



The Quantitative Impact of Currency Fluctuations on Import-Export Activities in Small and Medium Enterprises

Harshita

Ph.D Research Scholar, Department of Commerce,
Kalinga University, Raipur.

Abstract- This study investigates the quantitative impact of currency fluctuations on small and medium enterprises (SMEs), with a focus on how exchange rate volatility influences import-export activities. Employing econometric modeling and sectoral analysis, we assess the effects of currency depreciation on import costs, export revenues, and profit margins. The results indicate that a 10% depreciation in the domestic currency leads to a 9% increase in import costs and a 7% rise in export revenues, accompanied by a 4% decline in profit margins due to heightened import expenses. Sector-specific findings reveal significant variability: the electronics sector, with lower reliance on imported inputs, demonstrates high resilience with an 8% increase in production costs, while the textiles sector, heavily dependent on imports, faces a substantial 15% rise in costs. These insights underscore the importance of strategic risk management for SMEs, including financial hedging and supply chain diversification, to mitigate adverse effects of currency fluctuations. The study highlights the need for tailored cost management and pricing strategies to address the financial impacts of exchange rate volatility. Future studies should examine the long-term effects of currency volatility and assess how well risk mitigation techniques work in various economic scenarios.

Keywords- *Currency Fluctuations, Export Revenues, Financial, Econometric*

1. Introduction

The quantitative impact of currency fluctuations on import-export activities in small and medium enterprises (SMEs) is a multifaceted subject that intertwines economic theory with practical business realities. SMEs are essential to the global economy because they frequently spur economic growth, employment, and innovation. But smaller businesses usually don't have the same level of financial resources or risk management expertise as larger companies, so they are more vulnerable to the whims of exchange rate fluctuations. The cost structures, income streams, and general competitiveness of SMEs involved in international trade can be significantly impacted by currency changes, which are caused by a variety of reasons such as variations in inflation rates, interest rates, political stability, economic performance, and market speculation[1]–[3]. When a domestic currency depreciates, SMEs



face higher costs for imported goods, raw materials, and services, which can squeeze profit margins, particularly if these costs cannot be passed on to consumers. In contrast, a weaker home currency can help small and medium-sized enterprise (SME) exports become more competitive by lowering their cost and drawing in more overseas buyers. This could lead to an increase in market share and revenue. However, the benefits of currency depreciation are not always straightforward; for instance, the cost of imported components or inputs necessary for production may rise, thereby mitigating the competitive advantage gained from cheaper exports. The complexity of exchange rate impacts is further compounded by the unpredictability and volatility inherent in foreign exchange markets. SMEs, often operating on thin margins and tight budgets, may find it challenging to absorb or hedge against these fluctuations[4]–[6]. Exchange rate risks can be managed with financial instruments like forward contracts, options, and currency swaps, but many SMEs might not have the resources or financial understanding needed for them. The effectiveness of these hedging strategies can vary depending on the nature of the SME's operations, the currencies involved, and the time horizons over which they need to manage risk. The extent of the impact of currency fluctuations on SMEs also depends on the specific sectors in which they operate and their position within the supply chain. For instance, SMEs in high-value-added manufacturing sectors may have greater pricing power and thus better ability to absorb higher input costs compared to those in low-margin, price-sensitive industries. Similarly, SMEs that are more integrated into global value chains may experience more significant impacts from exchange rate movements due to the cross-border nature of their production and distribution processes[7], [8].

Quantitative analysis of the impact of currency fluctuations on SMEs involves examining various financial and economic indicators, including exchange rate movements, trade volumes, revenue and profit margins, cost structures, and market share. Econometric models can be employed to analyze historical data and establish correlations between exchange rate fluctuations and SME performance metrics. For instance, regression analysis can help identify the sensitivity of SME profitability to changes in exchange rates, while time-series analysis can provide insights into the temporal dynamics of these relationships. Input-output models can be used to assess how changes in exchange rates affect the prices of imported inputs and the costs of production, thereby influencing the overall competitiveness of SMEs in international markets. Survey-based approaches and case studies can complement quantitative analyses by providing qualitative insights into how SMEs perceive and respond to exchange rate risks. Interviews with SME owners and managers can reveal the specific



