

Adoption of Technology-Based Production Methods for Palmyrah Products by Small-Scale Manufacturers in Jaffna District

S. Dilogini^{1*}, C. Sudugaran¹

*¹Department of Marketing, Faculty of Management Studies and Commerce,
University of Jaffna.*

The production of palmyrah products involves several stages such as tapping, processing, preservation and packaging, where advanced technologies can significantly improve quality and shelf life. The resistance to adopting technology by small-scale palmyrah manufacturers has made the transition to sustainable businesses impossible, and stratification and nonacceptance of technology by the community have hindered adoption. However, the specific psychological, sociological and economic problems small-scale manufacturers face have not been enough studied in relation to adoption of technology-based production methods for palmyrah products in *Jaffna* district. This study investigates the reasons for this resistance from the perspective of market innovation among manufacturers. The exploratory qualitative research adopted purposive sampling of 10 small-scale manufacturers of palmyrah products in *Jaffna* district, ensuring a generation mix of 4 older manufacturers (age above 50, working experience 21-40 years) and 6 younger manufacturers (age 25-50,

working experience 10-20 years). Semi-structured in-depth interviews lasting 20-35 minutes, based on the Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory (DOI), elicited information on current production methods, awareness of innovations, benefits and costs of adopting technology, access to technical know-how, marketing approaches, and perceptions on effects of mechanization on quality. Interviews were conducted in *Tamil* and analyzed using Braun and Clarke's six-phase thematic analysis. QDA Miner Lite served only as a tool for qualitative data organization and coding. Seven main themes emerged as determinants of barriers to technology adoption from the perspective of market innovation. 'Capital constraints and financial barriers' showed prohibitively high costs associated with adopting technology with few sources of financing available, making it impossible to invest in mechanical tapping devices, freeze-drying machines and packaging machinery. 'Skill loss and craft identity fear' captured producers' fears of losing their skills and craftsmanship due to machine adoption, developing a new psychological concept of "artisanal identity threat". 'Maintenance and technical support gaps' indicated a lack of local mechanics capable of fixing complex machinery. 'Market perception and consumer preference mismatch' captured producers' perception of

consumers’ preference for “handmade” products although mechanized products are safer and more consistent in quality. ‘Generational differences in technology adoption’ indicated that older manufacturers showed more resistance, perceiving machines as degrading product quality and authenticity, while younger manufacturers held a positive attitude, believing technology enhances quality, quantity and consistency. ‘Family influence and traditional business norms’ proved to be important determinants, with family members often pushing for the maintenance of tradition. ‘Cultural context of technology adoption’ lies in its expansion of knowledge on technology adoption beyond the economic sphere into cultural context. Adoption of technology-based production methods is predicated on overcoming “artisanal identity threat”, a proposed and emerging psychological and cultural construct explaining adoption decisions. Development agencies should make available lease-to-buy opportunities, deploy technology set-up facilities and arrange joint workshops.

Keywords: Artisanal identity, Palmyrah processing, Small-scale manufacturers, Sri Lanka, Technology adoption barriers

Corresponding Author:* dilo.kuru@univ.jfn.ac.lk