

## WHEN THE WATERS RISE: THE FINANCIAL IMPACTS OF FLOODING ON SMALL BUSINESS IN THE SÃO PAULO METROPOLITAN REGION (RMSP)

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### **Introdução**

Micro, small, and medium-sized enterprises (MSMEs) are key drivers of Brazil's economy, yet remain highly vulnerable to climate-related risks. This study examines the financial impacts of flooding on small businesses in the São Paulo Metropolitan Region (RMSP), where storms and flash floods cause material losses, business interruptions, and recovery difficulties. The research highlights the role of organizational capabilities, parametric insurance and public policies in strengthening resilience and supporting adaptation.

### **Problema de Pesquisa e Objetivo**

This study addresses the disproportionate vulnerability of small businesses to floods in the São Paulo Metropolitan Region (RMSP), where informality, limited credit, and lack of insurance amplify impacts. Through a preliminary mapping of financial losses, business interruptions, and recovery barriers, the research highlights that limited reserves and traditional insurance heighten fragility. Parametric insurance emerges as a promising adaptation tool, offering rapid, objective compensation and aligning with public policies to strengthen resilience.

### **Fundamentação Teórica**

Literature demonstrates that MSMEs, representing 99% of Brazilian businesses, are especially exposed to floods due to structural constraints and scarce adaptation measures (Santos, 2013; Hankinson, 2018). Insurance penetration remains low, while parametric products offer liquidity and rapid recovery (Vieira, 2025; Maynard, 2008). Studies highlight compounded impacts when floods coincide with crises (Cann et al., 2025), while informality and gender gaps aggravate inequalities (Wagner, 2025; Santos da Silva & Mainardes, 2016).

### **Metodologia**

The study is descriptive and exploratory, based on action research. Undergraduate students conducted interviews between May and June 2025 with MSME owners in flood-prone areas of the RMSP, mainly near UNIFESP campuses. A structured questionnaire collected data on business type, flood frequency, financial losses, insurance coverage, and resilience perceptions. Responses were grouped into clusters: with insurance, without insurance, and own adaptations.

### **Análise e Discussão dos Resultados**

Interviews confirmed a recurring pattern of vulnerability. Businesses without insurance suffered the most severe losses, sometimes leading to closure. Insured firms, such as shopping malls and markets, displayed shorter downtimes and faster recovery. Own adaptations, like barriers, offered partial but insufficient mitigation. The cluster analysis validates literature that insurance enhances resilience, while structural constraints—informality and limited liquidity—amplify fragility among MSMEs.

### **Considerações Finais**

The study reinforces the need for standardized indicators to measure financial impacts, especially lost profits. Parametric insurance is identified as a strategic instrument, alongside government investment in resilient infrastructure and expanded access to affordable coverage. Coordinated action between public institutions, insurers, and civil society is crucial. Future research should test insurance pilots, incorporate ESG practices, and address gender and informality to enhance MSME resilience.

### **Referências**

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### **Palavras Chave**

Climate Change adaptations , Flood risk, Small businesses (MSMEs)