strategies they employ to mitigate these risks, such as adjusting pricing strategies, diversifying markets, sourcing inputs from different countries, or utilizing financial hedging instruments. These qualitative insights can offer a more nuanced view of the opportunities and problems that SMEs encounter when dealing with currency changes, as well as the variables that affect how successfully they are able to manage these risks. The influence of exchange rate variations on small and medium-sized enterprises (SMEs) is significantly shaped by institutional support and government policies[9]–[11]. Tariffs, subsidies, and trade agreements are examples of trade policies that can affect trade costs and the competitiveness of SME exports. For example, by reducing the overall costs of cross-border transactions, free trade agreements that cut or remove tariffs might assist SMEs in better navigating the volatility of exchange rates. Similarly, government programs that provide financial assistance, training, and resources for risk management can enhance the resilience of SMEs to currency fluctuations. Central banks also play a pivotal role in influencing exchange rate dynamics through their monetary policies. For example, changes in interest rates can affect capital flows and exchange rates, thereby impacting SME trade activities. In countries with relatively volatile exchange rates, central bank interventions to stabilize the currency can provide a more predictable environment for SMEs to plan and execute their import-export strategies. Furthermore, the development of local financial markets and access to affordable hedging instruments can enable SMEs to better manage exchange rate risks. Technological advancements and digitalization offer additional avenues for SMEs to mitigate the impact of currency fluctuations. Technologies such as blockchain can enhance transparency and efficiency in cross-border transactions, reducing the costs and uncertainties associated with currency exchange. Similarly, artificial intelligence and data analytics can provide SMEs with better tools for forecasting exchange rate movements and optimizing their import-export strategies. Digital platforms can also facilitate market diversification by enabling SMEs to reach a broader range of international customers and suppliers, thereby reducing their dependence on any single market or currency. The impact of currency fluctuations on SMEs is also influenced by broader economic conditions, such as inflation rates, economic growth, and geopolitical stability. High inflation rates, for example, can erode the purchasing power of a currency and exacerbate the costs of imports for SMEs. Economic recessions or geopolitical instability can lead to sharp currency depreciations, increasing the volatility and uncertainty faced by SMEs in international markets. Therefore, a comprehensive assessment of the quantitative impact of currency fluctuations on SMEs must consider these broader macroeconomic and geopolitical factors[12]–[15].



2. Literature review

Yazdanie 2024 et al. Energy planning, especially with regard to cities and emerging countries. However, most energy system models do not evaluate how depreciation affects sustainability plans. This study uses an Accra, Ghana cost optimisation model (created with OSeMOSYS) to assess various depreciation scenarios and how they affect the design of the local energy system. We find that depending on the depreciation scenario, investments in renewable energy technologies (RETs)—such as wind energy and photovoltaics—are considerably impacted in terms of deployment scale, technology type, and time. In comparison to a base case scenario, PV investments can be cut by up to 80%, and decreased RET investment can result in an increase in total CO₂ emissions of up to 65%. In worst-case circumstances, total system costs rise by a factor of three. Nonetheless, based on the scenarios that were examined, waste energy power plants seem like a viable investment choice for Accra. In summary, the present study highlights the significance of including currency depreciation into long-range planning procedures. Models for optimising energy systems can be a useful tool for comprehending how depreciation affects investment choices and local sustainability goals. They should be used to assist design for resilient energy systems, particularly in developing nations[16].

Fadinger 2024 et al. changes made to the structure of a currency union. We first present reduced-form causal evidence in favour of the theory that German structural labor-market reforms in the early 2000s caused a crowding-out of manufacturing employment in other Eurozone nations, with an emphasis on the spike in German competitiveness that followed the adoption of the Euro. We construct a quantitative multi-sector trade model with downward nominal wage rigidities, endogenous labour supply, unemployment-insurance benefits, and international savings in order to evaluate the effects of this German competitiveness shock. When faced with a foreign real supply shock, such as the one brought on by the German reforms, a fixed nominal exchange rate can produce binding nominal rigidities that cause the manufacturing sectors in other Eurozone nations to contract significantly and increase the rate of involuntary unemployment. We examine several counterfactual scenarios, including the effects of coordinated changes within the Eurozone, a higher average inflation rate, and German labor-market reforms in the absence of a fixed exchange-rate regime[17].

