the COVID-19 pandemic.

Study Area
All participants in this research were selected from within Rajshahi City Corporation. The area of Rajshahi city covers 121 square kilometers, with a population of approximately

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85,000 people and a population density of 4318 per square kilometer. Numerous small and medium business settlements surround the city.

Data Collection

Primary data for this study were collected from various small and medium business enterprises around Rajshahi city. Data collection utilized a direct interview method employing a structured questionnaire. The questionnaire was methodically developed based on insights from existing literature, ensuring relevant factors related to understanding the effects of COVID-19 on small and medium enterprises were included. Participants were asked simple questions from the questionnaire to express their business conditions amid the pandemic. This facilitated the collection of primary data essential for the research.

4. RESULTS AND DISCUSSIONS

Table 1: The percentage of company's employees who were unable to come to work in pandemic

No of Absent Employees	Percentage (%)
0	40.0
1-10	41.7
11-20	13.3
21-30	1.7
More than 30	3.3
Total	**100.0**

Table 1 shows Rajshahi SMEs' pandemic staff absences. About 40% of companies had all employees during the pandemic. 1-10 workers were absent from 41.7% of firms throughout the pandemic, the largest range. About 13.3% of firms had 11-20 absentees. 1.7% of businesses reported 21-30 worker absenteeism, indicating labor shortages. More than 30 workers were absent in 3.3% of businesses, compounding their labor shortages during the pandemic.

Table 2: The most significant financial problems faced by the SMEs during the outbreak

Financial Problem	Percentage (%)
Staff wages and social security charges	15.0
Rent	38.3
Repayment of loans	20.0
Payments of invoices	13.3
Other expenses	5.0
No specific problem	8.3
Total	**100.0**

Table 2 shows the outbreak's biggest financial issues for SMEs. Around 15% of SME owners mentioned salary and social security concerns. The main concern for 38.3% of owners was rent. Due to earnings decline, several owners struggled to pay rent. The second most common

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financial issue for 20% of owners was debt repayment. Business shutdowns due to the pandemic worsened this situation. 13.3% of SME owners had trouble paying invoices, while 5% had other issues. 8.3% of business owners had no pandemic financial issues.

Figure 1 shows pandemic-related SMEs layoffs. It shows that most SME owners have pondered layoffs. In particular, 81.7% of business owners have considered or implemented layoffs. On the other hand, 18.3% of companies have not considered layoffs.

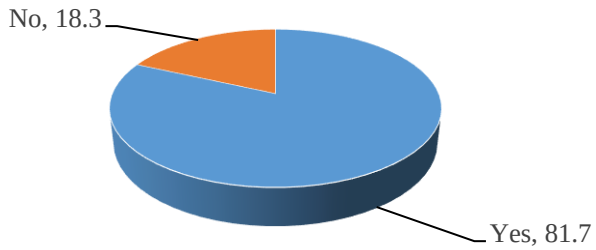


Figure 1: Company currently considering layoffs, or has already done some because of the epidemic

Table 3: The percentage of staff company expecting to or have been already cut

Staff Expecting to Cut	Percentage (%)
0	70.0
1-10	28.3
Over 30	1.7
Total	**100.0**

Table 3 shows the percentage of workers SMEs expect to or have cut. This sector is benefiting from the fact that 70% of SMEs did not expect or cut labor. However, 28% of SME business owners projected or cut 1-10 employees due to the pandemic. Only 1.7% of SME owners have cut or plan to slash over 30 workers owing to COVID-19.

Table 4: The main means SME are considering to deal with the cash flow shortage

Considering to deal with cash flow	Percentage (%)
Loans by commercial banks	40.0
Loans by Internet finance	6.7
Loans by microfinance companies or private individuals	48.3
Negotiating with lenders to avoid withdrawing loans	1.7
Reduction of operating costs (e.g. layoffs and salary reductions)	3.3
Total	**100.0**

Table 4 shows the main cash flow deficit strategies SMEs are considering. This table describes how SMEs will address the issue. The study shows that 40% of SME owners are

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seeking commercial bank loans to improve cash flow. About 6.7% of SME owners want online loans for the same reason. The majority, 48.3% of SME owners, prefer microfinance or private loans. This shows Rajshahi's SME business relies heavily on microfinance and private loans. Conversely, only 1.7% of SME owners oppose bank or microfinance loans. Instead, they'll haggle with lenders to avoid loans. 3.3% of small and medium business owners cannot borrow and are not considering it. They want to cut operating expenditures like layoffs and salaries to address the cash flow problem.

