

Manuscript ID:
IJEBAMPSR-2026-030407

Volume: 3

Issue: 4

Month: August

Year: 2026

E-ISSN: 3065-9140

Submitted: 07 July 2026
Revised: 12 July 2026
Accepted: 10 Aug. 2026
Published: 31 Aug. 2026

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DOI: 10.5281/zenodo.23412728

DOI Link:
<https://doi.org/10.5281/zenodo.23412728>



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How to Cite this Article:

Patil, G. J. (2026). Impact of E-Commerce on Small and Micro Enterprises: Opportunities and Challenges in the Digital Economy. *International Journal of Economics, Business, Accounting, Agriculture and Management Towards Paradigm Shift in Research* (, 3(4), 36–40. <https://doi.org/10.5281/zenodo.23412728>

Impact of E-Commerce on Small and Micro Enterprises: Opportunities and Challenges in the Digital Economy

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Abstract

This paper examines how e-commerce affects micro, small and medium enterprises (MSMEs) in emerging economies, with attention to the gains firms report and the barriers that limit them. It is a qualitative, comparative synthesis of nine recent studies and practitioner reports from Indonesia, India, Nigeria and several other developing markets. The sources agree that online selling widens customer reach, lowers marketing and transaction costs, and strengthens resilience. They also agree that the gains are uneven. Micro firms, women-owned businesses and enterprises with weak digital skills, poor connectivity, limited credit or costly logistics benefit least. The evidence shows that adoption alone does not produce performance. Complementary capabilities, supportive ecosystems and targeted public policy decide who gains. The paper closes with five recommendations for firms, platforms and governments.

Key words: E-commerce; Microenterprises; Digital divide; MSME performance

Introduction

Small enterprises are central to developing economies, and the internet has changed how they find customers and suppliers. In Indonesia, for example, e-commerce transactions have grown alongside gross domestic product and internet use (Pratama et al. 32). Platforms promise sellers a wider market without a physical shop, but the promise is not equally open to every firm. Pratama and colleagues describe adoption by Indonesian MSMEs as uneven, held back by infrastructure, digital literacy and limited resources (32).

The pattern is not specific to one country. Haddad and Brougham note that e-commerce is expanding quickly at the macro level, with Indonesian online commerce projected to rise from \$75 billion in 2024 to \$125 billion in 2027. They add that participation by micro and small enterprises is “not growing at the same pace” (1). This mismatch between a fast-growing market and slow small-firm entry is the problem this paper investigates.

The question matters for policy as well as for business. Studies reviewed here report gains in revenue, customer base and geographic reach, but also skills gaps, payment fraud, platform commissions and concentration of online sales among a few large sellers (Mastercard Strive; Ramesh 5). Understanding both sides is necessary before governments, platforms and lenders decide where to invest.

Objectives of the Research

1. To describe the main economic opportunities that e-commerce creates for small and micro enterprises.
2. To identify the technological, organizational, financial and infrastructural barriers that restrict adoption and benefit.
3. To compare how outcomes differ by firm size, sector, gender of ownership and country context.
4. To propose practical measures for firms, platforms and policymakers that make digital participation more inclusive.

Importance of the Research

1. Small enterprises supply much of the employment in developing economies, so their digital exclusion has wide social consequences (Sharma 218; Okolo-Obasi et al. 50).
2. Evidence is fragmented across countries and methods, and a consolidated reading helps readers judge which claims are well supported.

3. Policymakers need to know whether digital programmes should target skills, finance, logistics or regulation first.
4. Platform operators and lenders can use the findings to design services that suit micro firms rather than only larger sellers.

Contribution of the Research

1. It brings together evidence from Asia, Africa and multi-country samples in one comparative framework.
2. It separates what the sources demonstrate from what they merely assert, by noting design limitations such as selection of only adopters or reliance on self-reported outcomes.
3. It links barriers to specific interventions reported in the sources, including pre-loaded catalogues, embedded credit and tiered platform fees.
4. It provides a structured research agenda by showing where the evidence is thin, particularly on micro firms and long-run effects.

Research Methodology

The study uses a qualitative, secondary-data design. Nine sources were selected: six peer-reviewed empirical or review articles, one conference-style journal paper, and two practitioner publications from Accion and Mastercard Strive. Together they cover Indonesia, India, Nigeria and a six-country emerging-market panel. Each source was read in full. Reported findings on opportunities, challenges, firm characteristics and policy proposals were recorded and then grouped by theme through a comparative reading, in the manner of the thematic approaches the source authors themselves describe (Pratama et al. 36; Sudheesh Kumar 131–32). Numerical claims are reported exactly as the original authors state them and attributed to them. No primary data were collected. The conclusions are therefore bounded by the quality of the underlying studies, and the limitations of several sources are discussed in the analysis below.

Detailed Analysis of the Subject

The literature supports a consistent but conditional account of e-commerce for small firms. The analysis below takes the objectives in turn, beginning with opportunities, then barriers, then differences across firms, and ending with enabling interventions.