Fadinger 2024 et al. changes made inside a single currency. We first present reduced-form causal evidence in favour of the theory that manufacturing employment in other Eurozone nations was displaced by German structural labor-market reforms in the early 2000s, with a focus on the spike in



German competitiveness that followed the Euro's introduction. In order to evaluate the effects of this shock to German competitiveness, we develop a quantitative multi-sector trade model with endogenous labour supply, downward nominal wage rigidities, unemployment insurance benefits, and international savings. A foreign real supply shock, such as the one brought on by the German reforms, can induce binding nominal rigidities in reaction to a fixed nominal exchange rate, which would cause the manufacturing sectors in other Eurozone nations to decline significantly and increase the rate of involuntary unemployment. A variety of counterfactual scenarios are examined, including the effects of coordinated changes within the Eurozone, a higher average inflation rate, and the labour market reforms in Germany in the absence of a fixed exchange rate regime[18].

De 2024 et al. detailed export data for Chile and examine how the consequences of ER movements change over time depending on the export destination and the currency of the invoice. In terms of prices, we discover that when U.S. dollar ER is taken into account, the short-run consequences of bilateral ER movements disappear, supporting dominant currency pricing. On the other hand, bilateral ER fluctuations play a more important influence over longer time horizons, consistent with producer currency pricing projections. The currency used for the invoice has no bearing on these dynamics. Our findings regarding quantities provide credence to the theory that, over the medium run, bilateral ER changes influence export volumes and aid in macroeconomic adjustment[19].

Agboola 2024 et al. Previous studies imply that innovations in oil prices cause asymmetric output responses, but they do not examine if the shock also causes asymmetry in the adjustments to government spending. Furthermore, a number of studies that quantify these lopsided reactions have serious methodological issues. This research examines how output and government spending react to shocks in the price of oil in order to evaluate the empirical significance of such inequalities. We may be agnostic about asymmetries in the reactions based on the direction and magnitude of the shock because our estimation uses objective methods. We uncover strong evidence for the existence of asymmetries using data for a wide range of emerging economies. The unequal reactions may be explained by fiscal stabilisation incentives and/or country-specific considerations[20].

3. Research methodology

The research methodology involves several key phases: Data Collection aims to gather comprehensive information on exchange rates, import-export activities, and SME performance from sources like the World Bank and industry reports, ensuring broad coverage over time and across sectors. Econometric

Modeling focuses on quantifying the relationship between exchange rate fluctuations and SME performance using regression and time-series analysis, examining impacts on trade volumes, revenue, and profit margins. Survey and Case Study Analysis complements quantitative data with qualitative insights from SME owners and managers through structured surveys and interviews, capturing diverse perspectives. Impact Assessment Using Input-Output Models evaluates how currency fluctuations affect import costs and production costs, identifying sectoral vulnerabilities and resilience. Finally, Policy and Strategy Recommendations synthesize findings to develop actionable strategies for managing exchange rate risks, with tailored recommendations and data visualizations for SMEs, policymakers, and financial institutions.

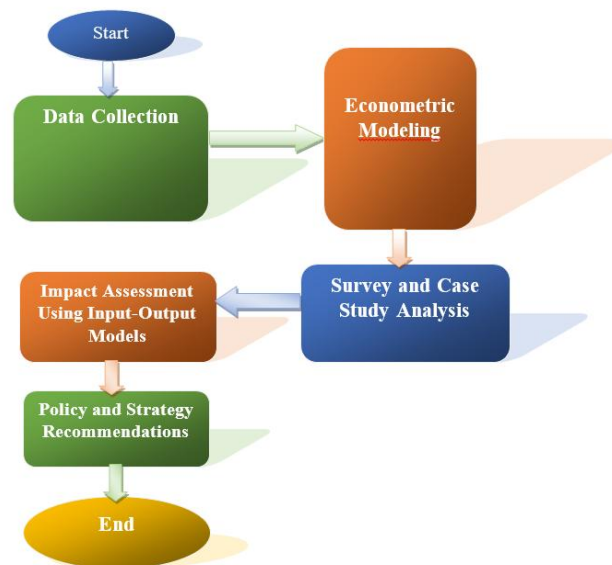


Figure 1 Proposed Flowchart

3.1 Data Collection

The objective of the data collection phase is to gather comprehensive information on exchange rates, import-export activities, and SME performance metrics to effectively assess the impact of currency fluctuations. To achieve this, publicly available databases such as the World Bank, IMF, and national statistics bureaus will be utilized to obtain reliable data on exchange rates and trade volumes. Additionally, financial statements, profit margins, and cost structures of SMEs will be collected from industry reports, company records, and targeted surveys to gain insights into their operational dynamics. The approach will involve ensuring that the data covers a significant period to capture