Table 5: The main means SME are considering to deal with the shortage of workers

Deal with the shortage of workers	**Percentage (%)**
Wage increases	48.3
Use of advanced equipment or software to reduce the amount of work	3.3
Outsourcing of orders	8.3
Delay in delivery	6.7
No shortage of workers	33.3
Total	**100.0**

Table 5 lists the main worker shortage solutions SMEs are considering. Given the importance of workers for SMEs, they must find solutions. The table shows these companies' solutions. About 48.3% of SME owners plan to raise pay to solve workforce shortages. However, just 3.3% of business owners have implemented or considered modern technology or software to save workload. This low percentage shows Rajshahi SMEs' technological backwardness. Due to workforce shortages, 8.3% of businesses are considering outsourcing orders. 6.7% may delay deliveries owing to worker shortages. Interestingly, 33.3% of SMEs report no work scarcity.

Figure 2: The main means SME are currently considering to deal with difficulties in fulfilling contracts

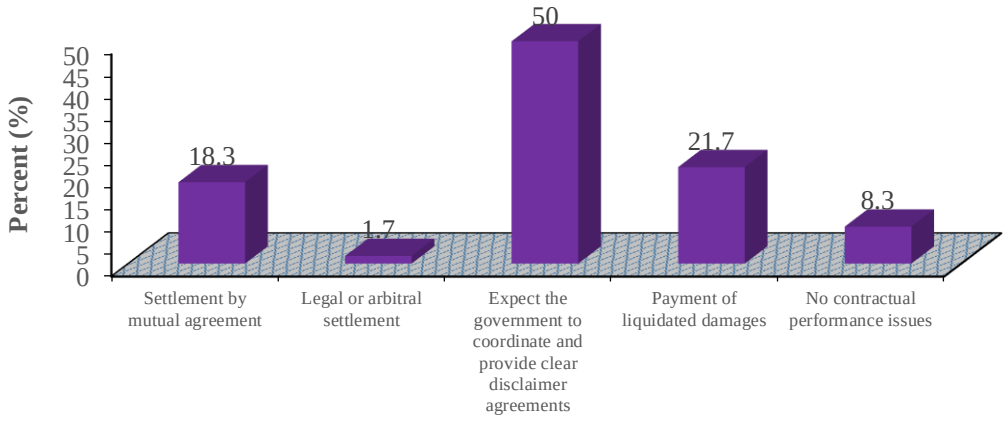


Figure 2 shows the main options SMEs are exploring to execute contracts during the COVID-19 epidemic. Contract enforcement is a major issue for all SMB owners. About 18.3% of SME owners are trying to address contract issues through mutual agreement. Only 1.7%

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consider legal or arbitral settlement for contract fulfillment. About 50% of SME owners expect government involvement. They depend on government coordination and unambiguous disclaimers. About 21.7% of SME owners consider liquidated damages to fulfill contracts. Additionally, 8.3% of businesses report no contractual issues.

Other business problems	Percentage (%)
Reduction of orders	31.7
Inability to deliver existing orders	3.3
Increased difficulty of financing	40.0
Existing loans cannot be extended	23.3
Disruption of logistics	1.7
Total	**100.0**

Table 6: Other business problems SME are facing due to the epidemic

Table 6 shows the additional hurdles SMEs face due to the COVID-19 epidemic. COVID-19's influence on economic activity has reduced orders for 31.7% of SMEs. The pandemic has caused raw material, manpower, and other shortages that prevent 3.3% of SMEs from fulfilling orders. The pandemic-induced economic slowdown has caused 40% of firms to struggle with funding. Nearly 23.3% of small and medium firms cannot extend their loans, increasing their financial hardship. Only 1.7% of businesses are experiencing pandemic logistics delays.

Table 7 shows how SMEs see government aid policies. All governments and financial institutions have taken steps to combat the pandemic. This table examines which pandemic policies SMEs think work best for them. About 45% of SMEs think cutting rent and power, gas, logistics, etc. costs would help.More than 10% of SMEs think tax cuts and deferrals work. SME finance cost reduction, loan term extension, or partial debt relief is the second most popular policy, with 41% approval. Only 1.7% of SMEs think interim social insurance premium reductions and unemployment insurance reimbursement for non-laying-off industries would help their organization. Only 1.7% think optimally exporting tax rebate services would benefit them.