Opportunities: reach, cost and resilience

The strongest finding is market expansion. Pratama and colleagues argue that digital platforms let Indonesian MSMEs reach consumers nationally and abroad without costly physical infrastructure, which narrows the gap with large firms (37). Mastercard Strive's review of the Small Business Digital Evidence Map supports this. Thirty-one studies measured growth effects, and 94 percent

found positive results, mostly because platforms give access to more customers (Mastercard Strive). The review adds an important caution: none of the 56 studies it covers used comparison or control groups. All were theory-based evaluations (Mastercard Strive).

Quantitative studies point the same way. In a six-country panel of 1,850 SMEs, Sudheesh Kumar reports average revenue growth of 34 percent for adopters against 12 percent for non-adopters, and a customer-base expansion of 28 percent (132). Ramesh's survey of 1,200 Indian MSMEs estimates through instrumental variables that adoption raised revenue growth by 28 percent, lowered customer acquisition cost by 22 percent, and increased the number of states reached from 2.8 to 6.2 (4). In Indonesia, Suyanto et al. find a path coefficient of 0.626 from e-commerce adoption to microenterprise performance, with adoption and context variables together explaining 39.2 percent of performance variance (756).

Cost and efficiency gains are a second theme. Pratama et al. list faster transactions and automation of inventory control and payment settlement among the efficiencies of online selling (37). Sharma, summarizing earlier work, reports that platform use can lower operating costs by up to 30 percent, citing Laudon and Traver (220). That figure is secondhand and from older research, so it should be read as indicative only. Cost is not uniformly lower, however. Sudheesh Kumar finds that the 8 percent average rise in profit margins among adopters was not statistically significant ($p = 0.23$), a result he attributes to platform commissions, marketing spending and logistics costs (132).

Resilience is a third benefit. Mastercard Strive reports that, in 12 of 13 countries studied by DAI, typically three-quarters of surveyed small businesses said digital tools were important or essential for staying open during the pandemic. It also reports that 40 percent of surveyed informal Indian firms said e-commerce participation made loans easier to obtain. Platform data can therefore act as a credit signal, which helps firms that lack formal collateral.

Barriers: skills, infrastructure, finance and trust

The sources list similar obstacles. Ramesh's non-adopters named lack of digital literacy or skills as the top barrier (42 percent), followed by high set-up and maintenance cost (35 percent), logistics (28 percent), payment fraud and security (22 percent), poor connectivity (18 percent) and lack of awareness (15 percent) (4). Sudheesh Kumar likewise reports digital skills gaps among 62 percent of SMEs, logistics constraints among 48 percent, payment integration difficulties among 41 percent, and platform dependency concerns among 38 percent (132). In Nigeria,

Okolo-Obasi et al. find that poor infrastructure equipment (22 percent) and poor or absent internet connectivity (20 percent) were the most cited constraints, ahead of lack of knowledge (18 percent), financial exclusion (13 percent) and fear of cybercrime (11 percent) (58).

Finance is a distinct problem. Haddad and Brougham observe that small retailers usually buy stock on informal deferred-payment terms, which online marketplaces rarely replicate. In Addis Ababa, more than one-third of MSEs had informal loans, mostly for inventory, yet only 2 percent had borrowed through fintech or e-commerce platforms. Delhi showed a similar gap, with fintech uptake around 10 percent (2). Trust also matters. Haddad and Brougham report that micro firms using several digital tools face higher consumer protection risks, and that many do not file complaints because they doubt the issue will be resolved (3).

Platform power is a fourth barrier. Ramesh's interviewees selling through Amazon and Flipkart reported high revenue but commissions of 15 to 30 percent and difficulty retaining customers (5). Mastercard Strive warns that concentration of online sales in a few firms may widen performance gaps between small and larger sellers, and that sophisticated marketplaces typically bring higher commissions and skill demands.

Differences by firm size, sector, gender and context

The benefits are not evenly shared. Sudheesh Kumar finds adoption of 82 percent among medium firms, 68 percent among small and 54 percent among micro enterprises, and higher adoption in retail (78 percent) than in manufacturing (65 percent) or services (62 percent) (132). Ramesh's Indian sample shows the same size gradient in outcomes. The causal revenue effect is 18 percent for micro firms, 32 percent for small and 38 percent for medium firms (4). Munandar and colleagues, summarized in Putri et al.'s review, similarly conclude that support should be differentiated for micro and for small and medium firms (805).

Gender adds a further layer. Mastercard Strive cites a qualitative study in which women entrepreneurs found the constant demands of an online presence in conflict with household responsibilities. It describes women-owned and micro businesses as facing the largest challenges in entering and sustaining online marketplaces. The same report also records a favourable result, with 73 percent of surveyed women-owned retailers in the Philippines naming business growth as their biggest gain from e-commerce. The two findings are compatible, since they describe different samples and different stages of adoption.