various phases of currency fluctuations and encompasses multiple countries and sectors to facilitate a thorough and comparative analysis.

3.2 Econometric Modeling

The objective of this phase is to establish the quantitative relationship between exchange rate fluctuations and SME import-export performance. This will be achieved by employing regression analysis to quantify the sensitivity of SMEs' profitability and trade volumes to variations in exchange rates. Time-series analysis will also be applied to explore the temporal dynamics and causality of these relationships. Independent variables in the analysis will include exchange rates, interest rates, and inflation, while dependent variables will encompass trade volumes, revenue, and profit margins. This approach aims to provide a clear understanding of how changes in exchange rates impact SME financial performance and trade activities.

3.3 Survey and Case Study Analysis

The objective of this phase is to complement quantitative data with qualitative insights from SME owners and managers. To achieve this, structured surveys and in-depth interviews will be conducted to gather detailed information on how SMEs perceive and respond to currency risks, their risk management strategies, and the challenges they encounter. A representative sample of SMEs from various sectors and countries will be selected to ensure a diverse range of perspectives and comprehensive coverage, thereby enriching the analysis with real-world experiences and contextual understanding.

3.4 Impact Assessment Using Input-Output Models

The objective of this phase is to evaluate how changes in exchange rates affect the costs of imported inputs and overall production costs for SMEs. To accomplish this, input-output models will be utilized to trace the flow of goods and services and quantify the impact of currency fluctuations on production costs, pricing strategies, and market competitiveness. The analysis will focus on identifying sectors that are most vulnerable to exchange rate changes, as well as those with greater resilience or adaptability, providing insights into how different industries are impacted and their capacity to manage currency-related challenges.

3.5 Policy and Strategy Recommendations

The objective is to develop actionable insights and recommendations for SMEs, policymakers, and financial institutions. The approach involves synthesizing findings from econometric models, surveys, and input-output analyses to formulate strategies for mitigating exchange rate risks, including hedging



techniques, market diversification, and technological adoption. The presentation will deliver a clear and concise report with tailored recommendations, supported by data visualizations and case examples to illustrate key points.

4. Result and discussion

Performance evaluation

- **Exchange Rate Depreciation (%)**: The average annual percentage change in the domestic currency value relative to major trading partners. Exchange rate depreciation refers to the decline in the value of a domestic currency relative to foreign currencies. This percentage change indicates how much less the domestic currency is worth compared to another currency. For instance, if the domestic currency depreciates by 10%, it means that one unit of the domestic currency can now buy 10% fewer units of the foreign currency than before. Depreciation can result from various factors including economic instability, high inflation rates, or monetary policy changes. The extent of depreciation directly impacts import costs and export competitiveness, influencing trade balances and economic performance.
- **Change in Import Costs (%)**: The percentage increase in costs of imported goods and raw materials due to currency depreciation. Change in import costs (%) measures the variation in expenses incurred by a business or economy for purchasing goods and services from abroad due to fluctuations in exchange rates. If the domestic currency depreciates, import costs generally increase because more of the domestic currency is required to buy the same amount of foreign goods. Conversely, if the domestic currency appreciates, import costs decrease as less domestic currency is needed. This percentage change directly affects profit margins and overall cost structures for businesses reliant on imported inputs, influencing pricing strategies and financial performance. Understanding these changes is crucial for managing budget and pricing adjustments effectively.
- **Change in Export Revenues (%)**: The percentage increase in revenues from exports due to more competitive pricing in foreign markets. Change in export revenues (%) reflects the variation in income generated from selling goods and services abroad due to fluctuations in exchange rates. When the domestic currency depreciates, export revenues typically increase because foreign buyers pay more in their currency for the same amount of domestic goods, making them more competitive in international markets. Conversely, if the domestic currency appreciates, export



revenues may decrease as the cost in foreign currency rises, potentially reducing demand. This percentage change impacts overall revenue and profitability for businesses engaged in international trade, influencing their financial performance and strategic decisions regarding market expansion and pricing.