Table 7: The effectiveness of the policy measures taken by the government at all levels and financial institutions according to the SMEs have announced relief measures

Effective Policy	Percentage (%)
Reduce rent for small and medium-sized enterprises and lower costs for electricity, gas, logistics, etc.	45.0
Reduction of tax rates, reduction or deferral of taxes	10.0
Reduction of financing costs for SMEs, extension of loan terms or partial debt relief	41.7
Temporary reduction of social insurance premiums and reimbursement of unemployment insurance to enterprises that do not lay off staff	1.7
Optimization of exporting tax rebate services	1.7
Total	**100.0**

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Table 8 shows the distribution of SMEs across this research's industries. About 5% of SMEs are manufacturers. About 8.3% of the study's SMEs are wholesale and retail. Another 5% of SMEs are transport, storage, and postal enterprises. SME members are mostly from the catering and accommodation business, 30%. Only 1.7% of enterprises provide information transmission, software, and IT services. 10% of SMEs are in education, and 3.3% are in health and social work. Only 1.7% of enterprises are in culture, sports, and entertainment. The bulk, 35% of SMEs, are from various industries.

Table 8: Which industry is SMEs Company is in

Name of Industry	**Percentage (%)**
Manufacturing industry	5.0
Wholesale and retail trade	8.3
Transport, storage and postal industry	5.0
Accommodation and catering	30.0
Information transmission, software and information technology services	1.7
Education	10.0
Health and social work	3.3
Culture, sports and entertainment	1.7
Other please specify	35.0
Total	**100.0**

Table 9 analyses Rajshahi-area SMEs' tactics. About 10% of SME owners actively seek funding. About 11.7% of SME owners are exploring new supply chains. 8.3% of owners establish online sales platforms or websites.Nearly 16.7% are increasing marketing and sales. Just 6.7% of SME owners are hiring. About 25% of owners are making capital expenditures. No-action methods are used by 21.7% of SME owners.

Table 9: The strategies taken by the company owners

Strategy	**Percentage (%)**
Obtain financial assistance or additional capital	10.0
Identify new supply chain options	11.7
Develop online sales or websites	8.3
Increase marketing or sales	16.7
Identify and hire new employees	6.7
Make a capital expenditure	25.0
None of the above	21.7
Total	**100.0**

Table 10: The Value of input after pandemic

Costs (in Taka)	**Percentage (%)**
Below 5000	6.7
5001-20000	35.0

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20001-40000	11.7
40001-60000	16.7
Above 60000	30.0
Total	**100.0**

Post-pandemic input values and expenses are shown in Table 10. 6.7% of SMEs report input costs under 5000 takas. About 35% of SME owners spend 5001 to 20000 taka on inputs or raw materials. 11.7% of owners spend 20001–40000 taka on inputs. About 16.7% of SME owners have input costs between 40001 and 60000 taka. Input costs over 60000 taka are reported by 30% of business owners.

Table 11: The value of output after pandemic

Revenue (in Taka)	**Percentage (%)**
Below 5000	0
5001-20000	38.3
20001-40000	18.3
40001-60000	15.0
Above 60000	28.3
Total	**100.0**

Table 11 shows pandemic-related productivity and product expenses. None of the respondents reported output below 5000 taka. About 38.3% of small and medium companies (SME) owners reported output or product earnings between 5001 and 20000 taka. Additionally, 18.3% of owners reported output earnings of 20001–40000 taka. About 15% of SME owners had outputs between 40001 and 60000 taka. In particular, 28.3% of business owners reported income over 60000 taka.

Table 12: The value of input before pandemic

Cost (in Taka)	**Percentage (%)**
Below 5000	3.3
5001-20000	33.3
20001-40000	15.0
40001-60000	13.3
After 60000	35.0
Total	**100.0**

Table 12 calculates pre-pandemic input costs. Some 3.3% of respondents indicated input costs under 5000 taka. Most SME owners—33.3%—spent 5001–20,000 taka on inputs or raw materials. Additionally, 15% of owners spent 20001–40000 taka on inputs. About 13.3% of SME owners had input expenses between 40001 and 60000 taka. Notably, 35% of firm owners reported input costs over 60000 taka.

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Table 13: The Value of output before pandemic

Revenue (in Taka)	Percentage (%)
Below 5000	1.7
5001-20000	26.7
20001-40000	16.7
40001-60000	11.7
Above 60000	43.3
Total	**100.0**

Table 13 shows output and product costs before the pandemic. About 1.7% of respondents reported output below 5000 taka. About 26.6% of small and medium companies (SME) owners reported output or product earnings between 5001 and 20000 taka. In addition, 16.7% of owners reported output earnings of 20001–40000 taka. Outputs ranged from 40001 to 60000 taka for 11% of SME owners. In particular, 43.3% of business owners reported income over 60000 taka.