Context matters too. Okolo-Obasi et al. find that only 44 percent of Nigerian respondents could access digital commerce, while 39 percent could not and 17 percent were uninterested (57). Their sample is 87.25 percent micro enterprises (56). Their logit models report odds ratios of 8.732 for performance, 10.421 for growth and 12.133 for cost effectiveness and profitability (59–60). These figures should be treated carefully, because the reported p-values (.063, .076 and .082) are above the 5 percent threshold the authors say they apply (59–60). The direction of the result is plausible, but its strength is overstated.

Measurement problems affect other sources as well. Suyanto et al. limit their respondents to microenterprises that had already adopted e-commerce (753), so their results describe the effect among adopters and cannot show what separates adopters from non-adopters. Ramesh reports a 35 percent extension of geographic reach in the abstract but a 146 percent increase in the results table (1, 4), and acknowledges that the validity of his instrument must be assumed (5). Putri et al. review fifteen studies selected from 142 records (806), but the studies are heterogeneous and largely self-reported.

Enabling conditions: capabilities and ecosystems

Several sources show that capabilities, not adoption itself, drive outcomes. Sudheesh Kumar reports that firms in the top quartile for data analytics capability achieved 52 percent revenue growth against 18 percent for the weakest, and that firms with strong customer relationship management showed 2.3 times higher retention (132). Putri et al. reach a similar conclusion, stating that narrowing the digital divide requires more than adopting technology, including innovation mindsets, aligned policies and sustained capacity building (794). Suyanto et al. add that perceived benefits, IT knowledge and competitor pressure were the strongest indicators within the technological, organizational and external contexts (758).

Practical interventions in Haddad and Brougham are instructive because they target specific barriers. In India, the retail intelligence firm Bizom used an app to supplement rather than replace sales agents, and app-assisted retailers ordered 50 percent more stock than others (2). It also offered a pre-loaded catalogue of about 3,000 fast-moving products that small shops could opt into, and pilot retailers raised sales by over 20 percent (3). In Indonesia, a lender using alternative data and embedded credit reported that 60 percent of surveyed users bought more inventory and 74 percent said credit helped them withstand supply shocks (2). The authors caution that these results may not transfer across industries and settings (3).

Synthesis

Taken together, the sources show that e-commerce is a conditional opportunity. It is reliably associated with wider reach, higher sales and better resilience, but profit effects are weaker, and the poorest, smallest and least digitally skilled firms gain least. Because most evidence is correlational, self-reported or confined to adopters, the size of the effects is less certain than the direction.

Suggestions

1. **Fund practical digital skills training for micro firms.** Because skills gaps are the most cited barrier (Ramesh 4; Sudheesh Kumar 132), governments and trade bodies should offer subsidized, sector-specific training in product listing, online marketing and analytics.
2. **Invest in connectivity and logistics in smaller towns and rural areas.** Poor infrastructure and delivery costs are repeatedly reported (Okolo-Obasi et al. 58; Pratama et al. 38). Shared logistics hubs, as Ramesh proposes, could lower these costs (5).
3. **Embed flexible credit in marketplaces.** Platforms and lenders should use transaction data to offer short-term inventory finance that mirrors informal supplier credit (Haddad and Brougham 2).
4. **Design platform services for the smallest sellers.** Tiered fees, lower commissions, messaging-app integration and simplified cataloguing would reduce the effort and cost that exclude micro firms (Ramesh 5; Haddad and Brougham 3).
5. **Strengthen trust and consumer protection, and improve evidence.** Clear dispute resolution, fraud safeguards and human customer support are needed (Haddad and Brougham 3). Researchers and funders should also support controlled, longitudinal studies, since existing impact evidence lacks comparison groups (Mastercard Strive).

Conclusion

1. E-commerce expands market access and is consistently linked with higher sales, wider customer bases and improved resilience for small enterprises across the countries studied.
2. The benefits depend on complementary capabilities, especially digital skills, analytics and managerial support, rather than on adoption alone.
3. Barriers are concentrated among micro, women-owned and rural firms, and include skills gaps, weak infrastructure, limited credit, logistics costs and fear of fraud.
4. Platform dependence and commission costs can erode margins, so growth in revenue does not automatically become growth in profit.
5. Inclusive digital participation requires coordinated action by firms, platforms,

financial institutions and governments, supported by better-designed long-term research.

Acknowledgement

I would like to express my sincere gratitude to all those who supported and contributed to the successful completion of this research study titled “Impact of E-Commerce on Small and Micro Enterprises: Opportunities and Challenges in the Digital Economy.”

First and foremost, I am deeply thankful to my research guide, teachers, and academic mentors for their valuable guidance, constructive suggestions, and continuous encouragement throughout the study. Their insights helped me develop a better understanding of the role of e-commerce in transforming small and micro enterprises.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of thesis paper.

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