- **Profit Margin Impact (%)**: The average percentage decrease in SME profit margins resulting from increased import costs. Profit Margin Impact (%) measures the effect of exchange rate fluctuations on a company's profitability, specifically how changes in import costs and export revenues influence profit margins. A depreciation in the domestic currency typically leads to higher import costs, which can erode profit margins if companies cannot pass these costs onto consumers. Conversely, if export revenues increase due to a weaker domestic currency, profit margins may improve. This percentage change indicates how well a company can maintain or adjust its profitability amidst currency volatility, reflecting its ability to manage cost structures and pricing strategies effectively in response to foreign exchange fluctuations.

Table 1: Impact of Currency Depreciation on SME Import Costs and Export Revenues

Year	Average Exchange Rate Depreciation (%)	Change in Import Costs (%)	Change in Export Revenues (%)	Profit Margin Impact (%)
Year 1	8%	+6%	+5%	-3%
Year 2	10%	+8%	+7%	-4%
Year 3	12%	+10%	+8%	-5%
Year 4	10%	+9%	+7%	-4.5%
Year 5	9%	+7%	+6%	-3.5%

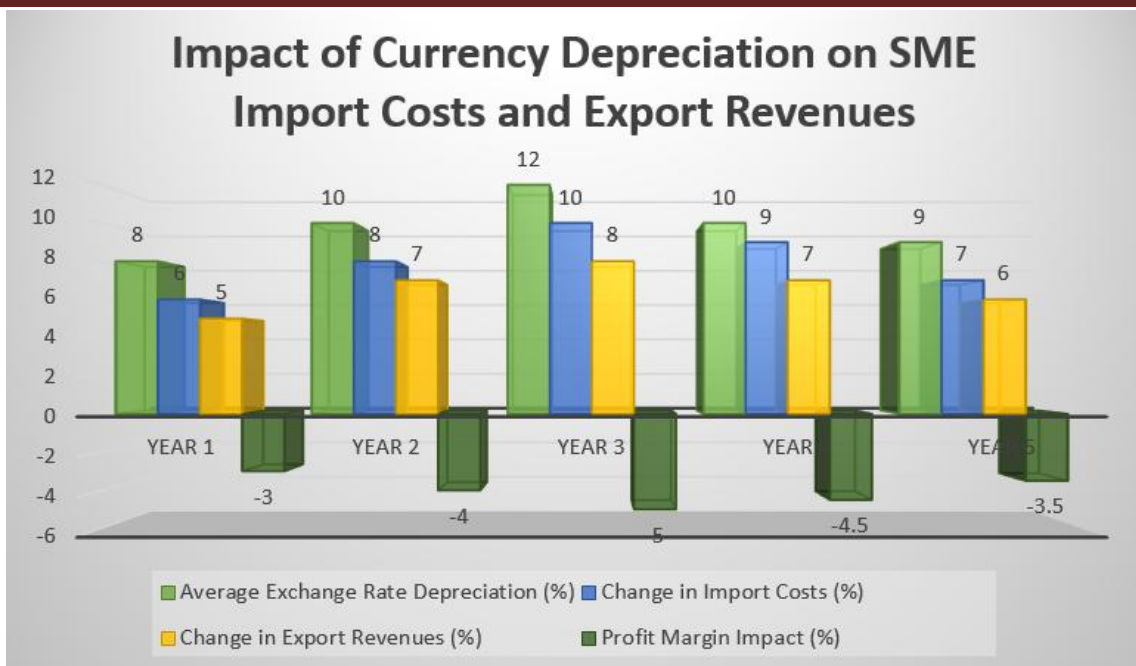


Figure 2 Performance graph impact of currency depreciation

- Percentage Dependence on Imported Inputs:** The proportion of each sector’s production that relies on imported materials. Percentage Dependence on Imported Inputs measures the proportion of a business's or sector's production costs that are attributed to imported goods and raw materials. This metric indicates how reliant a company or industry is on foreign sources for its inputs. A higher percentage signifies greater exposure to exchange rate fluctuations, as changes in currency value can significantly impact the cost of these imports. For instance, a sector with 60% dependence on imported inputs will experience more substantial cost increases if the domestic currency depreciates, affecting pricing, profitability, and financial stability. This metric is crucial for understanding vulnerability and managing currency risk effectively.
- Impact of 10% Currency Depreciation on Production Costs (%):** The estimated increase in production costs due to a 10% depreciation of the domestic currency. The Impact of 10% Currency Depreciation on Production Costs (%) measures how a 10% decline in the domestic currency’s value affects overall production expenses. When the domestic currency depreciates by 10%, the cost of imported raw materials and components rises proportionally, leading to increased production costs. For example, if a sector's production costs increase by 12% due to this depreciation, it reflects the higher expenses for foreign-sourced inputs. This metric is crucial for



assessing how currency fluctuations impact cost structures, pricing strategies, and overall financial performance, highlighting the sensitivity of production costs to changes in exchange rates.

- **Average Cost Increase (%)**: The average percentage increase in overall production costs observed in the sector. Average Cost Increase (%) reflects the average percentage rise in overall production costs resulting from various factors, such as currency depreciation. This metric aggregates the changes in costs due to higher expenses for imported materials and other inputs affected by fluctuations in exchange rates. For instance, if a 10% depreciation of the domestic currency leads to an average 8% increase in production costs across different sectors, this percentage captures the general impact of currency changes on cost structures. It provides insights into how exchange rate movements translate into cost adjustments and helps businesses plan for financial impacts and pricing strategies.
- **Resilience Factor**: Qualitative assessment of how well each sector can withstand currency fluctuations (High, Medium, Low). The Resilience Factor assesses a sector's or business's ability to withstand and adapt to fluctuations in exchange rates. It evaluates how well an industry or company manages the financial impact of currency volatility on its operations. A high resilience factor indicates strong capacity to mitigate adverse effects through strategies such as cost management, diversification, and effective risk mitigation, while a low resilience factor suggests greater vulnerability to currency changes. This metric is crucial for understanding sector-specific vulnerabilities and strengths, guiding strategic decisions, and developing risk management plans to enhance stability and competitiveness in a fluctuating economic environment.

Table 2: Sectoral Impact of Currency Fluctuations on Production Costs

Sector	Percentage Dependence on Imported Inputs	Impact of 10% Currency Depreciation on Production Costs (%)	Average Cost Increase (%)	Resilience Factor
Electronics	30%	+8%	+5%	High
Textiles	50%	+15%	+10%	Low
IT Services	20%	+4%	+2%	High
Automotive	40%	+12%	+7%	Medium