Discussions

SMEs in Rajshahi, Bangladesh, have suffered greatly from the COVID-19 pandemic, according to the study. Bangladeshi studies show that SMEs faced similar challenges during the pandemic. SMEs in Rajshahi lost staff during the pandemic, as shown in Table 1. It shows labor shortages and high absenteeism in many firms. Labor shortages were a major constraint for SMEs during the COVID-19 pandemic, according to Hossain et al. (2022). Table 2 shows that SMEs worried about finances. Business owners struggled with rent and debt repayment due to pandemic revenue declines. During the COVID-19 pandemic, Bangladeshi SMEs faced higher operating costs and capital constraints, according to Bhuiyan (2023).

Table 3 shows how much Rajshahi SMEs expect or implement in labor cuts, reflecting their economic strain. Figure 1 shows that SME owners are considering layoffs, highlighting the pandemic's workforce issues. These findings support Kabir and Hussain (2021), who noted that the pandemic hurt small business employment in Bangladesh. Table 4 shows that Rajshahi SMEs sought financing to address cash flow deficits. Microfinance and private loans were preferred because SMEs relied on external funding to overcome financial challenges. According to Hossain and Chowdhury (2022), mobile financial services help Bangladeshi SMEs recover from COVID-19 losses. Table 5 shows that technological adaptation was a less-explored worker shortage solution. This suggests SMEs in Rajshahi could use technology to boost productivity and reduce workforce constraints. This contradicts Nasir et al. (2022), which stressed the importance of digital twins and supply network transformation in improving supply chain viability for SMEs in emerging economies. Table 6 shows how Rajshahi SMEs face supply chain disruptions and financial constraints. Rahman et al. (2024) and Sarker et al. (2022) found that the pandemic affected production volume, demand, and liquidity crisis for SMEs in different regions of Bangladesh.

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Government aid policies emerged as a critical factor in supporting SME resilience during the pandemic, as indicated in Table 7. The preferences of SMEs for measures such as rent and cost reductions underscored the importance of targeted policy interventions to alleviate financial burdens and support business continuity. This finding echoes the recommendations of Khan and Haider (2022) regarding the need for proactive government support to address the challenges faced by SMEs in Bangladesh during the pandemic. The distribution of SMEs across various industries in Rajshahi, as shown in Table 8, highlights the diverse economic landscape of the city's SME sector. This diversity underscores the need for tailored strategies to address sector-specific challenges and opportunities for SMEs in different industries. This finding aligns with the emphasis on industry-specific interventions observed in the study by Pu et al. (2021), which highlighted the importance of innovative finance and technological adaptation in enhancing SME sustainability during the pandemic.

Table 9 reveals the range of tactics adopted by SMEs in Rajshahi to navigate the challenges posed by the pandemic, including funding exploration, supply chain diversification, and online sales platforms. These strategies reflect the adaptability and resilience demonstrated by SMEs in response to the evolving business environment. This finding resonates with the observations of Gao et al. (2022), who emphasized the importance of e-commerce adoption and digital marketing strategies in enhancing SME financial and sustainability performance amid the pandemic. Tables 10-13 provide insights into pre-pandemic and post-pandemic input values, expenses, productivity, and product costs among SMEs in Rajshahi. These findings offer a comprehensive understanding of the economic dynamics and operational challenges faced by SMEs in the city, shedding light on the long-term implications of the pandemic on business operations and financial performance. This longitudinal perspective is critical for informing policy interventions and strategic planning to support SME recovery and resilience in the post-pandemic era.

5. CONCLUSIONS

In conclusion, the findings presented in this study underscore the significant impact of the COVID-19 pandemic on SMEs in Rajshahi city, Bangladesh, and the multifaceted challenges faced by these businesses. By drawing on insights from existing literature and empirical data, this study contributes to a deeper understanding of the pandemic's implications for SMEs and highlights the importance of targeted policy interventions, technological innovation, and industry-specific strategies to support SME recovery and sustainability in the post-pandemic landscape. After analysing the findings, a number of policy recommendations can be made for Rajshahi SMEs. SMEs must first develop a crisis plan to handle unanticipated events like the COVID-19 epidemic. Additionally, firms must effectively assess their variable and fixed expenditures and revenues. Also, SMEs should focus on extending their online sales platforms. Lastly, the government should expand support packages to include industries excluded from the stimulus program.

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