

ABSTRACT

The agroindustry in Indonesia plays a pivotal role in driving economic development, with significant contributions coming from export commodities such as the Gambier industry in West Sumatra. However, the productivity of Gambier in West Sumatra remains below expectations. From a market perspective, there is a substantial opportunity for monopolization, as export destinations hold significant power in controlling market dynamics, including prices, product offerings, and industry development. In this context, Gambier farmers are particularly disadvantaged due to their lack of bargaining power within the market system. This disparity leads to an unfair distribution of profits among the various actors in the Gambier industry, necessitating market intervention.

This research aims to formulate a pricing policy that balances value-added contributions and risk levels within the supply chain. The research process includes an analysis of the current conditions in the Gambier industry, an examination of supply chain configurations and mechanisms, and the identification of value-added components using the Hayami method. Additionally, supply chain risks are identified and weighted using the Fuzzy Analytic Hierarchy Process (FAHP). A balancing model is then developed to align value-added contributions with corresponding risk levels. The supply chain is simulated using an Agent-Based Model (ABM) in NetLogo software, allowing for the formulation of policy recommendations based on data, empirical evidence, and insights gained from the simulation.

The study reveals significant gaps in value-added distribution among actors, with farmers receiving the lowest value-added despite bearing the highest risk. The balancing model successfully determines the appropriate value-added distribution based on risk levels. The agent-based simulation optimizes the supply chain model by representing individual actors such as farmers, home industries, traders, and exporters, ultimately identifying the most equitable value-added distribution across different scenarios. The preferred scenario incorporates a price stabilization and value-added improvement strategy. Based on the simulation results, eight key pricing policy recommendations are designed to align with the industry's objectives.

Keywords: Gambier Supply Chain, Pricing Policy, Agent-Based Model, Value Added, Risk