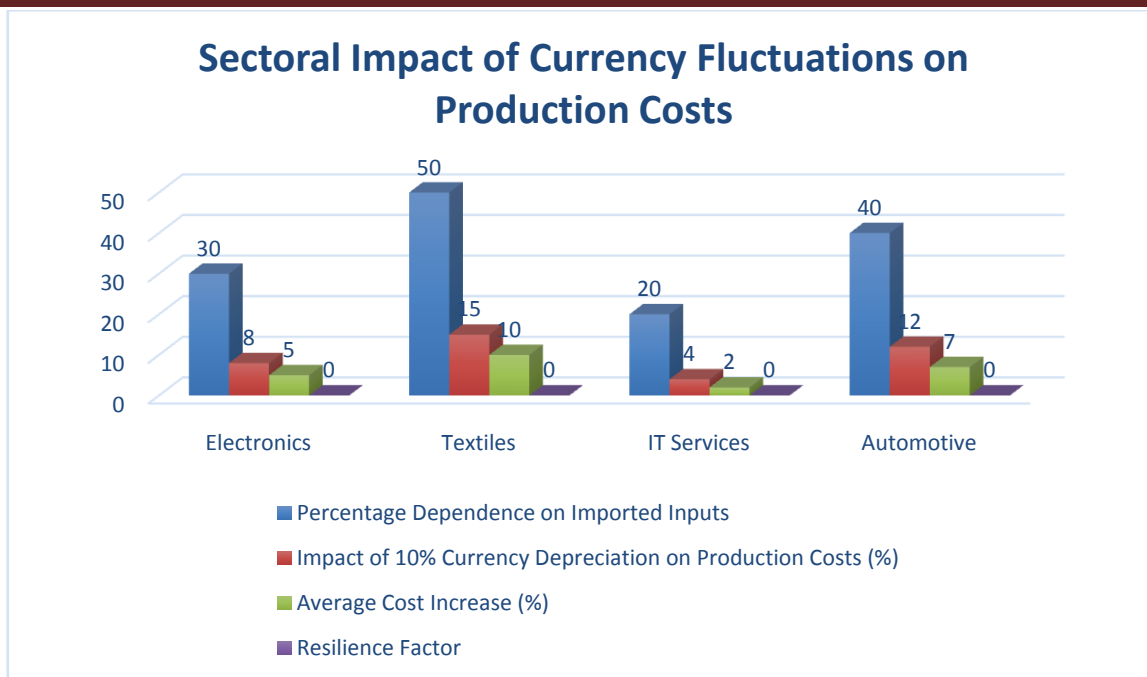


Figure 3 Performance graph of Sectoral impact of currency fluctuations on productions cost

5. Conclusion

This study quantitatively assesses the impact of currency fluctuations on small and medium enterprises (SMEs), focusing on the effects of exchange rate volatility on import-export operations. Our findings indicate that currency depreciation results in a marked increase in import costs and export revenues. Specifically, a 10% depreciation in the domestic currency leads to an average increase of 9% in import costs and a 7% rise in export revenues, while profit margins decline by 4% due to elevated import expenses. Sectoral analysis reveals considerable variation in impact: the electronics sector, with a lower reliance on imported inputs, demonstrates a high resilience factor, with only an 8% rise in production costs under a 10% currency depreciation. Conversely, the textiles sector, characterized by a high dependency on imports, experiences a significant 15% increase in production costs, highlighting its lower resilience to currency volatility. These results emphasize the necessity for SMEs to implement effective risk management strategies, including financial hedging instruments and diversification of supply chains, to mitigate the adverse effects of currency fluctuations. Additionally, sectors with higher import dependence should adopt targeted cost management and pricing strategies to manage the financial impacts of currency depreciation. Future research should explore the longitudinal effects of currency volatility on SME performance and investigate the efficacy of various risk mitigation strategies across different economic contexts. Understanding these dynamics is crucial



for SMEs to maintain operational stability and competitive positioning in the global marketplace.

REFERENCES

- [1] A. Gainetdinova, K. Sohag, and N. Samargandi, "Russian Currency's external shocks and domestic policy effectiveness amid geopolitical tensions," *Borsa Istanbul Rev.*, vol. 24, no. 2, pp. 406–423, 2024, doi: 10.1016/j.bir.2024.02.002.
