

Title: Linking green supply chain management practices and environmental performance in the manufacturing industry: a hybrid SEM-ANN approach

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Abstract: This research determines the influence of green supply chain management practices (GSCM) on environmental performance. It also investigates the moderating role of supply chain environmental cooperation on GSCM practices and environmental performance relationships. A total of 370 employees of several Bangladeshi manufacturing companies were conveniently chosen as respondents. To verify the data validity and reliability and to test the hypotheses, we used SmartPLS. Finally, we employed an artificial neural network (ANN) to examine the relationship. Green design and green manufacturing have significant positive impacts on environmental performance, while green procurement and green distribution do not. Moreover, environmental cooperation moderates the relationships of green design and green distribution with environmental performance. The moderating effect of supply chain environmental cooperation in the relationship between GSCM practices and environmental performance in the manufacturing industry adds knowledge to the existing literature by incorporating a hybrid model combining PLS-SEM and ANN. Our study adds to the current body of knowledge by delving into the literature on GSCM from the perspective of Bangladesh's industrial sector. This study fills a knowledge gap by shedding light on the interactions of GSCM and environmental performance. Indeed, this study represents a step forward from classic linear regression-based models to an ANN-based nonlinear model. It also demonstrates new contributions to the literature on green supply chain management and environmental performance.

Keywords: ANN, Green procurement, Green design, Green manufacturing, Green distribution Supply chain environmental cooperation, Environmental performance

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