

Investigating the Consumers' Willingness-to-Pay for a Deposit Refund System for Tetra Pak Recycling in the Western Province of Sri Lanka

Premarathne, A.P.S.S.^{1*}, Jayasekara, K.D.De S.², Gunawardene, U.A.D.P.^{1,2}

¹*Department of Forestry and Environmental Science, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka*

²*Resource Economics unit, Department of Forestry and Environmental Science, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka*

**sheshanisandunika9929@gmail.com*

Abstract

Tetra Pak cartons are emerging as a significant part of packaging waste due to their widespread use in food and beverage packaging. Despite being fully recyclable, the lack of dedicated local recycling facilities has resulted in most post-consumer Tetra Pak cartons ending up in landfills or open dumps, exacerbating environmental and public health risks, particularly during the monsoon season. This study focused on estimating consumer Willingness-to-Pay (WTP) for implementing a Deposit Refund System (DRS) for Tetra Pak recycling in the Western Province, using the Contingent Valuation Method (CVM). The influence of socio-demographic variables on WTP was also investigated. Data were gathered from a sample of 275 individuals in Colombo, Gampaha, and Kalutara districts, and the double-bounded dichotomous choice approach was used to obtain the WTP. Data were analyzed using STATA. Results revealed a strong public preference for a volume-based DRS, with most respondents expressing willingness to participate and pay towards a refundable deposit to enable recycling. Having an education level up to Advanced Level ($\beta=63.81, p<0.001$), diploma ($\beta=69.12, p<0.001$), and a degree or a postgraduate qualification ($\beta=70.17, p<0.001$), compared to people who have an education level less than O/L positively influences the WTP. Living in an area under the Municipal Council ($\beta=13.69, p<0.05$) and an Urban Council ($\beta=16.78, p<0.05$) compared to the Pradeshiya Saba also positively influences WTP. The impact of income ($\beta=0.0000102, p<0.01$) and household size ($\beta=6.06, p<0.05$) on WTP is positive. The respondents are willing to pay a considerable amount for a DRS for Tetra Pak packaging for a 1 L family-size product, and the estimate is statistically significant ($p<0.001$). The estimated aggregate WTP suggests that a well-designed DRS could be economically viable and socially acceptable, offering a practical solution to enhance Tetra Pak recycling rates, reduce environmental harm, and support sustainable community livelihoods. This research provides critical insights for policymakers, waste management authorities, and industry stakeholders seeking to develop effective recycling strategies based on extended producer responsibility, tailored to Sri Lanka's urban context.

Keywords: *Tetrapak recycling, Deposit refund system, Willingness to pay, Contingent valuation method*