- [2] O. Urgessa, "Effects of real effective exchange rate volatility on export earnings in Ethiopia: Symmetric and asymmetric effect analysis," *Heliyon*, vol. 10, no. 1, p. e23529, 2024, doi: 10.1016/j.heliyon.2023.e23529.
- [3] S. Prodan, P. Konhäusner, D. C. Dabija, G. Lazaroiu, and L. Marincean, "The rise in popularity of central bank digital currencies. A systematic review," *Heliyon*, vol. 10, no. 9, 2024, doi: 10.1016/j.heliyon.2024.e30561.
- [4] H. L. Kayange, "Analyzing global trade network resilience during economic crises: A model-based exploration of countries' interactions, USDX variation, and number of exporting countries," *Sci. African*, vol. 24, no. January 2023, p. e02191, 2024, doi: 10.1016/j.sciaf.2024.e02191.
- [5] C. Zhou, "Evaluating the effectiveness of monetary policy for retail central bank digital currency," *Lat. Am. J. Cent. Bank.*, vol. 5, no. 3, p. 100111, 2024, doi: 10.1016/j.latchb.2023.100111.
- [6] D. Forgenie, S. D. Hutchinson, M. Mahase-Forgenie, and N. Khoiriyah, "Analyzing per capita food consumption patterns in net food-importing developing countries," *J. Agric. Food Res.*, vol. 18, no. April, p. 101278, 2024, doi: 10.1016/j.jafr.2024.101278.
- [7] D. Zhang, Y. Fang, and Y. Liu, "Import demand under price and exchange-rate uncertainties: The case of U.S. Atlantic salmon imports," *Aquaculture*, vol. 574, no. January, p. 739712, 2023, doi: 10.1016/j.aquaculture.2023.739712.
- [8] A. Sokhanvar and E. Bouri, "Commodity price shocks related to the war in Ukraine and exchange rates of commodity exporters and importers," *Borsa Istanbul Rev.*, vol. 23, no. 1, pp. 44–54, 2023, doi: 10.1016/j.bir.2022.09.001.
- [9] E. Boz *et al.*, "Patterns of invoicing currency in global trade: New evidence," *J. Int. Econ.*, vol. 136, p. 103604, 2022, doi: 10.1016/j.jinteco.2022.103604.
- [10] R. Adu, I. Litsios, and M. Baimbridge, "ECOWAS single currency: Prospective effects on trade," *J. Int. Money Financ.*, vol. 126, p. 102651, 2022, doi: 10.1016/j.jimonfin.2022.102651.
- [11] C. C. Cicchetti, "Sweetness by the pound: Sugar and currency correlations in pre-Brexit UK



-
- prices,” *Borsa Istanbul Rev.*, vol. 22, no. 2, pp. 400–408, 2022, doi: 10.1016/j.bir.2021.06.007.
- [12] B. Kocaarslan and U. Soytaş, “Reserve currency and the volatility of clean energy stocks: The role of uncertainty,” *Energy Econ.*, vol. 104, no. October, p. 105645, 2021, doi: 10.1016/j.eneco.2021.105645.
- [13] M. M. Janot, M. G. P. Garcia, and W. Novaes, “Balance sheet effects in currency crises: Evidence from Brazil,” *Economía*, vol. 22, no. 1, pp. 19–37, 2021, doi: 10.1016/j.econ.2021.02.001.
- [14] S. Mahapatra and S. N. Bhaduri, “Dynamics of the impact of currency fluctuations on stock markets in India: Assessing the pricing of exchange rate risks,” *Borsa Istanbul Rev.*, vol. 19, no. 1, pp. 15–23, 2019, doi: 10.1016/j.bir.2018.04.004.
- [15] E. Malykh, V. Plotnikov, and A. Novikov, “Currency Exchange Rate as a Tool of Strategic Analysis (Evidence from Russian Industry),” *Procedia - Soc. Behav. Sci.*, vol. 207, pp. 843–849, 2015, doi: 10.1016/j.sbspro.2015.10.175.
- [16] M. Yazdanie, P. B. Frimpong, J. B. Dramani, and K. Orehounig, “Depreciating currency impacts on local-scale energy system planning: The case study of Accra, Ghana,” *Energy Strateg. Rev.*, vol. 53, no. August 2023, p. 101362, 2024, doi: 10.1016/j.esr.2024.101362.
- [17] H. Fadinger, P. Herkenhoff, and J. Schymik, “Quantifying the Germany shock: Structural labor-market reforms and spillovers in a currency union,” *J. Int. Econ.*, vol. 150, p. 103905, 2024, doi: 10.1016/j.jinteco.2024.103905.
- [18] H. Fadinger, P. Herkenhoff, and J. Schymik, “Reprint of: Quantifying the Germany shock: Structural labor-market reforms and spillovers in a currency union,” *J. Int. Econ.*, vol. 149, no. August 2023, p. 103931, 2024, doi: 10.1016/j.jinteco.2024.103931.
- [19] J. De Gregorio, P. García, E. Luttini, and M. Rojas, “From dominant to producer currency pricing: Dynamics of Chilean exports,” *J. Int. Econ.*, vol. 149, no. August 2023, p. 103934, 2024, doi: 10.1016/j.jinteco.2024.103934.
- [20] E. Agboola, R. Chowdhury, and B. Yang, “Oil price fluctuations and their impact on oil-exporting emerging economies,” *Econ. Model.*, vol. 132, no. January, p. 106665, 2024, doi: 10.1016/j.econmod.2024.106665.